

Office of the Mayor

BERNARD K. AKANA
Mayor

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December 13, 1988

OFFICE OF THE
MAYOR

DR MARVIN MIURA DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
465 SOUTH KING STREET ROOM 104
HONOLULU HI 96813

SUBJECT: FINAL ENVIRONMENTAL IMPACT STATEMENT
Alii Drive Realignment, P-2093
Federal Aid Project No. RS-0187(04)
North Kona, Hawaii

Copies of the subject document were recently sent to you from our consultant, Belt, Collins and Associates.

I am pleased to accept the subject document as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes.

Aloha,

BERNARD K. AKANA
MAYOR

cc: State DOT
Belt, Collins & Assoc.
FHWA

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FHWA-HI-EIS-84-01-F

**ALII HIGHWAY PROJECT, KAILUA-KEAUHOU,
COUNTY OF HAWAII, STATE OF HAWAII**

Final

ENVIRONMENTAL IMPACT STATEMENT

and

SECTION 4(f) STATEMENT

Project Number: RS-0187(04)

Submitted Pursuant to 42 U.S.C. 4332 (2) (C),
23 U.S.C. 128 (a),
49 U.S.C. 1653 (f) and
16 U.S.C. 470 (f) by the
U.S. Department of Transportation
Federal Highway Administration
and

State of Hawaii Department of Transportation, Highways Division
and

County of Hawaii Department of Public Works

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**Environmental Impact Statement and
Section 4(f) Statement**

**Submitted Pursuant to 42 U.S.C. 4332(2)(c), 23 U.S.C. 128(a),
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U.S. Department of Transportation
Federal Highway Administration**

and

**State of Hawaii Department of Transportation, Highways Division
and**

County of Hawaii Department of Public Works

Date

Regional Administrator
Federal Highways Administration

The following persons may be contacted for additional information concerning this document:

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The proposed action is to construct approximately four miles of new highway between Kailua-Kona and Keauhou on the Island of Hawaii. Alternatives discussed in this environmental impact statement include: "no-action", widening the existing Alii Drive, and four possible alignments for a new highway. Construction of the project would reduce existing congestion and provide adequate roadway capacity in the Kailua-to-Keauhou corridor through the year 2000. The route followed by the new alignments is consistent with existing County plans and other land use controls. Alternatives utilizing a new alignment would also improve air quality and reduce noise levels along Alii Drive. Adverse impacts associated with the project include slight increases in noise levels and air pollutant concentrations in the vicinity of the new roadway. In addition, the project would involve minor changes in drainage patterns and affect sites eligible for the National Register of Historic Places.

SUMMARY

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Introduction

The proposed Federal action is to construct approximately four miles of new highway between Kailua-Kona and Keauhou on the Island of Hawaii. This document has been prepared pursuant to the National Environmental Policy Act (NEPA) and Section 4(f) of the Department of Transportation Act relating to the preservation of public park and recreation areas, wildlife and waterfowl refuges, and historic sites. A separate Preliminary Case Report for the proposed highway project provides information stipulated in 36 CFR 800.13(b). The Preliminary Case Report and this document, the Final Environmental Impact Statement and Section 4(f) Statement, have been transmitted to the National Advisory Council on Historic Preservation and to the State Historic Preservation Officer.

Background

Alii Drive is an existing two-lane, County-owned roadway on the western coast of the island of Hawaii. It links the town of Kailua with Keauhou five miles to the south. Most of the visitor facilities along the North Kona coast are served by it, making the road a key element in the local economy. Three other highways, Mamalahoa (FAS 180), Kuakini (FAP 11), Queen Kaahumanu (FAP 19), and numerous connector roads (e.g., Palani, Hualalai, Kamehameha III) complete the region's highway network (refer to Figure I-1).

Prior to 1970, the resident population of the entire North Kona District remained below 5,000. The average daily visitor census was about 1,000, and the vast majority of them stayed in the town of Kailua-Kona. Since 1970, visitor industry activity has expanded rapidly along the coastline, and Kailua has emerged as the commercial and industrial support center for the entire district. By the time the 1980 Census was conducted, the population of North Kona had mushroomed to nearly 14,000, an increase of 185 percent in ten years.

Existing Alii Drive is a winding, two-lane roadway; the pavement width ranges from 22 to 24 feet, and the right-of-way is only 50 feet. By the late 1960s, it was evident to County planners and highway engineers that the roadway would be inadequate if the resort and residential development expected by the end of the century were to occur. In 1968 the Hawaii County Planning Commission published a working document entitled Feasibility Study -- Kailua-Kona suggesting that Alii Drive be relocated mauka of its current location. In 1971, the Hawaii County General Plan and the State Department of Transportation's Highway Functional Classifications and Needs Study identified a corridor for "Alii Highway" that extended from Kamehameha III Road to a proposed realignment of Kuakini Highway near Kailua.

Acting on these recommendations, in 1973 the County of Hawaii prepared the Alignment Report for New Alii Highway: Kailua Village to Keauhou. An Environmental Impact Statement for the proposed project was also prepared in conformance with the requirements of the Chapter 343, Hawaii Revised Statutes (the State's EIS law) and accepted by the Governor on August 7, 1973. Because the County planned to undertake the project using only local funds, procedures stipulated in the National Environmental Policy Act (NEPA) for preparation of a Federal EIS were not followed.

Funds for construction of the proposed Alii Highway were not immediately available, but the project was given semi-official status on County planning maps. As a result, no development which would interfere with its construction has been allowed to occur. In 1981, a decision was made to seek Federal assistance through the Federal Highway Aid Program, and work began on the necessary studies and environmental documents in 1982.

Purpose and Need

Existing average daily traffic on Alii Drive ranges from nearly 12,000 vehicles per day (vpd) near Kailua to more than 6,000 vpd near Keauhou (refer to Figure I-2). Current peak-hour volumes over those two segments are approximately 1,000 vehicles per hour (vph) and 600 vph, respectively. This is expected to rise dramatically in the years ahead; by the year 2005, the design year for the highway, peak-hour volumes will be over 2,400 vph near Lunapule Road and over 1,500 vph near Kamehameha III Road (refer to Figure I-4). The capacity of the roadway would be exceeded on all segments.

When judged over its entire length, the available traffic accident data does not suggest that Alii Drive has particularly high accident rates. However, a disproportionately high percentage of the accidents appear to occur in and around Kailua Village (refer to Figure I-5). This is believed to be due to the high concentration of intersecting roads and driveways. As development continues to spread outward from Kailua and the amount of congestion on Alii Drive increases, it is to be expected that the incidence of accidents on segments which now have relatively low accident rates will also rise. However, it is worth noting that the relatively low speeds possible on the existing roadway means that most accidents result only in damage to vehicles and roadside property rather than serious injury.

In addition to the traffic engineering considerations which indicate the desirability of roadway improvements, construction of a new highway is also believed to be justified by the lowered noise levels, improved air quality, and enhanced aesthetic quality that it would bring. These environmental benefits would accrue to existing development along Alii Drive. Moreover, buffer zones sufficient to provide adequate protection to properties adjacent to the proposed new Alii Highway have been included in its design.

Alternatives Considered

Three fundamentally different responses to Alii Drive's deficiencies were considered. The last of these involves new construction along one of a number of different alignments. The alternatives are as follows:

- o No Action;
- o Improved Transportation System Management;
- o Construction:
 - Widening Alii Drive
 - Construction of a new highway along one of four different alignments as shown in Figure II-5.

The "no-action" alternative involves leaving the roadway in its current condition. This alternative would not meet the transportation needs of the area. It was used as a baseline against which to compare the effects of the proposed project.

Improved management of the existing transportation facilities was considered during the early stages of project planning. However, it quickly became evident that the increase in capacity and/or higher average vehicle occupancy factors that this would produce are not sufficient to meet projected transportation demand.

Widening existing Alii Drive would involve increasing the right-of-way width from 50 to at least 80 feet, reconstruction of the roadbed, and the provision of two additional lanes for through traffic. Where necessary, turning lanes would also be provided. To meet County standards for a secondary urban arterial, curbs and gutters would need to be provided (refer to Figure II-1 for a typical cross-section). Land taking from approximately 70 different parcels will be required, and preliminary estimates are that 45 structures would need to be destroyed or moved. Because of this, right-of-way acquisition costs for a widening project would make the project infeasible for the County.

The proposed Alii Highway would be built to current highway standards. It would consist of four 12-foot wide lanes, two lanes in each direction, with paved shoulders within a minimum 100-foot right-of-way (see Figure II-6). Access to adjoining properties would generally be limited to one per parcel. Where appropriate, acceleration/deceleration and turning storage lanes would be provided. The new highway would extend from the south end of Alii Drive near Kamehameha III Road at Keauhou to the Hawaii Belt Road (Queen Kaahumanu Extension) now nearing completion. Roads connecting the proposed highway with Kuakini Highway and/or Alii Drive would be constructed at several points (refer to Figure II-5).

Significant Impacts

Social and Economic Impacts. The proposed Alii Highway is consistent with County plans for the area that have been in effect since the early 1970s. It traverses land that is for the most part undeveloped. In the one location where it cuts through an existing residential area, the proposed highway follows a path that has been reserved for roadway purposes, thereby minimizing the amount of land taking that would be required and the disruption that it would bring to the existing community. By maintaining adequate highway capacity along the Kailua-Kona to Keauhou corridor, the project would enable already-planned growth to occur without significant degradation of environmental quality or travel delays. The ease of access which it would provide would allow the area to continue to function as an effective economic and social unit.

Employment. The project would have little effect on long-term employment except insofar as it makes it feasible for already-planned growth to occur. Over the short-term, however, it would provide approximately 120 to 160 person-years of employment in the construction industry, most of these on Hawaii Island. Statewide, the \$4.4 to \$6.25 million in expected construction expenditures (exclusive of right-of-way acquisition) would generate between 300 and 400 person-years of employment, about 80 percent of it on the Big Island.

Local Funding. Federal funding would pay for roughly 75 percent of the project's cost. The County's share of the funding would probably be raised through the creation of an improvement district (ID). The total amount to be funded through an ID, the geographic extent of the district, and the formula that would be used to determine contributors' share have not been determined at this time.

Relocation. Whereas widening of the existing Alii Drive would require moving or demolishing approximately 45 structures, construction of the proposed Alii Highway along any of the alignments under consideration would not involve the displacement of any existing residents. Several substandard lots would be created, however, and it would be necessary to move one house to a new location within its same parcel.

Bicycling. The proposed project would have paved shoulders suitable for use by bicyclists, joggers, and pedestrians. In addition, it would significantly reduce vehicular traffic along Alii Drive, thereby improving its suitability for walking and bicycling.

Aesthetics. Because it passes through sloping land, the proposed project would involve extensive cuts in the hillside. For the most part, these would not be visible from coastal areas, but care will have to be taken in reestablishing a vegetative cover to insure that these do not remain as permanent scars. The highway would be visible from four heiau that have been recommended for preservation. Roadside landscaping will need to be carefully designed to complement these important archaeological sites. Provisions for treatment of these features is stipulated in a Memorandum of Agreement between the National Advisory Council on Historic Preservation, the State Historic Preservation Officer, the FHWA, and the County of Hawaii.

Air Quality. The proposed project would reduce peak pollutant concentrations by improving traffic flow and dispersing the motor vehicles which constitute the emission source over a wider area. During construction of the project, particulate levels would be somewhat higher than at present. All State and Federal air quality standards would be met.

Noise Levels. Without the proposed project, noise levels on properties adjacent to Alii Drive will exceed recommended levels along much of its length. If Alii Highway is constructed, noise levels along Alii Drive would be well within the allowable range. Motor vehicle traffic on Alii Highway will increase noise levels on adjacent parcels above their current low levels, but the generous right-of-way width together with the modest traffic volumes that are projected for that roadway will allow the FHWA design noise level of 67 dBA to be met.

Energy Use. It is estimated that the improved traffic flow produced by the proposed project would lead to energy savings of approximately 75,000 gallons of gasoline per year. At this rate, the expected construction energy use would be recovered within five years of the highway beginning operation.

Floodplain Impacts. The Alii Highway corridor crosses base flood areas identified on the National Flood Insurance Program Flood Insurance Rate Maps at several points (refer to Figure IV-5). These are Waiaha Stream, Holualoa Gulch-Horseshoe Bend, an unnamed gulch just south of Holualoa Gulch, and Kaumalumu Gulch. All of these watercourses are intermittent streams which flow, at most, a few days a year at the shoreline. None have significant value as wildlife habitat.

The design of the drainage culverts beneath Alii Highway would allow sufficient capacity to accommodate the 100-year flood. In addition, a lined channel would be provided between the proposed roadway and Alii Drive for Waiaha Stream and Holualoa Gulch. Refer to Figure IV-4 for the location of proposed culverts and channels. Where necessary, the culverts beneath Alii Drive would be enlarged as well. The improvements would insure that flooding is not a problem with the new highway. Flooding of Alii Drive at Waiaha Stream and Holualoa Gulch would be reduced as well. The time of concentration for the local drainage basins would be decreased very

slightly by the channelization, but runoff volumes from the vast majority of the affected basins would remain unchanged. A U.S. Army Corps of Engineers permit is not required (refer to Appendix A, page A-18).

Threatened and Endangered Species. Staff at the U.S. Fish and Wildlife Service office was contacted in February 1983, prior to the field survey conducted for this project, concerning whether any endangered bird, mammal, or plant species were recorded or known in the area of the proposed highway. The Hawaiian bat was the only known endangered species reported in the project vicinity. No proposed, candidate, or listed endangered plant species were known for the area. No threatened or endangered animal or plant species were seen within the highway alignments under consideration during fieldwork conducted for this study, although the Hawaiian hoary bat has been reported in similar habitats in the past. The U.S. Fish and Wildlife Service has reviewed the field report prepared by the consulting biologists and has not requested additional studies.

Prime and Unique Agricultural Land. The proposed project does not cross any land designated as "Prime" or "Unique". A limited amount of acreage designated "Other Important Agricultural Lands" on the State Department of Agriculture's maps is present along the proposed highway alignment (refer to Figure IV-7). However, most of this is in the State Land Use Commission's Urban District with rezoning pending. Hence, it is extremely unlikely that it would ever actually be put to agricultural use.

Historic and Archaeological Resources. All of the Alii Highway corridor falls within the Kona Field System and/or the Kahaluu Historic District, both of which are on the National and State Registers of Historic Places. In addition, it crosses another site, the Great Wall of Kuakini, which has also been determined to be eligible for the National Register. Results of preliminary archaeological surveys within the corridor show that it contains many individual sites which meet the criteria for nomination to the register. Most of these are valuable primarily for the scientific information they contain relating to aboriginal Hawaiian use of the area. For these sites, intensive survey and salvage normally constitutes adequate mitigation of adverse impacts, and a Memorandum of Agreement (MOA) calling for such work has been negotiated between the FHWA, the State Historic Preservation Officer, and the National Advisory Council on Historic Preservation pursuant to Section 106 of the National Historic Preservation Act. This MOA is included in Appendix D.

In addition to the sites which are primarily of research value, there are also four heiau, or religious structures, which have been recommended for preservation. The highway alignments have been adjusted so that these sites would not be destroyed as a result of highway construction.

Finally, the southern end of the proposed highway crosses over the top of Ohia Cave, a large lava tube located within the Kahaluu Historic District. The portion of the lava tube beneath the highway alignment contains at least four burials. Plans call for the highway to bridge the cave so that no damage to it or its contents would occur.

Areas of Controversy

The most significant area of controversy to date has been over the adequate protection of the many archaeological resources that are present within the highway corridor. As indicated above, preservation of four heiau and intensive survey/data recovery from sites along the remainder of the selected alignment has been provided

for through a Memorandum of Agreement between the FHWA, the National Advisory Council on Historic Preservation, and the State Historic Preservation Officer. At the public meetings that have been held, a few residents have expressed concern that this will not result in adequate steps being taken to preserve the remains that are found, particularly burials.

Some residents have also expressed doubt that the highway improvements are actually needed at this time or have stated their belief that it is visitors, or at least newcomers, who stand to benefit the most from the project. It should be noted that when the last public meeting was held the County had not decided that it might seek to fund its share of the project's cost through the creation of an improvement district. Depending upon the ultimate cost of the undertaking and the formula that is used in determining the assessment of project costs against adjacent property owners for the improvements that are made, this aspect of the project could become controversial.

Insofar as possible, the concerns expressed by residents have been taken into account in the design of the proposed project. Comments received as a result of circulation of the Draft EIS have been used to refine plans for the project and to decide upon additional mitigation measures, if needed.

Unresolved Issues

At the time of this Final EIS, the total amount of the County's share to be funded through an improvement district has not been determined. The geographic extent of the improvement district, and the formula that would be used to determine contributor's share have also not been decided at this time.

Other Proposed Federal Actions in the Area

There are no known Federal actions pending in the area of the Alii Highway corridor.

Permits and Approvals Required

The following approvals and permits are required prior to construction of the proposed Alii Highway.

(1) County of Hawaii, Special Management Area (SMA) Permit

Between Kailua Bay and Keauhou Bay, the SMA boundary delineated by the County of Hawaii follows Kuakini Highway. All land makai of Kuakini Highway is within the SMA. The segments of Alii Highway Alignments A-1 and A-2 makai of Kuakini Highway and Segments B, C-1, C-2 and C are within the Hawaii County SMA. An assessment application will be filed after the Final EIS is accepted. An SMA permit is required prior to CZM certification.

(2) Coastal Zone Management, Federal Consistency

The consistency certification is required when a Federal action takes place in Hawaii's Coastal Zone. Staff at the Office of State Planning (OSP) reviews the proposed action to determine the project's consistency with the objectives of the Hawaii Coastal Zone Management (CZM) program. A CZM consistency certificate will be submitted prior to construction.

(3) Grubbing and Grading Permit

A grading permit will be obtained from the County Department of Public Works.

(4) Memorandum of Agreement

A Memorandum of Agreement between the FHWA, the National Advisory Council on Historic Preservation, and the State Historic Preservation Officer has been negotiated (see Appendix D).

Preferred Alignment of Proposed Highway

Of the four alternate alignments considered for the proposed project, Alternative IV (segment A-2, B, C-2, D) has been selected as the preferred alignment for the following reasons:

- (1) the slope of this alignment is less than Alternatives I, II, & III, and
- (2) Alternative IV avoids the Ohia Cave and the heiau. The specific alignment within the 300-foot right-of-way can be shifted to further minimize impacts on the heiau and cave.
- (3) The cost/benefit ratio of this alternative is 1.0 with a project cost of \$9.3 million, making Alternative IV the most feasible alignment.

Section 4(f) Impacts

Section 4(f) of the Department of Transportation Act states that it is a national policy to preserve historic sites and other significant resources. Federal Highway funds are prohibited for projects that have a significant adverse impact on these resources unless it can be demonstrated that:

- (1) there is no feasible and prudent alternative to the use of such land, and
- (2) the proposed project includes measures to minimize these impacts.

Various transportation management system alternatives, as well as alternate alignments of the proposed project have been carefully analyzed to determine the appropriateness of the proposed project. Because of continuing population growth in the area, it has been determined that there is no prudent and feasible alternative to the Alii Highway.

Extensive coordination with the State Historic Preservation Office, the Advisory Council on Historic Preservation, the Office of Hawaiian Affairs, the Federal Highways Administration, and the County of Hawaii has resulted in the signing of a Memorandum of Agreement to facilitate the mitigation of impacts upon historic sites in the area. Based upon the above considerations, there is no feasible and prudent alternative to the use of land from the Kona Field System and the proposed action includes all possible planning to minimize harm to the Kona Field System resulting from such use.

Re-evaluation of Proposed Project

Over four years have elapsed since a Draft Environmental Impact Statement for the Alii Drive Realignment project was prepared. On June 3, 1988, the Federal Highway Administration conducted a re-evaluation of the proposed project and concluded that since 1984 there have been no significant changes in the project and the environment, nor on its impacts which would warrant the preparation of a new Draft EIS or a Supplement EIS. Following are the FHWA's findings:

- (1) The project is urgently needed.
- (2) The alternative of widening the existing Alii Drive is more unfeasible now than previous.
- (3) The land that the proposed Alii Drive traverses has for the most part remained undeveloped.
- (4) Air quality and noise levels anticipated from the proposed project has not changed.
- (5) Floodplain impacts have not changed.
- (6) No threatened or endangered animal or plant species were seen to exist within the highway during field work conducted for the Draft EIS, and it is assumed that this has not changed.
- (7) The project does not have any land designated as "Prime" and "unique" agricultural land.
- (8) The mitigating measures planned for the archaeological sites is included in the Memorandum of Agreement negotiated between the FHWA, OHA, SHPO and the National Advisory Council on Historic Preservation. This is a recently completed document and is therefore current.

An accepted EIS document is a prerequisite for several of these permits and approvals. This EIS has been prepared to meet both Federal and State EIS requirements.

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CHAPTER I

PURPOSE AND NEED FOR ACTION

CHAPTER I

PURPOSE AND NEED FOR ACTION

1.1 EXISTING HIGHWAY NETWORK

Alii Drive is a two-lane, County roadway which links Kailua-Kona with shoreline residential and resort developments, the Keauhou boat harbor, and the resort destination area being developed by the Kamehameha Development Corporation at Keauhou, five miles to the south. Most of the visitor facilities along the North Kona coast are served by it.

As shown by Figure I-1, Alii Drive is one of five major highways in the region. The others are Mamalahoa Highway, Kuakini Highway, Queen Kaahumanu Highway and Kamehameha III Road. Numerous other roadways lace the area and provide local service; because of their location within Kailua, Palani Road and Hualalai Road are two of the most important.

Mamalahoa Highway (FAS 180) is the oldest of the roads. It provides access to the many upland communities located in North and South Kona.

Kuakini Highway (FAP 11) was constructed in the late 1940's as a replacement for earlier roads which connected Mamalahoa Highway with Kailua.

Queen Kaahumanu Highway (FAP 19) was opened in 1970 as far as the airport at Keahole Point and extended to Kawaihae Harbor a few years later. In addition to providing access to the airport, it carries motorists to the major resorts along the South Kohala coastline.

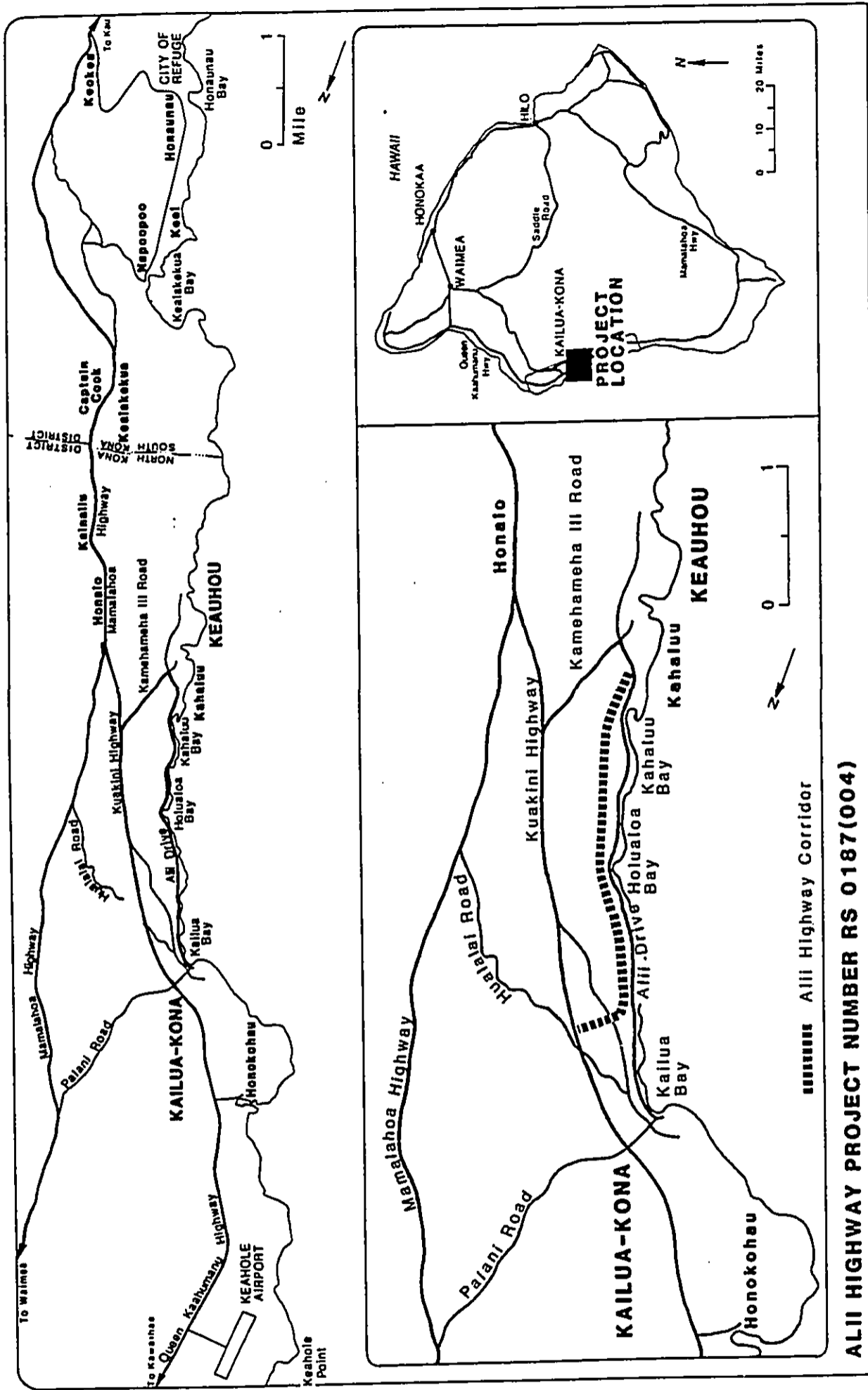
Kamehameha III Road (FASC 185) runs between Kuakini Highway and Alii Drive in Keauhou. It allows traffic to and from Keauhou and the southern end of Alii Drive to bypass Kailua if desired.

Palani Road runs between Mamalahoa Highway and Alii Drive. Between Queen Kaahumanu Highway and Alii Drive it was recently reconstructed, and is a divided, four-lane roadway from Kuakini Highway to Queen Kaahumanu Highway; beyond that it narrows to two lanes.

Hualalai Road is a two-lane roadway at the southern end of Kailua which connects Alii Drive with Kuakini Highway and the older residential areas above.

Kailua at the northern end of Alii Drive and the Keauhou Resort at its southern terminus are the two anchor points of the Kailua-Keauhou resort area. The Kona Inn in Kailua was the first substantial visitor facility to develop in West Hawaii, and its success paved the way for the gradual development of other hotels and visitor-oriented commercial facilities there. At first these were confined to Kailua proper, but as the visitor traffic increased, developments began spreading south along the shoreline.

Development at the Keauhou end of Alii Drive was limited at first to single-family residences. But, in 1967, the Kamehameha Development Corporation began construction of a major destination resort project on over 2,200 acres of land extending from the Kona coastline around Keauhou Bay to Kuakini Highway.



ALII HIGHWAY PROJECT NUMBER RS 0187(004)

Figure I-1 REGIONAL HIGHWAY NETWORK

1.2 PREVIOUS PLANS AND STUDIES

Alii Drive was completed by the County of Hawaii in the late 1930's. It was intended to provide a more direct route between Kailua and Keauhou than had previously existed and to increase the accessibility of the coastal lands that lay between these two settlements.

Until the 1970's, the resident population of the entire North Kona District remained below 5,000 (see Table I-1). In 1965, the first year for which accurate hotel room figures are available for the Kailua area alone, the average daily visitor census was about 1,000, and the vast majority of them stayed in Kailua proper. At that time, the average de facto population (i.e., residents plus visitors) of the area was about 5,500, and Alii Drive was more than adequate for the approximately 2,000 vehicle-trips per day it carried. However, with pavement widths of only 16 (widened to 22 to 24 feet in the 1970s) feet over most of its length and a right-of-way of only 50 feet, it was already becoming evident that highway improvements would be needed in order to maintain service levels and environmental quality in the face of rapid population growth.

In 1968, the Hawaii County Planning Commission published a working document entitled Feasibility Study -- Kailua-Kona. It reviewed various traffic and parking problems in Kailua proper and recommended solutions. In that report, as in an earlier study entitled Plan for Kona conducted for the County by Harland Bartholomew and Associates (1960), it was suggested that Alii Drive be relocated mauka of its present alignment. The Hawaii County General Plan, adopted in 1971, and the State Department of Transportation's Highway Functional Classifications and Needs Study (Belt, Collins & Associates/Wilbur Smith and Associates, 1971:19) identified a corridor for "Alii Highway" that extended from Kamehameha III Road to a proposed realignment of Kuakini Highway mauka of the existing route.

Acting on these recommendations, the County of Hawaii commissioned Belt, Collins & Associates to examine possible routes for a new highway between Kailua and Keauhou. The result was a report entitled Alignment Report for New Alii Highway: Kailua Village to Keauhou (August 1973). An environmental impact statement (EIS) for the preferred alternative was prepared by the County and accepted by the Governor of Hawaii on August 7, 1973. Because the County planned to undertake the project using only its own funds, a Federal EIS was not prepared.

Funds for construction of the new roadway were not immediately available, and implementation of the project was delayed. However, the recommended alignment was given semi-official status on the County of Hawaii's planning maps, and no development which would obstruct it has been allowed. Recently, the County decided to proceed with the project and to seek financial assistance from the U.S. Department of Transportation through the Federal-Aid Highway Program. Because of joint County and Federal funding, the proposed project is now subject to National, as well as State, environmental laws.

1.3 PURPOSE AND NEED

As previously noted, Alii Drive was constructed long before the emergence of the Kailua-Keauhou region as a major resort destination area was foreseen. As a result of the tremendous growth that has occurred in North Kona over the past decade (a near tripling of the resident population and number of visitor units), vehicular traffic in the Kailua-Keauhou corridor has increased dramatically. Moreover, recent

Table I-1. Resident Population of North Kona District: 1890-1980.

<u>Year</u>	<u>Resident¹ Population</u>	<u>Average Annual Change</u>	
		<u>Number</u>	<u>%</u>
1890	1,753	--	--
1896	3,061	+218	+9.7
1900	3,819	+190	+5.7
1910	3,377	-44	-1.2
1920	3,709	+33	+0.9
1930	4,728	+102	+2.5
1940	3,924	-80	-2.8
1950	3,607	-32	-0.8
1960	4,451	+84	+2.1
1970	4,832	+38	+0.8
1980	13,748	+892	+11.0

¹ Includes military and dependents; excludes visitors.

Source: Schmitt, Robert C. (1977); Historical Statistics of Hawaii. The University of Hawaii Press: Honolulu, 679 pages, Table I.6, pp. 13-14.

analyses suggest that growth will continue for the foreseeable future. As a result, continued reliance on the existing roadway network is considered undesirable. Three types of deficiencies are apparent:

- (1) Those having to do with the ability of the roadway to adequately serve existing and projected traffic volumes;
- (2) Deficiencies related to the safety of the roadway; and
- (3) Environmental problems that result from large numbers of vehicles using a narrow roadway bordered by substantial urban development.

The remainder of this chapter discusses these deficiencies in greater detail.

1.3.1 Capacity

1.3.1.1 Existing Traffic

Estimated 1982 traffic volumes on Alii Drive and other major roadways within the study area are shown in Figure I-2. As indicated by Table I-2, traffic on Alii Drive is spread relatively evenly throughout the day, a pattern typical of areas with large visitor populations. At most locations the peak occurs between 3:00 and 5:00 in the afternoon and constitutes only 7- to 8-percent of the 24-hour traffic. Counts on Kuakini Highway by the State Department of Transportation (February 1982) suggest that traffic volume on that roadway has a sharper peak, with as much as ten percent of the 24-hour total occurring in the busiest hour. This is probably because it is more heavily used by persons travelling to and from work.

Peak-hour traffic on Alii Drive is evenly split with respect to direction. It is only slightly more directional on Kuakini, where only one segment shows a 55/45 split during the afternoon peak hour. In contrast, minor connector roads such as Palani and Hualalai show pronounced directionality during the peak hour.

It should be noted that County officials have indicated existing traffic volume figures for Alii Drive do not take into account the numerous driveways that enter directly onto Alii Drive and reduce its ability to carry through-traffic. The impact of vehicles entering or leaving private driveways, and in particular, driveways serving multi-unit apartment buildings or condominiums, is believed to result in slower traffic flow and reduced capacity.

1.3.1.2 Conditions Without the Proposed Project

Future traffic volumes within the Kailua-Keauhou corridor without a new highway were projected by Belt, Collins & Associates using historical time series data (see Figure I-3). Estimates of average daily traffic and peak-hour traffic along various road segments are shown on Figure I-4 for the years 1985 and 2005. The estimates are consistent with projections developed independently by the State Department of Transportation (February 1982:2).

In judging the ability of a particular road segment to accommodate traffic, i.e., in estimating its "capacity", the "Level of Service" concept is generally used. Level of Service is defined as:

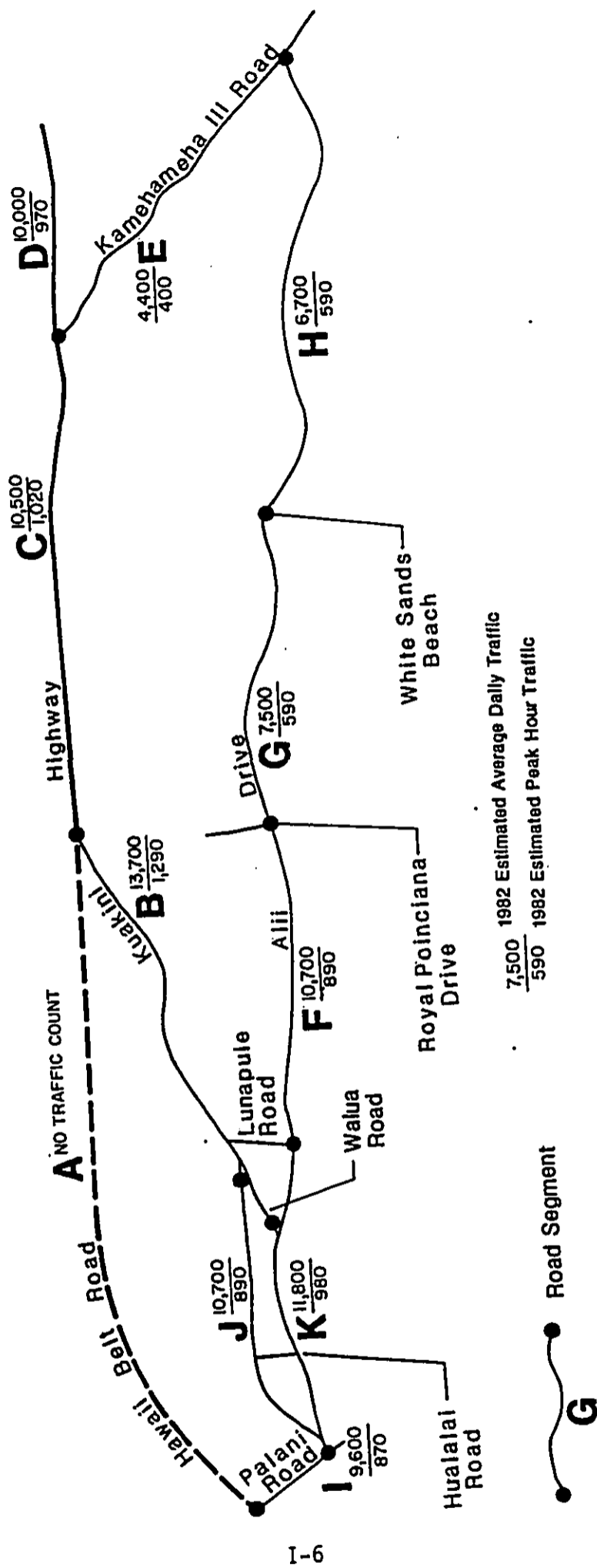


Figure I-2. ESTIMATED EXISTING TRAFFIC VOLUMES: 1982.

Table I-2. Comparison of Hourly Percentages from Various Traffic Count Stations.

T I M E	Percent of 24-Hour Volume by Hour and Location ¹				
	Existing Alii Drive				Kuakini Highway
	Near Kam III Road	Near Luna-pule Road	@ White Sands	@ Kamao Point	Near Kam III Road
Midnite-1:00	1.2%	1.0%	1.1%	1.7%	.4%
1:00-2:00	.9%	.7%	.9%	1.6%	.3%
2:00-3:00	.7%	.5%	.7%	1.5%	.2%
3:00-4:00	.3%	.2%	.3%	1.4%	.1%
4:00-5:00	.3%	.2%	.2%	1.3%	.2%
5:00-6:00 am	.7%	.7%	.8%	1.1%	.1%
6:00-7:00	2.8%	2.9%	2.5%	2.9%	4.6%
7:00-8:00	4.8%	4.4%	4.2%	5.3%	8.0%
8:00-9:00	5.4%	5.4%	5.5%	3.4%	6.7%
9:00-10:00	5.8%	5.6%	5.6%	7.2%	6.6%
10:00-11:00	5.7%	6.1%	5.9%	6.8%	7.3%
11:00-Noon	6.4%	6.2%	6.4%	7.3%	6.9%
Noon-1:00 pm	6.7%	6.6%	6.8%	8.1%	6.0%
1:00-2:00	6.8%	6.6%	6.6%	9.3%	6.1%
2:00-3:00	6.6%	6.7%	6.9%	6.5%	7.0%
3:00-4:00	8.3%	7.4%	7.6%	7.2%	8.2%
4:00-5:00	7.2%	7.4%	7.3%	6.9%	8.1%
5:00-6:00 pm	6.3%	7.3%	6.8%	5.2%	7.0%
6:00-7:00	5.5%	6.0%	5.6%	3.1%	5.2%
7:00-8:00	4.3%	5.4%	5.0%	4.1%	3.0%
8:00-9:00	3.6%	4.0%	3.9%	2.5%	2.3%
9:00-10:00	4.0%	3.8%	4.1%	2.0%	2.2%
10:00-11:00	3.4%	3.0%	3.3%	1.7%	1.7%
11:00-Midnite	2.1%	1.8%	2.1%	1.6%	.8%
24-Hour ¹	100.0%	99.9%	100.1%	99.7%	100.0%

¹ Percentages do not always add to 100.0 because of rounding.

Source: Compiled by Belt, Collins & Associates based on traffic counts conducted by the County of Hawaii and State Department of Transportation.

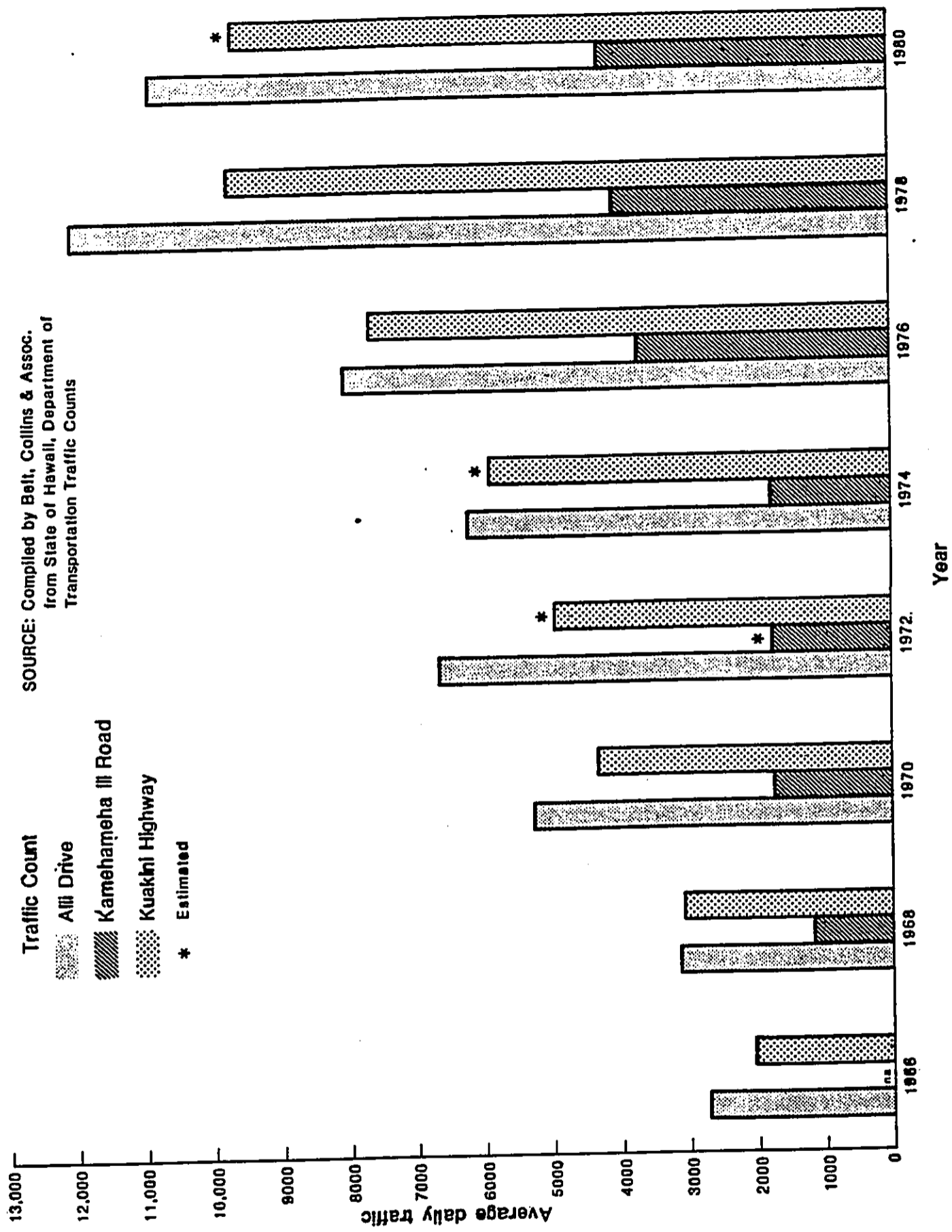
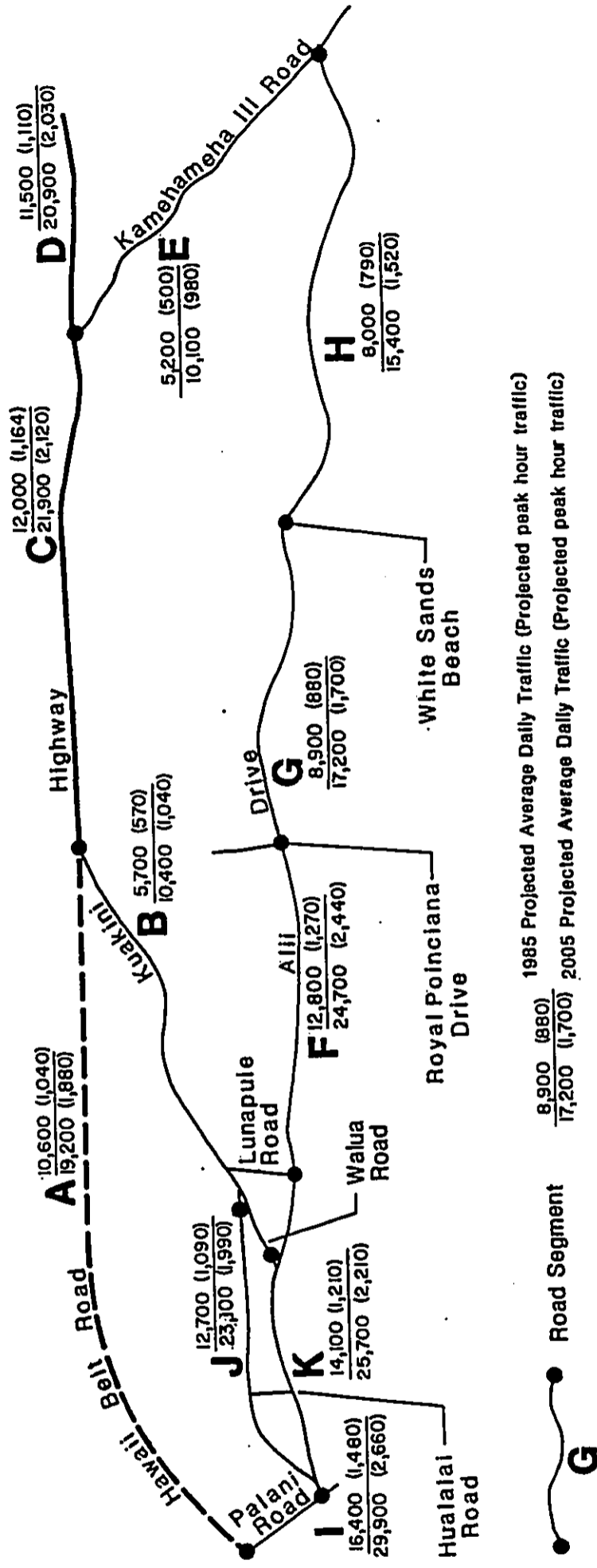


Figure I-3 CHANGES IN 24-HOUR TRAFFIC VOLUMES IN THE KAILUA-KEAUHOU CORRIDOR 1966-1980



I-9

Figure I-4. PROJECTED TRAFFIC VOLUMES WITHOUT THE PROPOSED PROJECT: 1985 AND 2005.

A qualitative measure that represents the collective factors of speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs provided by a highway under a particular volume condition (Robinson, 1976:313).

The maximum volume that can be accommodated by a road while maintaining a particular level of service is termed its service volume. As indicated by the descriptions in Table I-3, six different service levels have been defined, with Level of Service A being the best and Level of Service F the worst. The maximum number of vehicles that a roadway can carry is usually achieved at Service Level E, and the service volume at that Level of Service is often referred to simply as its "capacity". Traffic engineers will often describe the existing traffic volume in terms of its relationship to this capacity figure, and this "volume-to-capacity ratio" (or, more simply, "v/c ratio") is used in the discussion which follows.

As shown in Table I-4, peak-hour traffic on Alii Drive between Lunapule Road and Royal Poinciana Drive is expected to result in Service Level E as early as 1985 if no improvements are made. The Level of Service provided on portions of Alii Drive farther from Kailua would remain high through 1985. However, continuing increases in traffic volumes would result in deteriorating service levels over the remainder of the century. By 1995, peak-hour traffic on the segment between Royal Poinciana Drive and White Sands Beach would reach the roadway's capacity. By the year 2000, even the White Sands Beach to Kamehameha III Road segment of existing Alii Drive would be at capacity. In 2005, the design year for the project, the number of vehicles wanting to travel over the segment of Alii Drive between Lunapule Road and Royal Poinciana Drive would be nearly twice the number that can be accommodated by the existing roadway.

In areas where there are sharp peaks in traffic volumes and where the peaks are associated primarily with commuters travelling to and from work, increases in the number of vehicles wanting to travel over a road segment with limited capacity simply result in changes in travel patterns such that the trips are spread over a somewhat longer period of time, e.g., some commuters leave earlier or stay later than they would prefer. Because of the relatively flat peak in traffic volume and the large number of visitors, such an accommodation is unlikely on Alii Drive. Instead, traffic will remain extremely congested throughout the day, and travellers will be forced to forego trips which they might otherwise have taken. This has significant adverse implications for an area whose economy is so dependent upon the free movement of visitors.

While detailed volume/capacity studies have not been conducted at intersections in Kailua, it is clear that increasing traffic on Alii Drive would also result in greatly increased congestion on such mauka-makai connectors as Lunapule Road, Hualalai Road, and Palani Road. Short of backtracking all the way to Kamehameha III Road, vehicles from coastal developments desiring to reach points north of Kailua will have no alternative but to pass through the village, adding significantly to the number of cars present there. In particular, the portion of Alii Drive through the center of Kailua would be called upon to carry as much as three times the number of vehicles now using it, with serious adverse consequences for the quality of the urban environment there.

Table I-3. Levels of Service.

- (1) Level of Service A - free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.
- (2) Level of Service B is in the zone of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers will have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted. The lower limit (lowest speed, highest volume) of this level of service has been associated with service volumes used in the design of rural highways.
- (3) Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes, or pass. A relatively satisfactory operating speed is still obtained, with service volumes perhaps suitable for urban design practice.
- (4) Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.
- (5) Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds than in Level D, with volumes at or near the capacity of the highway. At capacity, speeds are typically, but not always, in the neighborhood of 30 mph. Flow is unstable, and there may be stoppages of momentary duration.
- (6) Level of Service F describes forced flow operation at low speeds, where volumes are below capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. The section under study will be serving as a storage area during parts or all of the peak hour. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of the downstream congestion. In the extreme, both speed and volume can drop to zero.

Source: Highway Research Board, Special Report 87, Highway Capacity Manual. Washington, D.C., 1965:80-81.

Table I-4. Projected Peak-Hour Approach Volume and Level of Service on Alii Drive: No-Action Scenario.

<u>Year</u>	<u>Roadway¹ Segment</u>	<u>Approach² Capacity (Veh./Hour)</u>	<u>Projected² Approach Volume (Veh./Hour)</u>	<u>v/c Ratio</u>	<u>Level³ of Service</u>
1985	H	770	440	0.57	A
	G	710	480	0.68	B
	F	710	700	0.99	E
2005	H	770	840	1.09	F
	G	710	940	1.32	F
	F	710	1,340	1.88	F

¹ Segments labeled on Figure I-4.

² Capacity and peak-hour volume are one directional.

³ Desired minimum level of service is "C" for 20-year period.

Source: Belt, Collins & Associates.

1.3.2 Accidents/Road Safety

Between January 1979 and June 1981, a period of two and a half years, approximately 175 accidents were reported on Alii Drive between Palani Road and Kamehameha III Road. This is an average of about one accident every five days or 12 accidents per mile per year on the 5.85-mile long road or an accident rate of 0.36 per 100,000 miles. Approximately twenty percent of these were classified by the investigating officer as serious enough to prevent the driver and/or passenger from walking, driving, or normally continuing the activities which he was able to perform prior to the motor vehicle traffic accident. However, an analysis of individual accident reports for the last six months of the period suggests that very few involved hospitalization of the injured person. Only one fatality occurred during the 1979-1981 period. The driver of a motorcycle was killed when struck by a car turning left off Alii Drive into a driveway.

As shown in Figure I-5, the incidence of accidents varied considerably along the length of Alii Drive. More than twice as many accidents occurred in Kailua (between mile 0 and mile 1.0) than in any other one-mile segment. The one mile stretch having the fewest accidents is between Laaloa Avenue at White Sands Beach and Paueo Road at Kahaluu Park (between miles 4.0 and 5.0). The variation in traffic accidents is apparently a function of traffic volume and of the number of intersections and driveways.

Table I-5 summarizes and compares the incidence of factors contributing to accidents on the three major roads in the Kailua-Keauhou corridor. Failure to yield right-of-way was cited as a contributing factor in 15 percent of the accidents on Alii Drive. However, 40 percent of the accidents in this category occurred on the one mile stretch of road in Kailua Village proper. Most of the remainder of the route was relatively free of this type of accident.

As traffic volumes increase in response to continued development, it is likely that the number of accidents will rise as well. In particular, accidents associated with turning movements into and out of driveways will probably increase as delays mount and drivers take more risks in order to pass through the stream of oncoming vehicles.

When the proposed Alii Highway is constructed, a substantial amount of through-traffic that now uses Alii Drive will choose the new facility instead. It would also attract some vehicles which now use Kamehameha III Road and Kuakini Highway to travel between Kailua and Keauhou. This separation of local and through-traffic would probably lead to lower accident rates as compared with the "no-project" scenario.

1.3.3 Environmental Considerations

In addition to the traffic engineering considerations described in Sections 1.3.1 and 1.3.2 which necessitates roadway improvements within the Kailua-Keauhou corridor, several environmental factors point to its desirability as well. The most important of these are the reduced noise levels and improved air quality in the residential units and visitor accommodations adjacent to Alii Drive that it would produce.

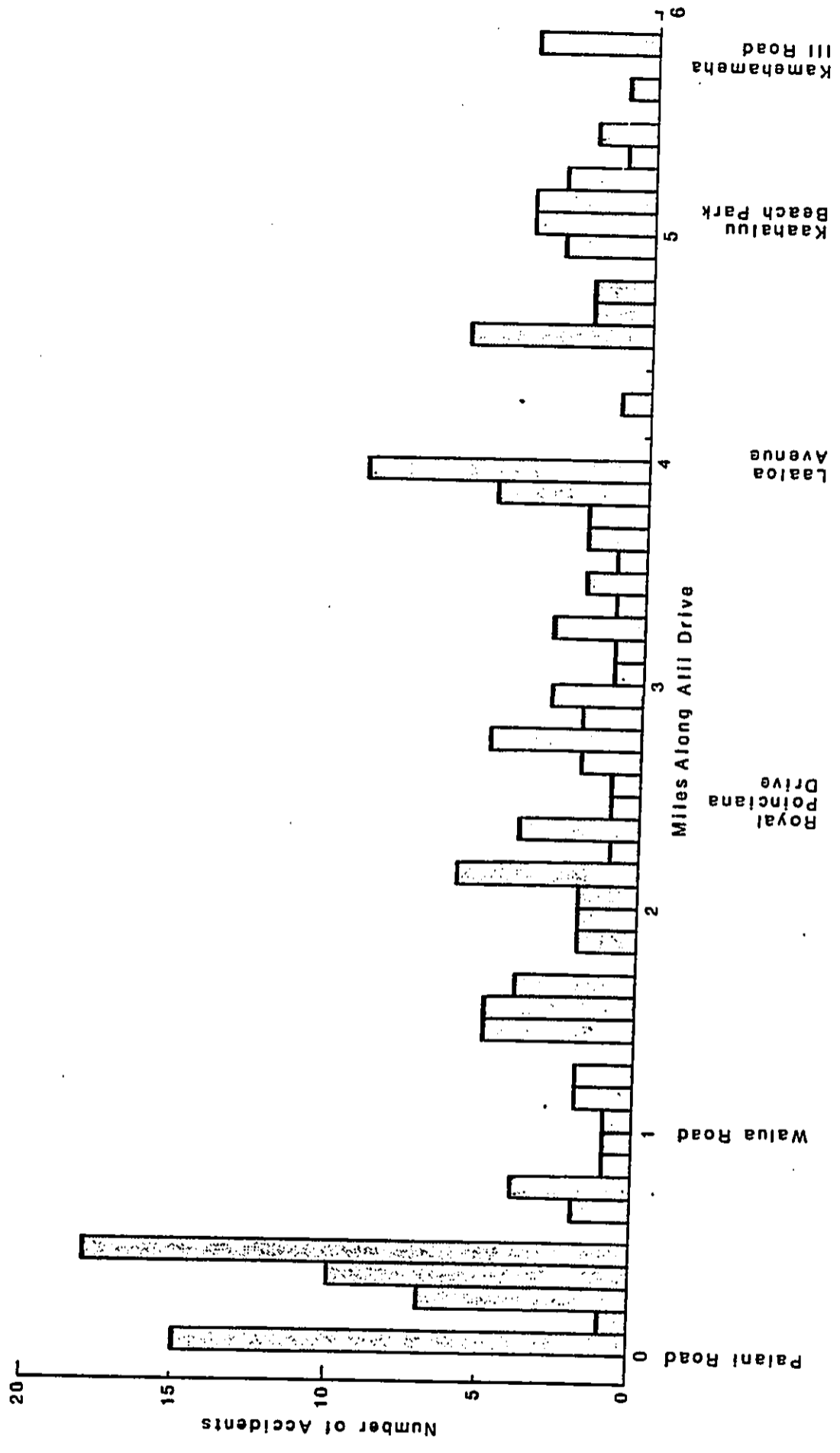


Figure I-5. OCCURRENCE OF ACCIDENTS ALONG ALII DRIVE: 1979-1981.

Table I-5. Comparison of Incidence of Factors Contributing to Accidents: Alii Drive, Kamehameha III Road, and Kuakini Highway.

Contributing Factor	Accidents By Roadway					
	Alii Drive		Kam III Road		Kuakini Hwy.	
	No.	% of Tot.	No.	% of Tot.	No.	% of Tot.
Not Stated	27	15.3	2	10.5	22	9.2
Exceeded Speed Limit or Safe Speed	18	10.3	9	47.4	12	5.0
Failed to Yield Right-of-Way	27	15.3	--	--	74	31.1
Driving on Wrong Side	7	4.0	--	--	6	2.5
Improper Passing	2	1.1	--	--	5	2.1
Disregarded Stop Sign	1	0.6	--	--	2	0.8
Disregarded Traffic Signal	1	0.6	--	--	3	1.3
Followed Too Closely	5	2.8	--	--	13	5.5
Improper Turning	2	1.1	--	--	3	1.3
Other Improper Driving	80	45.5	7	36.8	93	39.1
Inadequate Brakes	1	0.6	--	--	3	1.3
Improper Lights	0	--	--	--	--	--
Drunk Driving	5	2.8	--	--	2	0.8
Pedestrian Violation	0	--	--	--	--	--
ALL	176	100.0	19	100.0	238	100.0

Source: State of Hawaii, Department of Transportation, Highways Division - Accident Analysis Reports from 1/79 through 6/81; compiled by Belt, Collins & Associates.

A noise analysis conducted by the State Department of Transportation (see Section 4.2.2) indicates that existing ambient noise levels 50 feet from Alii Drive range from 56 dBA to 61 dBA. The primary noise source is vehicular traffic. Projected increases in traffic volumes without any improvements indicate that noise levels will rise substantially over the coming years. By 1985, if no improvements are made, L_{eq} noise levels 50 feet from the edge of the road will reach 66 dBA. For at least one location, this is a 10 dBA increase. This increase would be perceived as a doubling in loudness. By the year 2005, L_{eq} noise levels at the same locations would be 69 dBA and would exceed L_{eq} 67 dBA, the design noise level established by the Federal Highway Administration for residential, resort, and recreational land uses.

The diversion of traffic onto the proposed Alii Highway would substantially reduce predicted noise levels adjacent to Alii Drive. Traffic noise from the proposed new roadway would increase noise levels in areas adjacent to the new facility. However, the wider right-of-way of the new road and its routing through areas that are not yet developed would allow for the provision of buffer zones to protect future noise-sensitive land uses.

An air quality survey conducted by the State Department of Transportation (see Section 4.2.1) measured ambient carbon monoxide (CO) concentrations of less than 0.5 parts per million. The primary source of pollutants is vehicular traffic. Roadway improvements which increase capacity and improve the level of service provided will lead to lower automotive pollutant concentrations than will be experienced without the proposed project.

CHAPTER II
ALTERNATIVES

CHAPTER II

ALTERNATIVES

2.1 INTRODUCTION

Three fundamentally different responses to the needs outlined in Chapter I are possible. The first is to do nothing. The second is to improve traffic management on and/or make minor changes to the existing roadway. The third is to undertake major new road construction along either the existing alignment or an entirely new route. Each of these possibilities has been evaluated as part of the corridor study conducted for this project. The results of that evaluation, together with a description of each alternative considered in depth and the reasons why other possible alternatives were eliminated from further consideration, are presented below.

2.2 FORMULATION OF ALTERNATIVES

2.2.1 No Action

Both State and Federal legislation requires that "no-action" scenarios be formulated and evaluated for all potential projects. Such a "no-action" scenario provides a baseline against which the results of potential actions can be measured. "No action" does not, however, provide a solution to the transportation problems facing the region.

In the case of the Kailua-Keauhou corridor, this alternative involves continued reliance on the region's existing roadways. As shown by the traffic projections and capacity analyses presented in Section 1.3.1.2, "no-action" implies a willingness to suffer greatly increased traffic congestion and associated effects.

The Alii Highway is intended to serve traffic generated by development in a 5-square-mile area makai of Kuakini Highway between Kailua-Kona and Keauhou-Kona. Considerable development has already occurred in this coastal area, with population tripling in the 1970 to 1980 period alone. Nearly all of the land which remains undeveloped has already been designated for urbanization by the State Land Use Commission, the Hawaii County General Plan, the Kona Regional Development Plan, and County Zoning Maps.

As the only significant urban center in the North Kona/South Kohala region, Kailua-Kona is expected to accommodate most of the new commercial, industrial, and residential uses needed to support resort development along Hawaii's leeward coastline. Conservative estimates of resort projects planned or proposed by private developers for the North Kona/South Kohala region include over 25,000 hotel and condominium units. In view of the fact that the area that would be served by Alii Highway is physically suited to respond to this resort development and already has appropriate residential and commercial land use designations, it is inevitable that it will attract much of the forecast growth. Clear evidence of this is provided by the substantial amount of development that has already occurred, and by the fact that several landowners in the project area have held their development plans in abeyance only because the County has asked that they do so until the final highway alignment is decided.

Table I-4 provides level of service estimates on existing Alii Drive for the year 2005 for the "no build" alternative. It indicates level of service "F" for all of Alii Drive. This is indicative of extreme congestion, resulting in frequent stoppages, low average speeds, high fuel use, and excessive delay. The FEIS also notes that many of the accidents along Alii Drive are associated with the many driveways serving residences, resort condominium apartments, and commercial areas that intersect it. Widening the existing roadway (Alii Drive) would require the taking of many houses and other structures, excessive cost, and unacceptable highway related noise and air quality impacts. Together, these conditions point to a strong need for the construction of additional roadway capacity through this corridor.

As illustrated by Figure IV-8 of the FEIS, Alii Highway's 5-square-mile service area lies entirely within the 54-square-mile Kona Field System Historic District. Hence, any new road service will involve construction within the Historic District.

State and County approvals have already been granted for extensive urban development within the area served by the proposed highway, and the County government has indicated that urbanization will occur even if Federal Highway Aid funds are not made available. This development will occur on a piecemeal basis, with individual landowners proceeding as market conditions warrant. The County has insufficient resources to construct Alii Highway in its entirety at this time. However, it will require developers to set aside a right-of-way for the highway as a condition of subdivision approval. Once sufficient right-of-way has been acquired in this fashion, the additional land needed to complete a Kailua-Keauhou route will be secured and the missing links connected. In assembling this land, the County will almost certainly use the preferred alignment designated on the Hawaii County General Plan. Consequently, while the FHWA may decide not to fund the project, this will not prevent its eventual construction. Hence, the "no build" alternative is not really an available option.

2.2.2 Improved Transportation System Management

Under some conditions it is possible to substantially increase the capacity of a roadway or transportation corridor by improved management of the existing transportation system. Examples of such improvements include:

- o reconstruction, resurfacing and rehabilitation of existing roadways;
- o provision of fringe parking facilities;
- o institution of ride-sharing programs;
- o creation of High Occupancy Vehicle (HOV) lanes on existing roads and highways; and
- o traffic signal timing optimization.

However, for reasons outlined below, none of these transportation management techniques promises to provide the kinds of relief needed to eliminate congestion to the Kailua-Keauhou corridor.

Reconstruction and Rehabilitation. Alii Drive was last upgraded in the late 1970's. The existing pavement is in good condition, and further improvements would not significantly increase roadway capacity.

High Occupancy Vehicle (HOV) Lanes. Existing roadways within the study area are all two-lane facilities. As a result, it would not be possible to designate any as HOV lanes.

Signalization/Signal Timing Optimization. At present, there are no traffic signals outside of Kailua proper. However, signalization was assumed in estimating intersection capacity on Alii Drive. Installation of signals would not provide the needed increase in capacity.

Mass Transit/Fringe Parking/Ride-Sharing. There are no major destinations in the area that would benefit from fringe parking arrangements. Because of the relatively low density of development within the corridor and the presence of large numbers of visitors who place a premium on the independence provided by private automobiles, there is little likelihood that mass transit usage can be increased significantly.

Roadside parking along Alii Drive is currently not a problem and is not impacting traffic conditions. Further regulation of parking would have a negligible impact.

There is presently insufficient traffic in the area to warrant a mass transit solution. While the roadways continue to be congested, the volume of traffic is not sufficient to justify the initiation of mass transit services. Similarly, fringe parking is not a viable solution because the area is not impacted by CBD traffic congestion.

The creation of a continuous left-turn lane along Alii Drive would necessitate widening the roadway. As discussed below, widening is a not prudent or feasible alternative to the proposed highway project. In addition, widening would not significantly alter the impacts of the proposed project.

In view of the foregoing, improved transportation system management is not a viable alternative to the proposed project.

2.2.3 Construction Alternatives

The third possible response to the problems described in Chapter I is to increase the width of the roadway and/or make other physical improvements that enhance its capacity, safety, and environmental characteristics. This approach involves two major sub-categories: (1) widening along the existing right-of-way and (2) creation of an entirely new roadway along a separate alignment. Details of designs implementing each of these approaches are described below.

2.2.3.1 Widening Alii Drive

Alii Drive is a two-lane roadway. The width of the pavement varies between 22 and 24 feet (i.e., each lane is 11 to 12 feet wide). For the most part, shoulders are unpaved. The overall width of the right-of-way is only 50 feet, and many structures have been built close to its edge.

In order to accommodate the projected traffic volume, it would be necessary to widen the roadway to a minimum of four 12-foot wide travel lanes, two in each direction. If parking is still to be provided along the edge of the road (as is now the case), an additional 8 to 16 feet of pavement width would be required (depending upon whether parking is allowed on one or two sides of the street). In addition, it would be necessary to provide a shoulder area for pedestrians and utilities. The total right-of-

way width needed would be at least 66 feet and as much as 80 feet. The County standard for a secondary urban arterial, which is the classification appropriate for a route such as Alii Drive, is 80 feet (see Figure II-1 for a typical cross-section).

In order to qualify for Federal aid, the proposed project must comply with established design standards. Hence, while it might be possible to design a road section requiring a right-of-way of somewhat less than 80 feet, a significant reduction in the right-of-way requirement is not realistic. This, in turn, implies that it would be necessary to acquire an additional 30 feet of right-of-way in order to provide the extra laneage that is required.

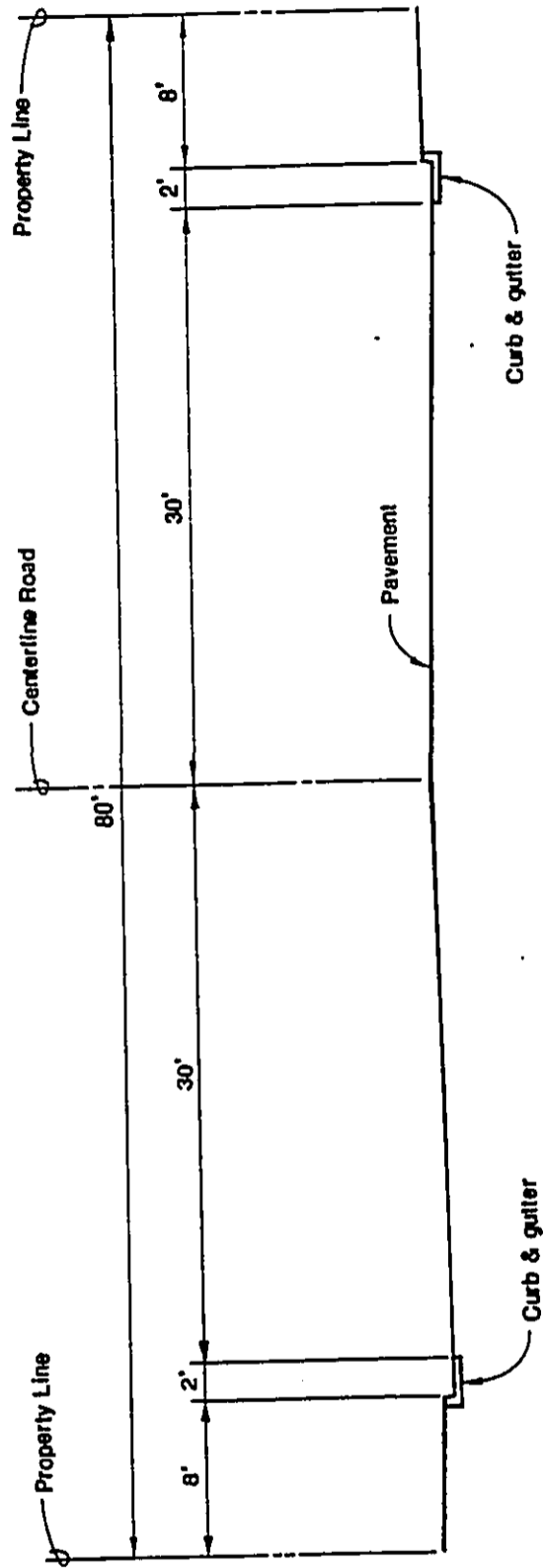


Figure II-1 TYPICAL CROSS-SECTION FOR SECONDARY URBAN ARTERIALS

As shown on Figure I-4, projected traffic volumes within the corridor increase with proximity to Kailua. Hence, in order to relieve congestion it would be necessary to carry the widening at least to the point where a connection can be made with Kuakini Highway. From the point of view of the service that would be provided, the widening should extend at least as far as Hualalai Road, with concurrent widening of Hualalai. However, the concentration of apartments, resort condominiums, and commercial establishments abutting the roadway near Kailua is so great that the cost of this would be excessive. Hence, it would probably be necessary to terminate the widening before this point.

The most practical course of action would be to link the widened Alii Drive with Kuakini Highway by constructing a new mauka-makai roadway located south of the Kona Hillcrest Subdivision (see Figure II-2). The upper portions of such a link could follow alignments A-1 or A-2 discussed in subsection 2.2.3.2. Grades on such a link would be acceptable, and there is no intervening development which would make the connection infeasible.

Approximately 130 parcels front Alii Drive between Keauhou and the point at which the widening would terminate. Adding 30 feet to the existing 50-foot right-of-way would require the taking of land from these parcels. Acquisition cost of land along Alii Drive is estimated at between \$4 and \$25 per square foot, with the exact amount depending upon the physical characteristics of the parcel and its current zoning. In addition, all or part of approximately 45 structures would have to be acquired and demolished. At this rate, the purchase price of the additional 30 feet of right-of-way needed between Keauhou and a point between the Alii Kai and Kona Hillcrest Subdivisions (a distance of approximately four miles) would be between \$10 and \$12 million. Land would also need to be acquired for portions of the road link between Alii Drive and Kuakini Highway.

In addition to the high right-of-way acquisition costs that would be incurred for the widening alternative, this course of action would not significantly reduce the environmental problems associated with highway noise and air pollutant emissions (see Chapter I). It would result in heavy traffic flows through the heart of built up areas, adversely affecting the aesthetic character of this coastal region.

Finally, widening Alii Drive and providing additional lanes would not completely solve the safety deficiencies that have been identified. In particular, the presence of a large number of driveways and minor streets on a roadway which also carries substantial amounts of higher-speed through-traffic is undesirable.

In view of the foregoing, it was concluded that merely widening Alii Drive would almost certainly fail to achieve many of the project's objectives.

2.2.3.2 Realignment of Alii Drive

To address the transportation problems identified in Chapter I, the realignment must be constructed between Kailua and Keauhou, makai of Kuakini Highway and mauka of Alii Drive. This band of land is identified as the highway corridor. Within this corridor, various alignments are possible. Each "alignment" represents a 300-foot wide path within which the minimum 100-foot wide right-of-way needed for the road would be situated. The extra width provides the flexibility needed to minimize environmental impacts and construction costs during final design.

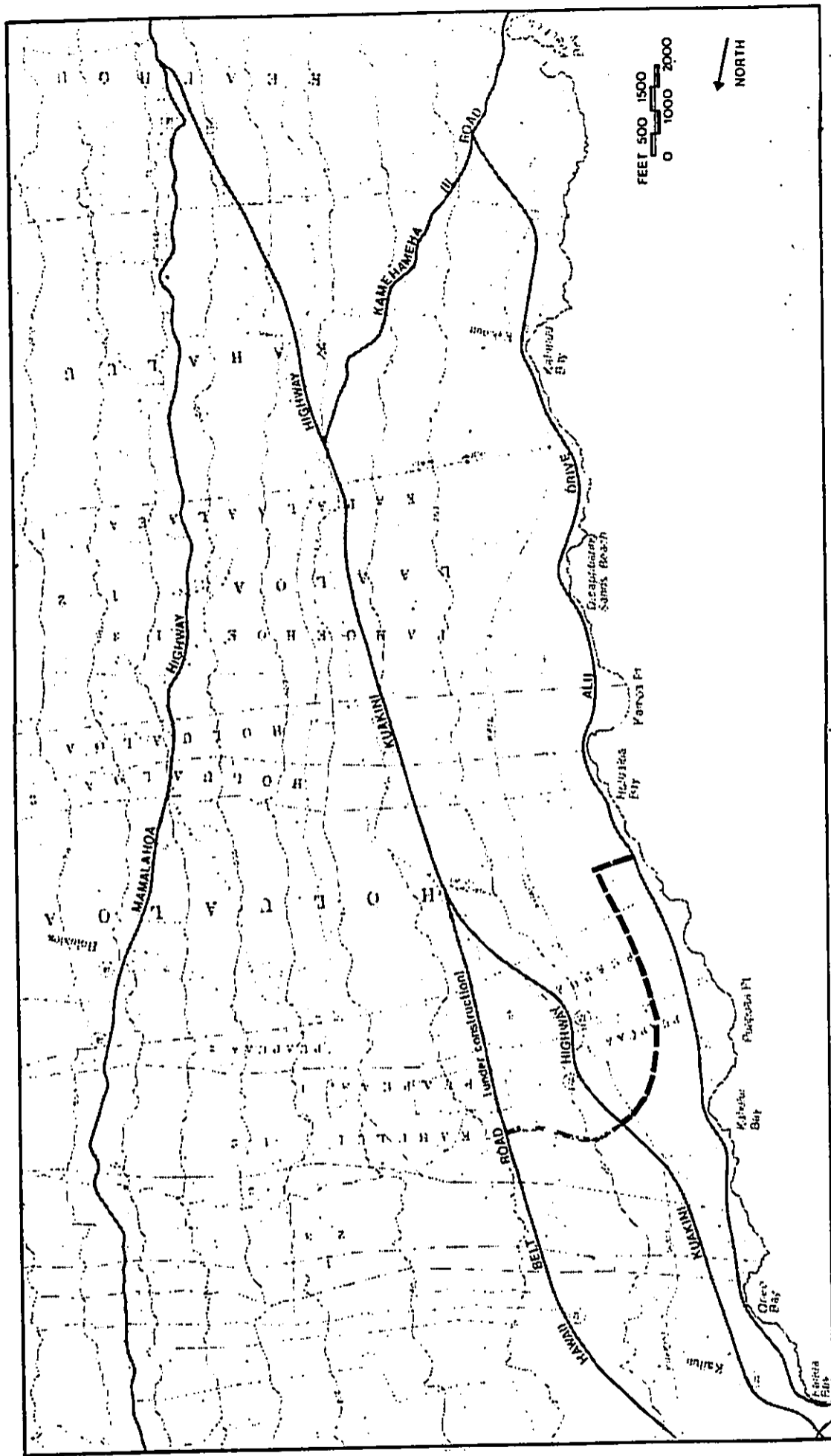


Figure II-2 APPROXIMATE LOCATION OF LINK BETWEEN WIDENED ALII DRIVE AND KUAKINI HIGHWAY

Seven alternative alignments were studied for the first alignment report prepared in 1973 (see Figure II-3). All of the alignments intersected the proposed Kuakini Highway extension in the vicinity of Kona Lono Subdivision and terminated at Makolea Street. After initial study, the segments of all alignments located between the proposed Kuakini Highway extension and existing Kuakini Highway were abandoned. Reasons included significant residential relocation, costly land acquisition, the need for overly deep fills, and lack of need for a road in that location. Five combinations of the remaining alternative alignments were then studied (see Figure II-4). Each began at Kuakini Highway south of Kona Lani Subdivision and ended at Makolea Street. Two of the alternative alignments passed mauka of Alii Kai Subdivision. These alignments were eliminated from consideration because they were longer, required acquisition of more residential land, and were further mauka of Alii Drive, therefore necessitating longer connector roads. Eliminating these two from consideration left three alternative alignments of the road.

The alignments evaluated in this EIS were based largely on the 1973 alignment study. The only significant differences between the current routes and those evaluated previously involve: (i) an eastward extension of the roadway mauka of Kuakini Highway to the Hawaii Belt Road -- FAP 11, (Kuakini Highway extension) and (ii) a southward extension to connect with Alii Drive just north of Kamehameha III Road. The length of the new roadway would vary from 4 to 4.5 miles, depending upon the alignment chosen. The location of each of the alignments under consideration is shown on Figure II-5.

Standard State Department of Transportation design criteria would be adhered to for all alignments. Two 12-foot wide traffic lanes would be provided in each direction (see Figure II-6 for a typical cross-section). The overall right-of-way width would be a minimum of 100 feet.

Moving from north to south, the Alii Highway corridor can be split into four zones (see Figure II-5):

- o Zone A is the area between the Hawaii Belt Road and a line drawn inland from the southern side of Puapuaa Point;
- o Zone B extends from the southern side of Puapuaa Point to a line drawn inland from the northern side of Kamoia Point;
- o Zone C is the area between Kamoia Point and Kahaluu Bay; and
- o Zone D consists of the area between Kahaluu and the corridor's terminus at existing Alii Drive just north of Kamehameha III Road.

Because of constraints imposed by topography and/or existing/planned development, only one alignment is under consideration through Zones B and D. In Zone B it has been deemed advisable to remain within the right-of-way reserved for the road when the Alii Kai Subdivision was constructed. The route is a relatively level one and avoids the State Department of Education's Kahakai Elementary School. To select an alternate route through this area would entail extensive condemnation of existing homes and disruption of the existing residential community. It would also have adverse impacts on the school. A highway right-of-way through Zone D has been set aside by the owner/developer of the Keauhou Resort (B.P. Bishop Estate/Kamehameha Investment Corp.), and planning and infrastructure construction for the resort has

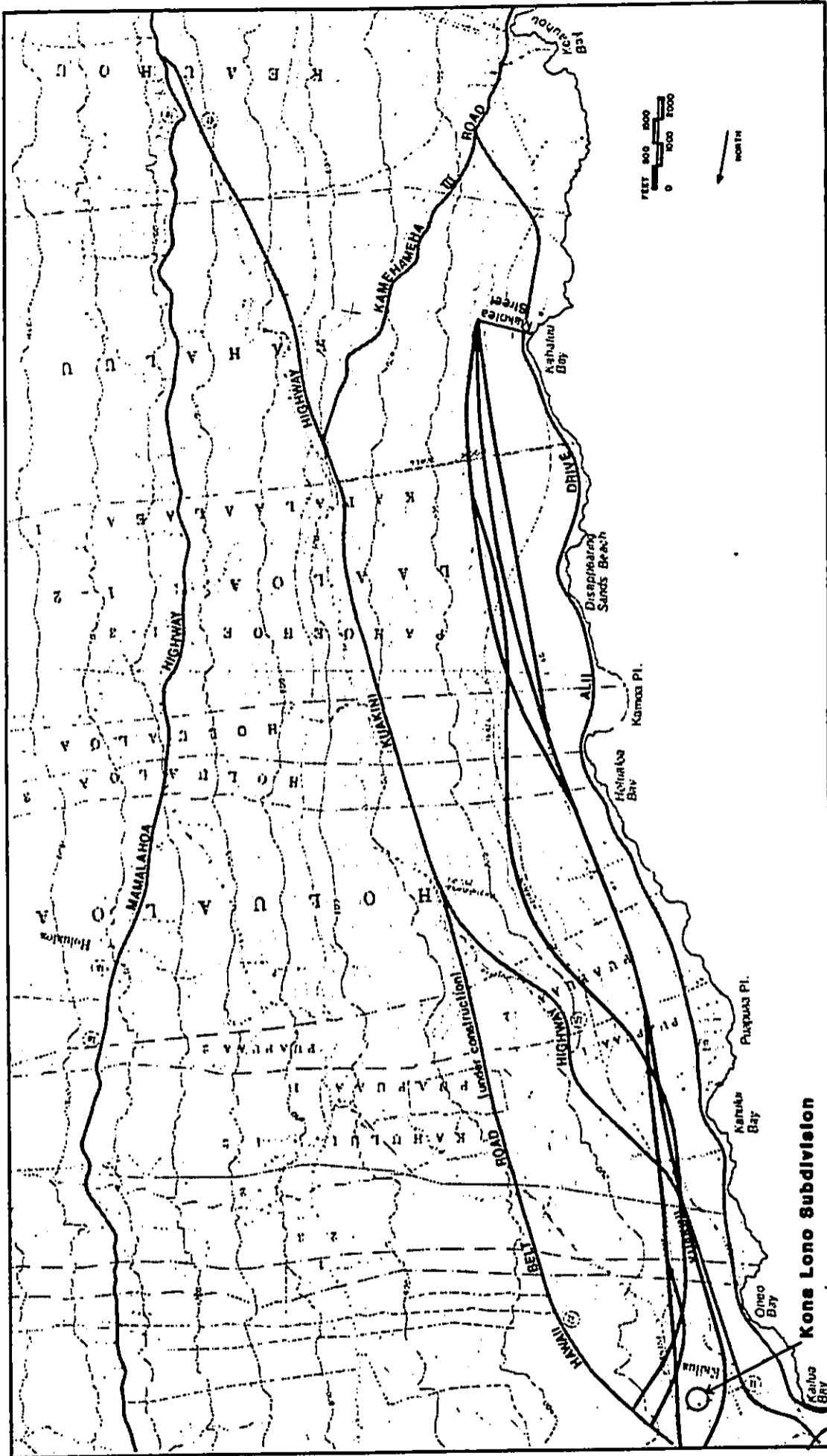


Figure II-3 PRELIMINARY ALIGNMENT ALTERNATIVES: 1973 ALII DRIVE REALIGNMENT STUDY

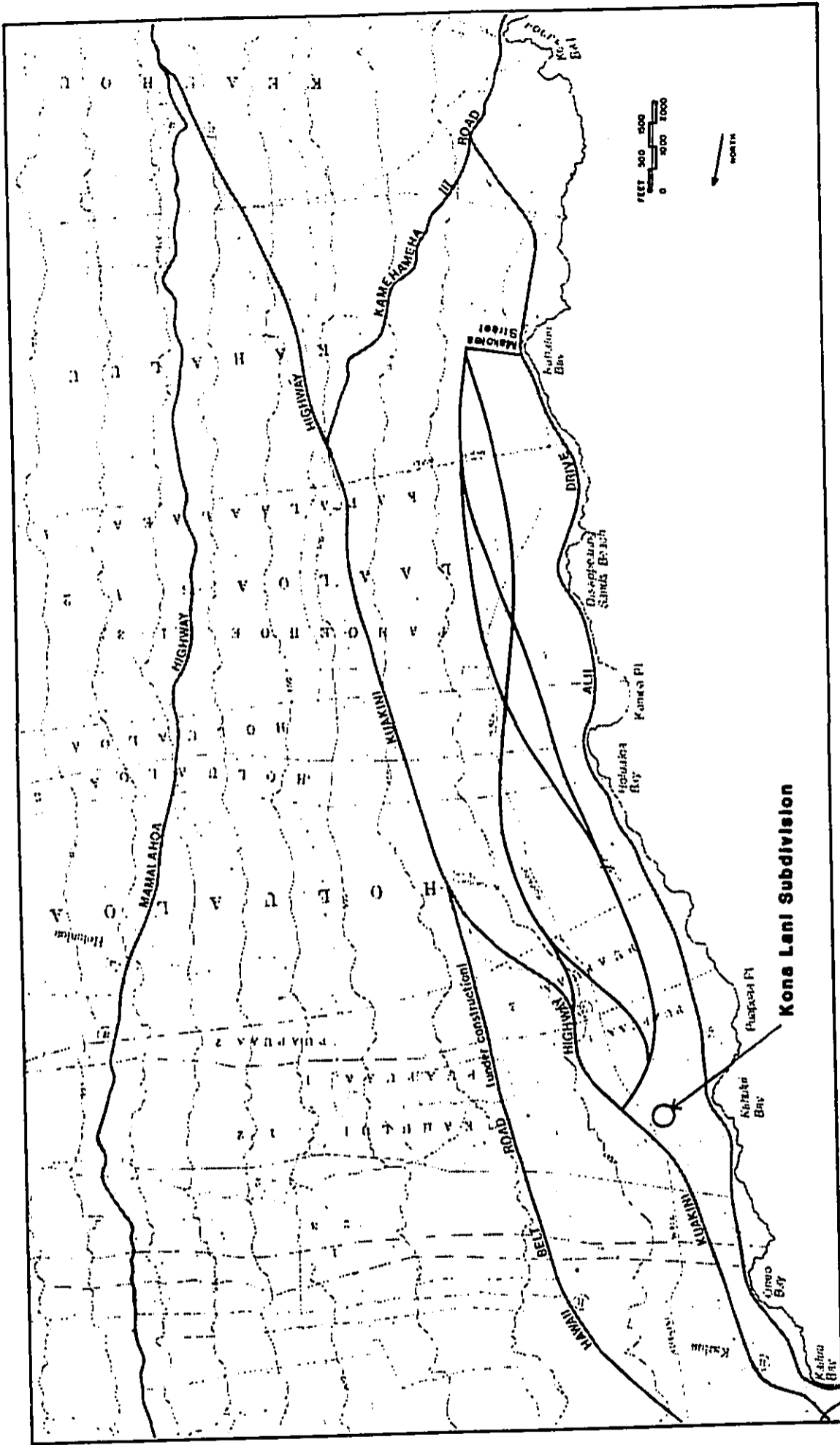


Figure II-4 FINAL ALIGNMENT ALTERNATIVES: 1973 ALII DRIVE REALIGNMENT STUDY

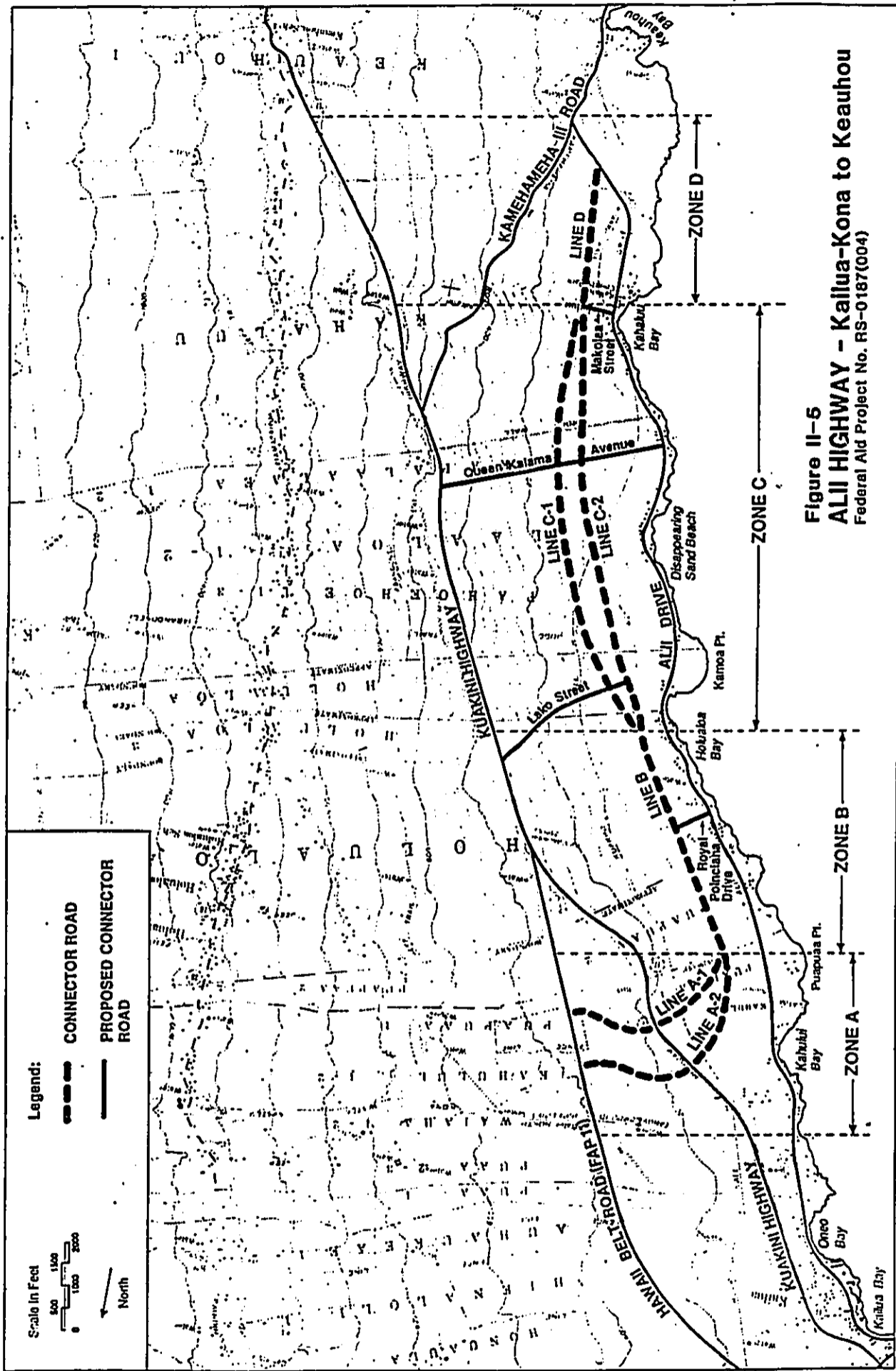
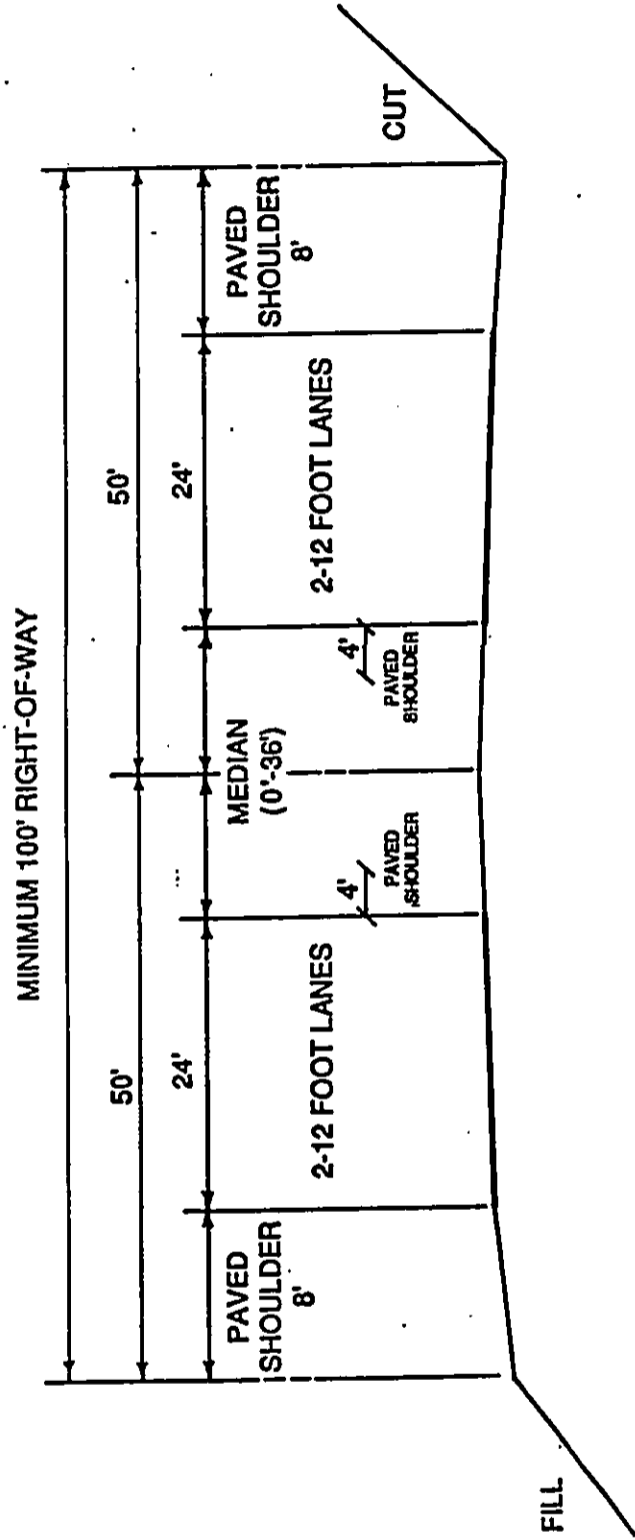


Figure II-6
ALII HIGHWAY - Kailua-Kona to Keauhou
 Federal Aid Project No. RS-0187(004)



11-11

Figure II-6 TYPICAL CROSS-SECTION: PROPOSED ALII HIGHWAY

proceeded on the assumption that it would be followed by the highway. Minor adjustments to the alignment are possible in this location, but substantial change would entail significantly increased costs. Hence, only a single construction alternative is under consideration through this zone. There are fewer constraints on the alignment through Zones A and C, and two alternatives are under consideration for each of these zones.

Because it is possible to mix and match routes through the four zones, there are really four possible new highway alignments. They are:

<u>Segments</u>	<u>Alternative</u>
A-1/B/C-1/D	I
A-1/B/C-2/D	II
A-2/B/C-1/D	III
A-2/B/C-2/D	IV

Segment A-1. This segment begins at the Hawaii Belt Road approximately 1,600 feet south of the Kona Hillcrest Subdivision. Oriented mauka-makai, it crosses Kuakini Highway approximately 1,800 feet from its origin and continues makai, eventually breaching the Kuakini Wall. The alignment turns south at an elevation of about 80 feet before joining Segment B. Overall, Segment A-1 is about a mile long.

Segment A-1 passes through land that is presently covered with scrub vegetation, although development proposals have been received by the County for much of the area below Kuakini Highway. The portion between the Hawaii Belt Road and Kuakini Highway is in the State Agricultural District; makai of Kuakini Highway it is in the State Urban District. The County Land Use Pattern Allocation Guide Map designates the area for "Alternate Urban Expansion" (see Figure III-6).

The route traverses scrub vegetation similar to that found at comparable elevations throughout this region. Soils are shallow, rocky, and generally infertile. There are no perennial streams, and the wildlife is typical of that found over broad areas of the Kona lowlands. The alignment remains south of Waiaha Stream, but approaches the edge of the designated floodplain. At its upper end, this segment is extremely steep, and an exception to the usual grade limitation might be needed.

Segment A-2. An alternative to the A-1 route, Alignment A-2 intersects the Hawaii Belt Road about 1,000 feet farther north than A-1. This is about 600 feet south of the entrance to the Kona Hillcrest Subdivision. The alignment turns south after crossing Kuakini Highway, and joins Segment B at the same point as A-1. Like Segment A-1, this alternative also breaches the Kuakini Wall. Overall, it is approximately 5,300 feet long, or about one-fifth mile more than A-1.

Mauka of Kuakini Highway the roadway is in the State Agricultural District; makai it is in the Urban District. The route has a "floodplain" designation on the Hawaii County General Plan's LUPAG maps for most of its length. The mauka portion of Segment A-2 passes within 150 feet of the Kona Hillcrest Subdivision.

The terrain traversed by this alternative is essentially the same as that crossed by A-1, and the environmental factors are, for the most part, equivalent. The primary exceptions are that this route involves a crossing of Waiaha Stream and is within a designated floodplain, and a closer approach to existing development (the Kona Hillcrest Subdivision) than does A-1.

Segment B. This segment runs north-south for approximately 4,000 feet at an elevation of about 40 feet. It is routed through a reserved 50-foot wide right-of-way in the Alii Kai Subdivision and passes approximately 500 feet makai of the Kahakai Elementary School. The vegetation and wildlife are similar to that found elsewhere within the corridor and throughout land at similar elevations in the remainder of Kona. All but the southernmost end of the segment is within the State Urban Land Use District. Some cattle were grazed in the area at one time, but the carrying capacity of the pasturage is extremely limited, and this is no longer undertaken on a commercial scale.

Segment C-1. Segment C-1 is approximately 2.0 miles long. It begins at Segment B at an elevation of 40 feet, gradually climbs to an elevation of 160 feet, and then slowly descends to a height of 80 feet where it joins Segment D. This alignment is well inland of existing development, but, like all available routes, encounters numerous archaeological remains.

C-1 passes through currently undeveloped land, most of which is within the State Agricultural District. However, approximately 2,000 feet of the central part of the alignment is within the State Urban District. This Urban-designated land is owned by Pacific Basin Resorts and is currently the subject of a request before the County for re-zoning from agriculture to urban uses. Construction along this alignment would involve another crossing of Kuakini Wall, as well as disturbance to the many archaeological remains, two of them recommended for preservation, that are present within 150 feet of the centerline. The segment terminates at Makolea Street just inland of the Kauhale Kahaluu housing project.

There is nothing remarkable about the natural environment crossed by this alignment. No rare or endangered species or important habitats are believed to be present. Near its southern end, this alignment crosses two archaeological sites that have been recommended for preservation. The alignment crosses the designated floodplain in Kaumalumalu Gulch.

Segment C-2. This segment is similar to Segment C-1 described above. The primary difference is that C-2 runs approximately 500 feet closer to the shore than C-1. Thus, from the 40-foot elevation of its starting point, Segment C-2 rises only to an elevation of 120 feet before descending to the 80-foot height of Segment D. Like Segment C-1, it is approximately 2.0 miles long. In addition to the 2,000-foot stretch of Urban District land near its midpoint, this segment also passes through the Urban District for one-half mile at its southern end.

Segment C-2 resembles C-1 in that it passes through an area that is extremely rich in archaeological sites, including several heiau that have been recommended for preservation. A path through these sites has been identified which avoids physical disturbance of the structures. At the same time, it brings the roadway closer to existing development and involves crossing the designated floodplain in Kaumalumalu Gulch.

Segment D. Segment D is about 2,500 feet in length and is the southernmost section for all the alternatives. It connects with existing Alii Drive at Keauhou just north of the junction of Alii Drive and Kamehameha III Road. A road right-of-way for this segment was reserved at the time the portion of Alii Highway south of Kamehameha III Road was constructed. It is within the State Urban Land Use District and is consistent with development plans for the Keauhou Resort.

The northern portion of the segment passes through an area that is very similar to Zone C. At its southern end, the proposed right-of-way is in an open area that has been cleared as part of the ongoing development activity at the Keauhou Resort.

Differences Between Alternatives. As noted above, only one alignment is under consideration through Zones B and D. However, in Zones A and C, two different alignments are possible. In most respects, there is little to differentiate A-1 from A-2 or C-1 from C-2. A-1 is somewhat shorter than A-2, but it also leaves Kailua-bound traffic farther from the center of town. The main environmental difference between these two is that A-1 does not involve an encroachment on a designated floodplain, whereas A-2 does. Functionally, A-2 has the advantage of being used as the basis for master planning the private land through which the roadway passes.

In Zone C, Alternative C-1 involves somewhat more difficult topography than does C-2. More importantly, it would entail the destruction of at least two ancient Hawaiian heiau that are eligible for the National Register of Historic Places and have been recommended for preservation. Alternative C-2 avoids direct impacts on the heiau. Both C-1 and C-2 require crossing a designated floodplain in Kaumalumu Gulch.

2.2.4 Projected Traffic Volumes with the Proposed Alii Highway

Construction of a new Alii Highway along any of the four alignments (I-IV) under consideration would result in the diversion of significant amounts of traffic away from existing Alii Drive. Because they have essentially the same starting and ending points and are served by the same number of feeder roads, there is no difference between the four in this respect.

A comparison of the traffic projections summarized on Figure II-7 with the "no new highway" projections shown in Figure I-4 indicates that traffic volumes on existing Alii Drive would be 45 to 55 percent lower if Alii Highway is constructed than if it is not. As indicated by the relatively good levels of service projected in Table II-1, most of the traffic congestion and travel delays, that would occur if no action is taken, would be avoided. [The poor service level shown for the year 2005 on the segment of Alii Highway between Royal Poinciana Drive and Kuakini Highway (Segment "L" in Table II-1) is due to the limited operating speed associated with the grade and relatively high traffic volumes along this portion of the highway.]

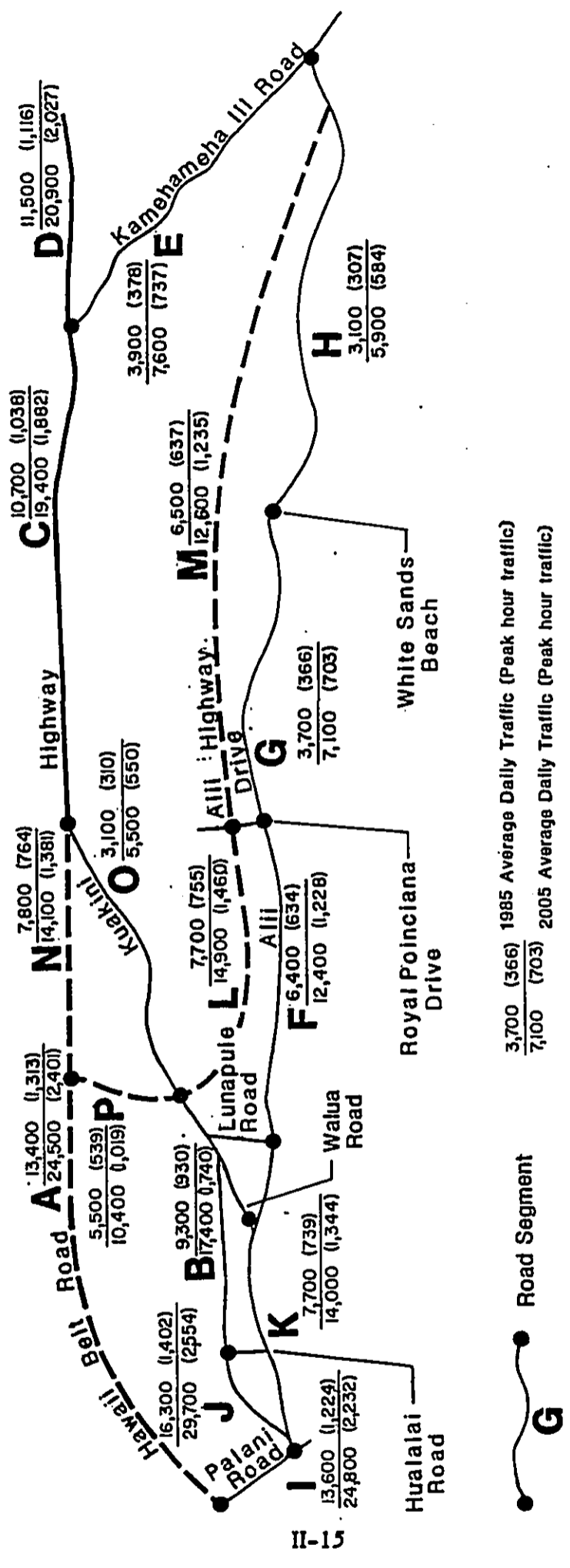


Figure II-7. PROJECTED TRAFFIC VOLUMES WITH THE PROPOSED PROJECT: 1985 AND 2005

Table II-1. Projected Level of Service on Alii Highway and Alii Drive With the Proposed Project: 1985 and 2005.

Highway Segment	Capacity ¹ Veh./Hour	Projected Traffic Volume and Service Level ¹			
		1985		2005	
		Veh./Hour	Svc. Level	Veh./Hour	Svc. Level
Alii Highway²					
M	3,760	350	B	680	B
L	2,720	420	C	800	C
P	2,120	300	C	560	C
Alii Drive					
H	770	170	A	320	A
G	710	200	A	390	A
F	710	350	A	680	E

¹ Capacities and peak hour volumes are one-directional and assume a 45/55 directional split. See Figure II-7 for location of highway segments.

² Level of service is based on operating speed rather than volume.

Source: Belt, Collins & Associates.

Table II-2. Comparison of Existing Conditions on Alii Drive with Construction Alternatives.

<u>Existing</u>	<u>Widening</u>	<u>Realignment</u>
2 lanes	4 lanes	4 lanes
22' - 24' pavement	48' wide lane	48' wide lane
50' R.O.W.	80' min. R.O.W.	100' min. R.O.W.
no parking on roadside	parking allowed along roadside	no parking on roadside
no sidewalks	sidewalks installed	possible sidewalks

Source: Belt, Collins & Associates.

CHAPTER III
AFFECTED ENVIRONMENT

CHAPTER III
AFFECTED ENVIRONMENT

This chapter briefly describes the existing population characteristics and trends, land uses, the natural environment, economic characteristics, and State and County land use policies and plans relevant to the North Kona District. The most current source of information for Kona is the County of Hawaii, Kona Regional Plan adopted in April 1984.

3.1 SOCIAL ENVIRONMENT

3.1.1 Population Characteristics and Projections

According to the 1980 U.S. Census, the total resident population of the North Kona District was 13,748, almost triple the number of people residing in Kona in 1970. The dramatic growth rate for the decade was primarily due to the increased activity in the visitor industry. In 1970 the number of visitors to the State was almost 1.8 million; by 1979 this figure had approached 4 million. About 40% of the visitors to the State travel to the Big Island. Visitor activity in Kona, measured by the number of occupied units, grew from 978 in 1970 to 2,324 in 1979.

Many of North Kona's new residents were young Caucasians who moved to the district from out of state or from other counties within the state. About 52% of North Kona's population is Caucasian and about 22% is Hawaiian or part Hawaiian. The change in the ethnic composition of North Kona's residents is shown in Table III-1. North Kona's population consists of proportionally more people in the 20-24 and 25-39 age groups than the County of Hawaii as a whole.

Future population levels in Kona depend largely on the distribution of tourism activities in West Hawaii and County growth policy directions. The County of Hawaii has projected population for North and South Kona based on employment multipliers under three future development scenarios. The lowest projection, 33,200 persons, is based on a slowdown in visitor activity resulting in no additional hotel developments after completion of the 2,181 units which had approved County permits as of August 1980. The highest projection, 46,300 persons, is based on the continuation of past development rates in Kona. The mid-range projection, 39,400 persons is based on the complete build-out of Keauhou as permitted by the County General Plan, and no additional resort condominium development in Kona after completion of those approved (2,181 units) as of August 1980.

3.1.2 Land Use

The dramatic increase in Kona's population between 1970 and 1980 had significant impacts on land use. Up until the late 1950's agriculture was the primary economic activity and development in Kailua was limited primarily to harbor and shipping activities supporting agriculture. Residents lived on and farmed the mauka lands. Today, residents still prefer to live in mauka Kona. Coffee, macadamia nuts and illegal marijuana are the primary crops grown on the cool rainy slopes. The coastal area has the necessary climatic conditions to attract visitors -- sunny skies, warm temperatures and low rainfall. It is this coastal strip from Kailua to Keauhou which has undergone dramatic land use changes.

Table III-1. Ethnic Characteristics of North Kona's Population.

	1960		1970		1980	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Chinese	51	1.1	177	3.6	210	1.5
Caucasian	550	12.4	2,125	44.1	7,202	52.0
Filipino	631	14.2	406	8.5	1,031	7.5
Hawaiian/ Part Hawaiian	1,510	33.9	934	19.3	2,991	21.8
Japanese	1,695	38.1	1,118	23.1	1,698	12.4
Other	14	0.3	79	1.4	606	4.4
TOTAL	4,451		4,832		13,748	

Source: U.S. Bureau of Census, Census of Population. 1960, 1970, 1980.

Today, lands in the State Land Use Urban District are located primarily makai of Kuakini Highway and the Hawaii Belt Road (now under construction). Areas classified rural are generally clustered along Mamalahoa Highway and agricultural and conservation lands are primarily mauka of Mamalahoa Highway.

County zoning follows the same land use pattern. Parcels zoned single-family residential occur primarily between Kuakini Highway and Alii Drive and along Mamalahoa Highway. Multi-family residential, resort hotel, commercial and industrial uses are concentrated in Kailua with multi-family and resort use stretching from Kailua to Keauhou makai of Alii Drive. Light industrial uses including storage, baseyards, material supply houses; and repair services are located north of Kailua in a rapidly expanding industrial subdivision. No heavy industry has located in Kailua.

3.1.3 Housing

The 1980 census is the most comprehensive source of data on housing in North Kona (U.S. Census Bureau, 1980 Census, Summary Tape Files 1A and 3A). The total number of housing units in the division (district) was 6,931 on April 1, 1980. The total number of occupied units was only 4,619. This is due to the large number of condominium units which are used as second/vacation homes and thus classified vacant.

Characteristics of housing in North Kona include: a smaller proportion of single-family units (53 percent) than the rest of the island; a large proportion of units constructed since 1970 (over 73 percent); a high percentage of renter-occupied units (about 45 percent of occupied units); and a high median value of owner-occupied housing (\$112,000).

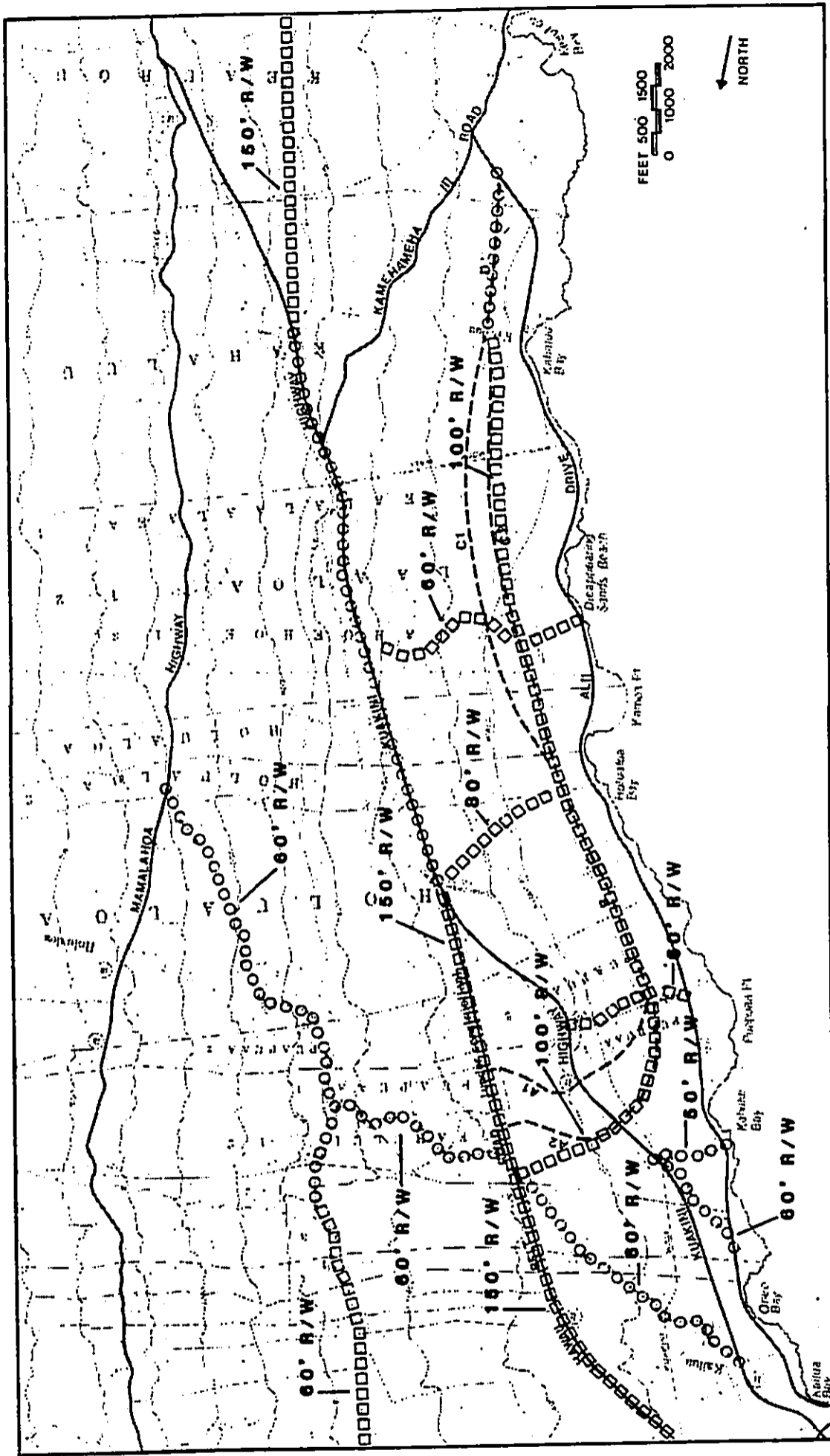
The multi-unit condominium developments are largely concentrated in Kailua and Keauhou and along Alii Drive, while most of the single-family units are in subdivisions mauka of the coastal roads. To estimate the number of units built since the 1980 census, the construction rate of the last decade (approximately 500 units per year) was projected. The current total number of housing units in North Kona is probably close to 8,500.

3.1.4 Transportation Facilities

As discussed in Section 1.1, five major highways serve the region. They are Mamalahoa Highway (FAS 180), Kuakini Highway (FAP 11), Queen Kaahumanu Highway (FAP 19), Kamehameha III Road (FASC 185), and Alii Drive (refer to Figure I-1). The road pattern has developed primarily in a north-south orientation because of steep mauka-makai slopes. The rapid growth in the Kona District over the last 10-12 years placed heavy demands on all infrastructure within Kona. Some roadway improvements are underway (Hawaii Belt Road) and more are planned. Alii Highway and mauka-makai connector roads between Alii Highway and Kuakini Highway are designated on the roadway plan of the County of Hawaii Kona Regional Plan (Figure III-1).

3.1.5 Recreation

Existing State and County park facilities in the North Kona District total 166 acres. The Old Kona Airport Park, almost 120 acres, and the Kamoia Point Historic site, over 12 acres, are State facilities. County recreational facilities are primarily beach parks and community centers. There are presently no Federal parks in the North Kona District although the Kaloko-Honokohau area north of Kailua is proposed for a National Historic Monument under the U.S. National Park system.



III-4

Figure III-1 ROADWAY PLAN

- IMPROVEMENTS TO EXISTING ROADWAYS
- PROPOSED NEW ROADWAYS
- R/W RIGHT OF WAY

Source: County of Hawaii,
Kona Regional Plan 1984

Coastal recreational activities are the most popular; however, good beaches on Hawaii are scarce since the island is geologically young. Beach parks are concentrated between Kailua-Kona and Keauhou and both resident and visitor use is high. The major recreational resources in the project vicinity are shown in Figure III-2.

The County of Hawaii park dedication ordinance requires a park land dedication or a payment of fees from all residential developments once the ratio of the total acreage of public park land (excluding Federal parks) to resident population is less than five acres per 1,000 persons. The current ratio is about .12 acres per 1,000 residents; therefore, new residential developments are not now required to comply with the requirements of the park dedication ordinance.

3.2 NATURAL ENVIRONMENT

3.2.1 Geology/Physiography

The island of Hawaii was built by lava issuing from eruptions of five volcanoes -- Mauna Kea, Mauna Loa, Kohala, Kilauea and Hualalai. The Alii Highway corridor is situated on the west coast of the island between Kailua-Kona and Keauhou, on the southwest slope of Hualalai Volcano. Hualalai is the fourth largest of Hawaii's five volcanoes and last erupted in 1800-1801. Its summit is 8,271 feet above sea level and approximately eight miles northeast of Kailua. Lava flows from Mt. Hualalai consist of alkalic basalt and hawaiite and contain no known economic mineral resources. The flows are geologically young, and erosional processes have not yet carved well-developed drainage channels. Mt. Hualalai is situated in the saddle between Mauna Kea, (13,796 feet), and Mauna Loa (13,677 feet above sea level). The regional topography is dominated by these features. In the highway corridor, slopes vary from 0 to 10 percent (Figure III-3).

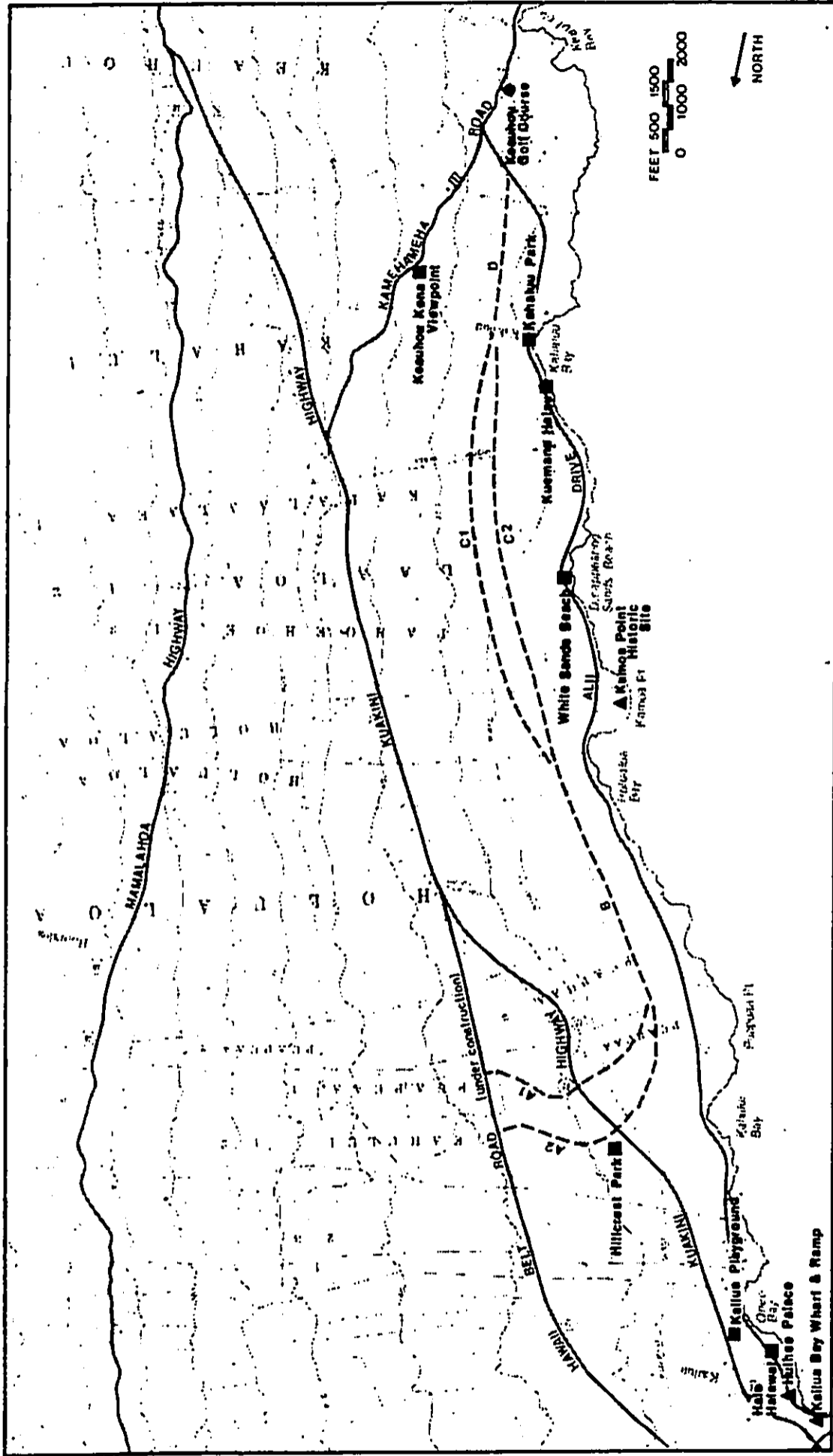
The area traversed by Alii Highway is classified in zone "DE" of overall relative risk from volcanic hazards (Mullineaux and Peterson, 1974:52). The zones of risk increase from "A" through "F". Hualalai Volcano has a lower overall risk than the flanks of Mauna Kea and Mauna Loa because it has a lower frequency of eruption. However, it has a higher overall risk than zone "D" because it has erupted in historic time.

The Island of Hawaii is a seismically active area. The largest historic earthquakes to affect the Kailua-Kona area occurred on April 2, 1868 (magnitude of approximately 7.5 on the Richter scale) and on August 21, 1951 (magnitude of approximately 6.9) (Furumoto, February 1966). Records from the latter event indicate that there was some damage to structures in the study area as a result of both events, but no major earth cracking or slumping resulted from the 1951 quake.

3.2.2 Soils

3.2.2.1 Soil Conservation Service (SCS) Soil Survey

Figure III-4 shows the soil series mapped by the Soil Conservation Service (December 1973) soil survey for the lands in the project area. Soils in the project area are in the Puu Pa-Pakini-Waiaha Association. According to the survey report, soils in this association:



III-6

Figure III-2 RECREATIONAL RESOURCES IN THE PROJECT VICINITY

- COUNTY
- ▲ STATE
- PRIVATE

Source: County of Hawaii,
Department of Parks and Recreation

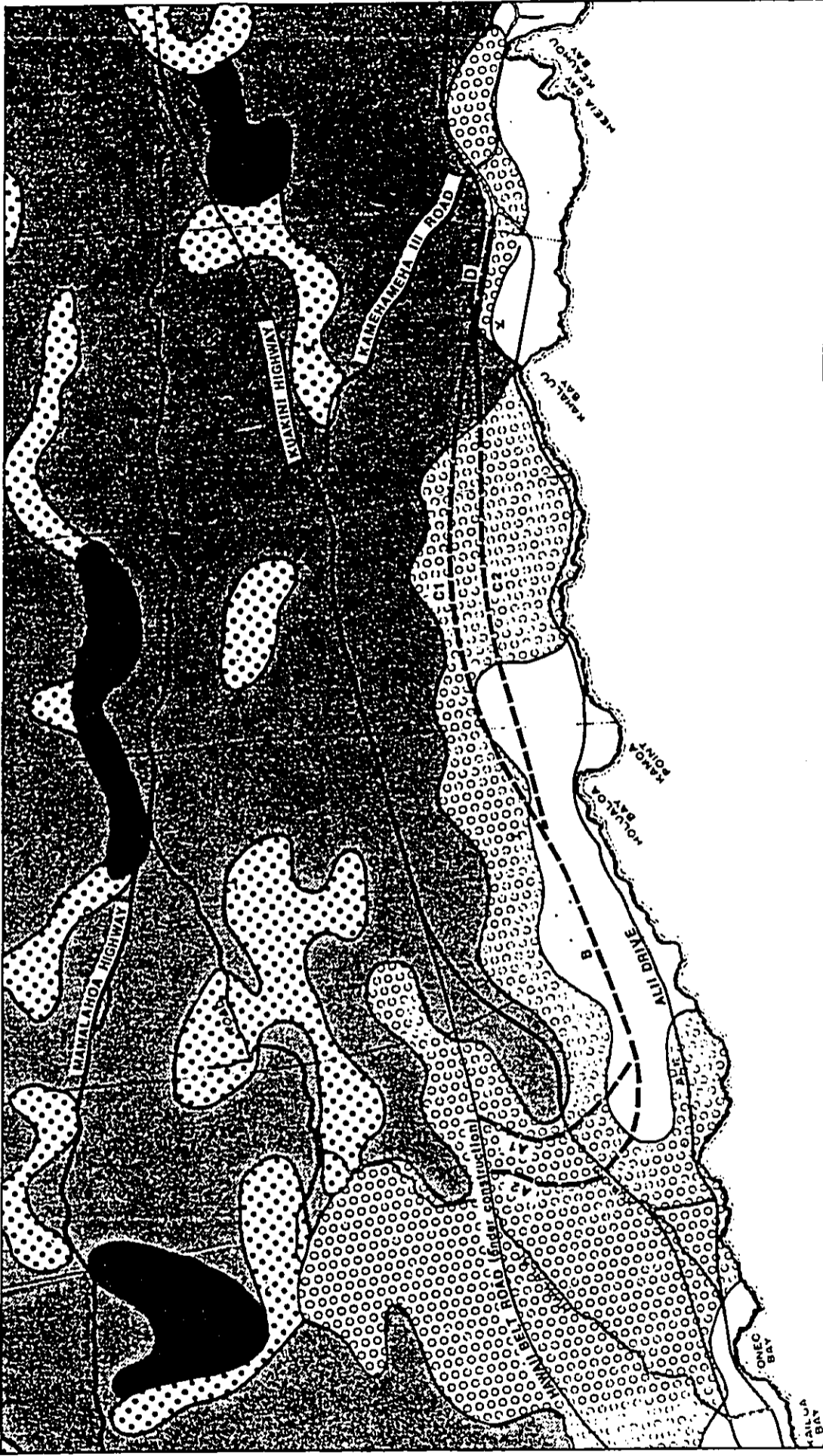
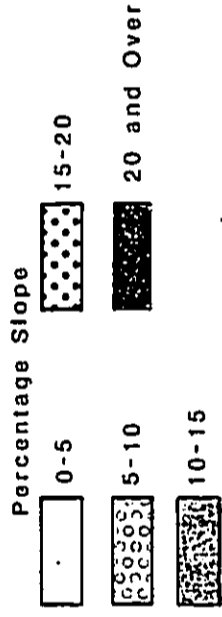


Figure III-3 SLOPE IN PROJECT VICINITY



Source: Reproduced from County of Hawaii,
Kona Regional Plan, 1984

- o are moderately coarse to moderately fine textured soils that formed in volcanic ash;
- o receive 20-60 inches of rainfall annually;
- o are well-drained to excessively-drained; and
- o are used mainly for pasture.

Individual descriptions of the soils that comprise this association and occur in the project area are taken from the SCS Soil Survey of the Island of Hawaii.

rPYD. **Punaluu extremely rocky peat, 6-20% slope.** This soil is black peat, four inches thick over pahoehoe lava. The peat is rapidly permeable; the pahoehoe lava very slowly permeable, although water moves rapidly through cracks. Runoff is slow and the erosion hazard is slight. Used for pasture. The capability subclass is VII_s. The shrink-swell potential is high unless thoroughly dried. Pahoehoe lava exists at a depth of less than 10 inches.

WHC **Waiaha extremely stony silt loam, 6-12% slope.** The surface layer of this soil is a dark brown, extremely stony silty loam about four inches thick. The subsoil is dark brown, very stony silt loam about fourteen inches thick. The substratum is pahoehoe bedrock. Permeability is moderately rapid, runoff slow and erosion hazard slight. The capability subclass is VII_s. The shrink-swell potential is low, and bedrock exists at a depth of less than 18 inches. Slopes tend to be unstable, and the erodibility is high.

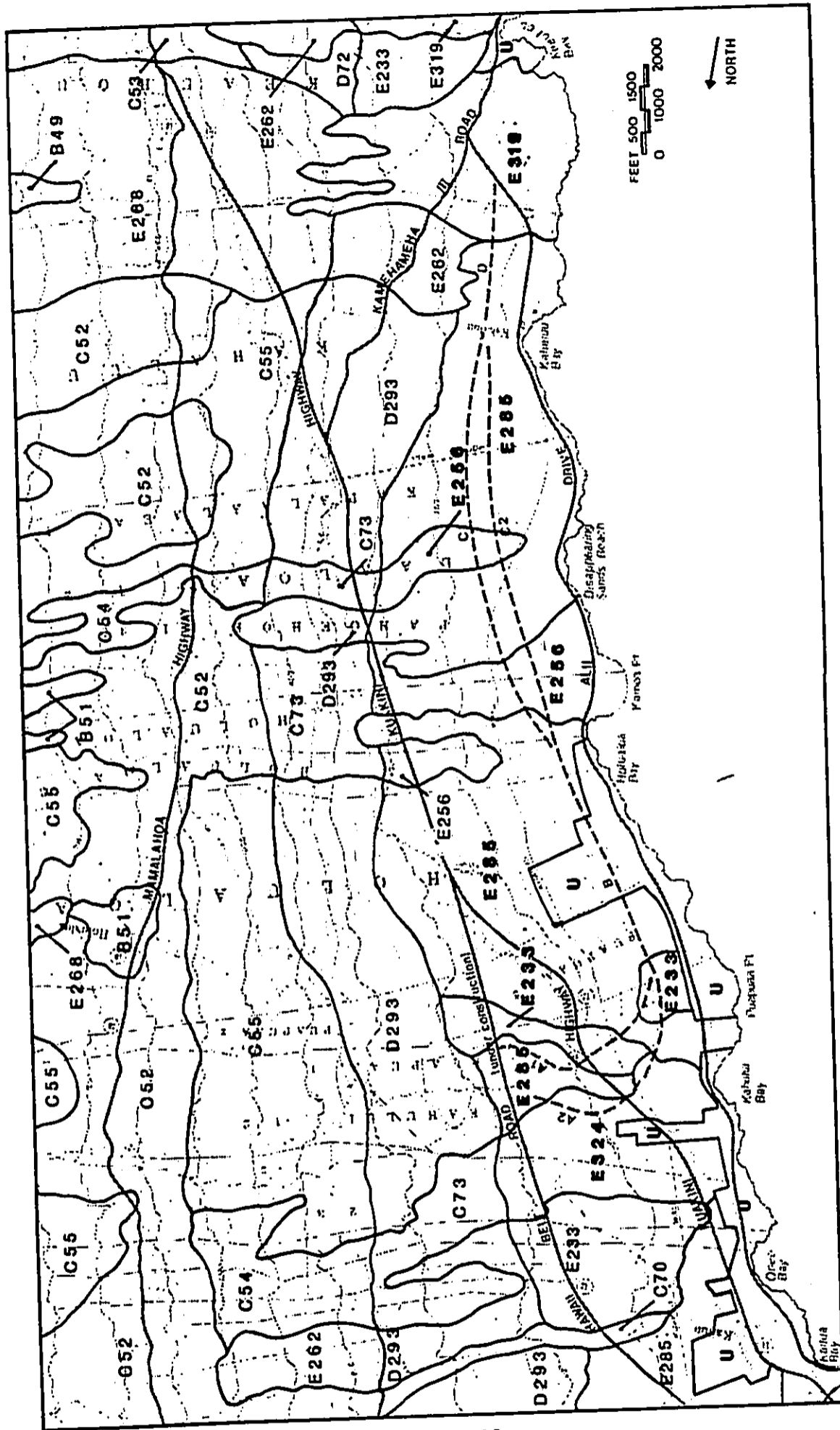
rKED **Kaimu extremely stony peat, 6-20% slope.** The surface layer of this soil is a very dark brown, extremely stony peat about three inches thick. It is underlain by fragmental a'a lava. Permeability is rapid, runoff is slow and the erosion hazard is slight. The soil is not suitable for cultivation. Some areas are used for pasture, macadamia nuts, papaya, and citrus fruits. The capability subclass is VII_s. The shrink-swell potential is high unless the soil is thoroughly dried.

rLW **Lava Flows, Pahoehoe.** Pahoehoe lava has no soil covering and is typically bare of vegetation except for mosses and lichens. The capability subclass is VIII_s.

All three of the actual soils are assigned a capability subclass of VII_s. This subclass has very severe limitations that make them unsuited to cultivation and restrict their use to pasture or range, woodland or wildlife. The "s" indicates the limitation is related to shallow soil, droughtiness, or stony land. The fourth category, pahoehoe lava, is not really a soil in the usual sense of the word; it has a capability rating of VIII_s. This is the most severe limitation and precludes lands from being used for commercial plants. Uses are restricted to recreation, wildlife or water supply, or to aesthetic purposes.

3.2.2.2 Land Study Bureau

Figure III-5 shows the location of the proposed highway relative to the land classification assigned by the Land Study Bureau in 1965. The Land Study Bureau (LSB) established an overall productivity rating based on factors including slope,



III-10

Figure III-5 DETAILED LAND CLASSIFICATION

Overall Productivity Rating
 Land Type
 E 324

Soil types in highway corridor:

- E324 E256
- E285 E319
- E233 U Urban Land

Source: University of Hawaii, Land Study Bureau, Detailed Land Classification, 1965.

drainage, climate, water supply, and soil nutrients. All lands in the project area were assigned an overall productivity rating of E, the lowest. The primary reason for this poor rating is the lack of soil material covering the geologically recent lava. The number following the productivity rating is the soil type. Below are descriptions of the soil types in the Alii Highway Corridor from the LSB Detailed Land Classification.

- E285** **Pakini and Waiaha over pahoehoe lava.** The soil material is shallow with frequent pahoehoe outcrops. It is well drained, mostly under 20% slope and has a mean annual rainfall of 30 to 50 inches. The soil is very poorly suited to machine tilling.
- E233** **Waiaha soil series.** Soil depth is shallow with frequent pahoehoe outcrops. It is well drained, 0-20% slope and receives an average annual rainfall of 30 to 50 inches. It is unsuited to machine tilling.
- E256** **Waiaha soil over a'a lava.** The soil layer is generally deep and is very well drained. Slopes vary from 0-35% and average annual rainfall ranges from 30 to 50 inches. It is unsuited to machine tilling.
- E324** **Regosol cones with Huikau, Apakuie and Kilohana soil series.** These soils are deep and derived from cinders. They are well drained, 36-80% slopes and are unsuited to machine tilling.
- E319** **Bare a'a lava.** There is no soil material. Excessively drained, 0-20% slopes and unsuited to machine tilling.

3.2.3 **Climate**

The climate in Kona is influenced more by local heating and cooling of the ground than by the effect of tradewinds prevalent in the rest of the state. Normal tradewinds are blocked by the mountain masses of Mauna Kea, Mauna Loa and Hualalai. During the day, the land is warmer than the ocean and the pressure gradient created causes winds to blow from the ocean towards the land. In the evening, the reverse occurs. As the land cools, the evening and night breezes blow from the land towards the warmer ocean.

Average annual rainfall in the project area is less than 40 inches and temperatures average about 75°F. Rainfall is greater in the summer months and less in the winter months, a pattern unique in the State.

3.2.4 **Hydrology**

The southwestern slopes of Hualalai consist of geologically recent, unweathered lava flows. Drainage courses are poorly developed and drainage basin boundaries are not easily delineated. No perennial streams exist. Occasionally intense rain storms do occur and these can produce overland sheet flow. Most rainfall percolates into the ground to the underlying groundwater body and moves slowly seaward to be discharged at the coast. Groundwater underlying the highway corridor is brackish basal water; it is not suitable for potable water supply.

3.2.5 Flora and Fauna

Six major vegetation cover types occur within the project area. These are grassland, open mixed scrub, koa haole woodland, kiawe forest, mixed forest and recent lava flow vegetation. Plant species are exotics or introduced plants commonly found in dry lowlands throughout the islands.

A variety of birdlife occurs in the Kailua-Kona-Keauhou area and mammals include the mouse, cat and mongoose. Dogs and rats are probably present and the area is known habitat for the Hawaii Hoary Bat, although none were observed.

3.3 ECONOMY

Through the first six decades of this century, agriculture was the dominant economic activity in Kona. The visitor industry was relatively small and was concentrated in Kailua. By 1970, the relative position of these two industries was completely reversed. Moreover, the growth in the visitor industry was accompanied by significant expansion in the retail and construction sectors as well.

A summary of occupations of residents of Census Tracts 216 (the area in and immediately around Kailua) and 215 (the remainder of the North Kona District) may be found in Table III-2. It shows that nearly three-quarters of the residents of North Kona are in the top three categories: managerial and professional specialties, technical sales and administration, and service occupations. Table III-3 compares employment by industry in North and South Kona with that of Hawaii County as a whole and with statewide averages. Together, the data highlight the relative importance of the service industry (including hotels and other visitor-related activities), real estate, and, most notably, construction as sources of employment. There has been a very marked downturn in construction activity in Kona since the data for the census was collected, and it is likely that an update would show construction employment in the North Kona to be closer to the islandwide average.

The data on labor force status contained in Table III-2 reveals some important aspects of the economic situation in Kona as of the date of the census. First, 53 percent of the total population and 72 percent of the persons 16 years of age and over are in the labor force. This is significantly higher than the County-wide and statewide averages, and reflects the disproportionately large number of young, childless adults who are employed in the visitor industry. The low average commuting time is evidence that most of the persons who reside in the North Kona District also work there.

Since 1980, there has been a dramatic slowdown in the rate of economic growth in North Kona. The average visitor census on the island, which peaked at over 8,000 in 1979, has actually declined. While Hilo has borne the brunt of the downturn, Kona has also been affected, and the rate of resort development there has slowed appreciably. This trend has been taken into account in the traffic projections on which plans for the highway have been based.

The agricultural sector in Kona is most famous for the coffee which it produces. The coffee plantations, as well as newer orchard crops such as macadamia nuts, are located at elevations well above the proposed Alii Highway where soil and climatic conditions are more favorable to their growth. Cattle, which once grazed in small numbers on the slopes crossed by the proposed project, are now limited primarily to

Table III-3. Employment by Industry: 1980 Census.

INDUSTRY	Hawaii Island		State of Hawaii		North & South Kona	
	Number	Percent	Number	Percent	Number	Percent
Construction	1,700	4.6%	22,300	5.1%	1,390	17.4%
Manufacturing	2,900	7.8%	23,150	5.3%	90	1.1%
Transportation/ Communication/ Utilities	1,850	5.0%	31,350	7.2%	630	7.9%
Trade	7,100	19.0%	21,400	4.9%	900	11.2%
Finance/ Real Estate/ Insurance	1,200	3.2%	105,550	24.3%	570	7.1%
Services	7,000	18.7%	101,100	23.3%	2,510	31.3%
Government	6,500	17.4%	89,000	20.5%	840	10.5%
Agriculture	6,550	17.5%	15,800	3.6%	660	8.2%
Non-Agriculture/ Self-Employed	2,550	6.8%	24,350	5.6%	420	5.2%
TOTAL	37,350	100.0%	434,000	100.0%	8,010	100.0%

Note: Data for State and Hawaii Island from 1980 U.S. Census; data for North and South Kona from survey conducted by PAAS for the Kona Regional Plan.

Source: Compiled by Belt, Collins & Associates

Table III-2. Employment and Job Characteristics of Area Residents.

	CT 215		CT 216		Combined CT 215 and 216	
	Number	% of Total	Number	% of Total	Number	% of Total
Total Population	7,610	55.4%	6,138	44.6%	13,748	100.0%
<u>Journey To Work:</u>					6,730	100.0%
Number of Workers 16 and Over	3,846	57.1%	2,884	42.9%	4,350	64.6%
Priv. Vehicles: Drive Alone	2,585	67.2%	1,765	61.2%	1,227	18.2%
Carpool	737	19.2%	490	17.0%	78	1.2%
Public Transportation	15	0.4%	63	2.2%	438	6.5%
Walked Only	111	2.9%	327	11.3%	199	3.0%
Other	139	3.6%	60	2.1%	438	6.5%
Work at Home	259	6.7%	179	6.2%		
Mean Travel Time (in minutes)	20.1		11.3		16.3	
<u>Labor Force Status:</u>					10,095	100.0%
Persons 16 Years and Over	5,736	56.8%	4,359	43.2%	7,298	100.0%
Labor Force	4,143	100.0%	3,155	100.0%	7,298	99.9%
Civilian Labor Forces:	4,143	100.0%	3,149	99.8%	7,292	99.7%
Employed	3,933	94.9%	2,980	94.5%	6,913	94.7%
Unemployed	210	5.1%	169	5.4%	379	5.2%
<u>Occupation In Selected Industries:</u>					6,913	100.0%
Employed Persons >15 Years	3,933	100.0%	2,980	100.0%	1,462	21.1%
Managerial and Professional Specialty	797	20.3%	665	22.3%	1,948	28.2%
Technical, Sales, and Administration	1,034	26.3%	914	30.7%	1,486	21.5%
Service Occupations	846	21.5%	640	21.5%	491	7.1%
Farming, Forestry, and Fishing	361	9.2%	130	4.4%	839	12.1%
Precision Production and Repair	502	12.8%	337	11.3%	687	9.9%
Operators, Fabricators, and Laborers	393	10.0%	294	9.9%		
<u>Class Of Worker:</u>					5,479	74.2%
Private Wage and Salary Workers	3,112	73.4%	2,367	82.2%	599	8.1%
Total Government Workers	331	7.8%	268	9.3%	454	6.1%
Federal Government	256	6.0%	198	6.9%	145	2.0%
State and Local Government	75	1.8%	70	2.4%	712	9.6%
Self-Employed Workers	468	11.0%	244	8.5%		
<u>Labor Force Status In 1979:</u>					7,921	78.5%
Persons >15 Years in Labor Force	4,554	79.1%	3,367	77.2%	7,811	98.6%
Number of Persons Who Worked in 1979	4,485	98.5%	3,326	98.8%	5,567	71.3%
Worked 40 or More Weeks	3,312	73.8%	2,255	67.8%	4,749	60.8%
Usually Worked >34 hrs/wk	2,823	62.9%	1,926	57.9%		
Worked 50 to 52 Weeks	2,803	62.5%	1,873	56.3%	4,676	59.9%
Usually Worked >34 hrs/wk	2,415	86.2%	1,630	87.0%	4,045	86.5%
With Unemployment in 1979	552	12.1%	466	13.8%	1,018	12.9%
Unemployed >14 weeks	244	5.4%	164	4.9%	408	5.2%
Mean Weeks of Unemployment	18.4		14.7		16.7	

Source: U.S. 1980 Census.

the upland areas where pasture is richer and interference from urban development is more limited. Flowers, foliage, and nursery plants are high value crops which are beginning to be cultivated on a limited basis in the area.

There is little primary-sector industrial activity in Kona. Instead, industry here consists of activities such as storage, wholesaling, baseyards, material supply houses, and repair services which are supportive of the visitor industry and/or the resident population which is supported by it. Their existence is dependent upon the continued health of the primary-sector activities in tourism. Industrial uses are concentrated in the Queen Liliuokalani Trust industrial subdivision near the old airport, on the north side of Kailua town. According to the Kona Regional Plan, that area contains approximately 650,000 square feet of industrial floor area. According to the Kona Regional Plan, the biggest unknown with respect to industrial activity in Kona is future development of an economically competitive energy source through the Ocean Thermal Energy Conversion Project located at Keahole Point, about ten miles north of Kailua. At present, it appears that little associated development is likely for many years even if the technology does prove economically viable.

3.4 RELATIONSHIP TO OTHER POLICIES AND LAND USE PLANS

Several State and County policy plans and land use plans and controls are relevant to the proposed project. These are discussed below in two general categories -- policy plans and land use plans.

3.4.1 Policy Plans

3.4.1.1 Hawaii State Plan

The Hawaii State Plan, adopted in 1978, consists of three parts: (1) an overall theme together with broad goals, objectives, and policies; (2) a system designed to coordinate public planning to implement the goals, objectives, and policies of the State Plan; and (3) priority guidelines which are statements of Statewide interrelated problems deserving immediate attention.

Three broad goals in the areas of the economy, the physical environment and physical, social and economic well-being express ideal end-states. Objectives and policies in twenty-four areas support the three broad goals. The objectives and policies for transportation facility systems bear the most relationship to the Alii Highway project and are stated and discussed below.

OBJECTIVES

- o An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.
- o A statewide transportation system consistent with planned growth objectives throughout the State.

RELEVANT POLICIES

- o Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter.

- o Coordinate State, County, Federal, and private transportation activities and programs toward the achievement of statewide objectives.
- o Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties.
- o Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs.
- o Encourage the use of transportation systems that serve as a means of accommodating present and future development needs of communities.
- o Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawaii's natural environment.

Alii Highway was first proposed almost 20 years ago to meet the region's future transportation needs, to insure that growth in Kailua occurred in an orderly pattern, and to move through-traffic away from the coastline.

The proposed highway will be financed under the Federal Aid Highway Program with 75 percent of the funds contributed by the Federal Department of Transportation and 25 percent contributed by the County of Hawaii. There is a possibility that an improvement district will be established to finance the County's share. Community needs, environmental concerns and cultural resources are considered in the EIS and design process. The Alii Highway project supports the State Plan's general objectives and policies for transportation and is consistent with the following priority guidelines listed in the State Plan.

Economic

- o Priority Action - General Business and Finance
 - o Stimulate the economy to provide needed jobs for Hawaii's people without stimulating unnecessary in-migration.
- o Priority Action - Visitor Industry
 - o Preserve and enhance Hawaii's significant natural environmental and scenic, historic, and cultural sites.
- o Priority Action - Energy Use
 - o Encourage future urbanization into easily serviceable more compact, concentrated developments in existing urban areas wherever feasible to maximize energy conservation.

Population Growth and Distribution

- o Priority Action - Growth Distribution
 - o Encourage CIP expenditures, public services, and housing developments that recognize the needs and preferences of the counties.

- o Priority Action - Regional Growth
 - o Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures. Secondly, encourage urban growth away from areas where other important benefits are present, such as protection of valuable agricultural land or preservation of life-styles.
 - o Identify critical environmental areas in Hawaii ... historic and cultural sites ...
 - o Seek participation from the private sector for the cost of building infrastructure, utilities, and open spaces.

3.4.1.2 Functional Plans

The State functional plans are intended to provide more detail to the State Plan by addressing specific functional topics. Ten of the twelve functional plans were approved by the 1984 legislature. The functional plans and state programs not covered by functional plans shall be in conformance with the overall theme, goals, objectives and policies of the State Plan. The functional plans shall conform to the priority guidelines and state programs shall use the functional plans and the priority guidelines as guidelines.

The Functional Plans relevant to the Alii Highway Project are the transportation and visitor industry plans. Applicable objectives, policies and implementing actions are discussed below.

TRANSPORTATION

Policy A(1): Base transportation and transportation related improvements on a cooperative, comprehensive, and continuing transportation planning process.

Implementing Action A(1)(d): Establish a cooperative, comprehensive, and continuing planning process on Kauai, Maui, and Hawaii, and prepare respective long-range transportation plans.

Discussion: The County Departments of Public Works are listed as the lead agencies for this action and the assisting organization is Federal Highway Administration (FHWA). The proposed Alii Highway is a Federal-aid primary highway funded jointly by FHWA and the County of Hawaii. It is part of Hawaii County's transportation plans.

Policy C(3): Promote the planning for and improvement of the primary, secondary, and urban highway and street systems consistent with State and County plans to control growth.

Implementing Action C(3)(b): Improve vehicular and pedestrian safety on State and County highways and streets.

Discussion: Alii Drive carries a mix of local and through traffic as well as pedestrian traffic, joggers and cyclists. Alii Highway will improve the vehicular and pedestrian safety by separating local and through vehicular traffic.

VISITOR INDUSTRY

Policy B(3): Encourage greater cooperation between the public and private sectors in developing and maintaining well designed and adequately serviced visitor industry and related developments.

Implementing Action B(3)(a): Assure that adequate infrastructure and amenities, such as roads, water, drainage and parks are provided through a reasonable distribution of financial responsibilities between governmental and private parties.

Discussion: Alii Highway will be a Federal-aid secondary road and will receive 75% funding from FHWA and 25% from the County of Hawaii. The County's portion of the funds may come from creating an improvement district.

Highway construction is most likely to be in conflict with the goals, objectives and policies of the functional plans for agriculture and historic preservation. In the case of Alii Highway, it does not traverse lands suited for agricultural production. A Memorandum of Agreement between the Federal Highway Administration, the State Historic Preservation Officer, and the National Advisory Council on Historic Preservation has been negotiated prior to publication of this Final Environmental Impact Statement. This agreement is consistent with the guidelines of the National Advisory Council on Historic Preservation for the treatment of archaeological properties. Because of this, the construction of Alii Highway is not expected to conflict with the goals, objectives, policies and implementing actions of the Historic Preservation Functional Plan.

3.4.1.3 County of Hawaii General Plan

The General Plan of the County of Hawaii was adopted by Ordinance No. 439 on December 15, 1971. It is a policy document expressing broad goals and policies for the long-range development of the Island of Hawaii and the legal basis for subdivision and zoning controls, and for expenditure of funds for public improvement projects. It contains a discussion, by district, of the goals, policies and standards for twelve study elements.

The twelve elements are: economic, environmental quality, flood control and drainage, historic sites, housing, natural beauty, natural resources and shoreline, public facilities, public utilities, recreation, transportation, and land use. The goals and policies of the transportation element and the implementing actions stated for the Kona District are relevant to the construction of Alii Highway. These goals, policies, and courses of action follow.

TRANSPORTATION

Goals

- Provide a transportation system whereby people and goods can move efficiently, safely, comfortably and economically.
- Make available a variety of modes of transportation which best meets the needs of the County.

Policies

- o A framework of transportation facilities which will promote and influence desired land use shall be established by concerned agencies.
- o The agencies concerned with transportation systems should provide for present traffic and future demands.
- o The improvement of transportation service shall be encouraged.

The specific goals and policies for roadway systems are:

Goals

- Provide a system of thoroughfares and streets for the safe, efficient and comfortable movement of people and goods between and within the various sections of the County.
- Provide an integrated State and County system so that new major routes will complement and encourage proposed land uses.

Policies

- o The programmed improvement of existing thoroughfares and streets shall be encouraged.
- o There shall be coordinated planning of Federal, State and County street systems to meet program goals of the other elements such as historic, recreational, environmental quality.
- o Private and public parking requirements and needs shall be incorporated as part of the street system.
- o The County shall encourage the State Department of Transportation to establish special scenic routes within and between communities.
- o Transportation and drainage systems shall be integrated in all medium and high density urban areas.
- o Support development of an efficient transit route between east and west Hawaii.

Courses of Action

Courses of action identified for Kona in the General Plan are:

- o Realign portion of Kuakini Highway from intersection of Palani Road and Kailua-Kawaihae Road to approximately 3/4 mile on the Palani side of Kona Sea View Lots.
- o Convert Kuakini Highway to limited access status.
- o Realign Alii Drive from proposed Kuakini Highway to Keauhou.

- o Continue the coastal highway from Ke-ahole Airport to South Kohala.
- o Construct a new scenic road over the Hualalai Saddle.
- o Construct a scenic drive from Keauhou above the Kealakekua cliffs to Napoopoo.
- o Provide vertical connectors from Alii Drive to Kuakini Highway.
- o Improve present Kona-Kau road.
- o Incorporate the Kailua Mall circulation plan.

The "realignment" of Alii Drive from the Kuakini Highway extension (Hawaii Belt Road) to Keauhou and mauka-makai connector roads from Alii Drive to Kuakini Highway are specific courses of action identified to implement the goals and objectives of the Hawaii County General Plan.

3.4.1.4 Land Use Pattern Allocation Guide Maps

Included in the General Plan are Land Use Pattern Allocation Guide (LUPAG) maps which show the general location of land use categories. They are not intended to designate sites for specific uses but show the desirable direction and pattern of future development.

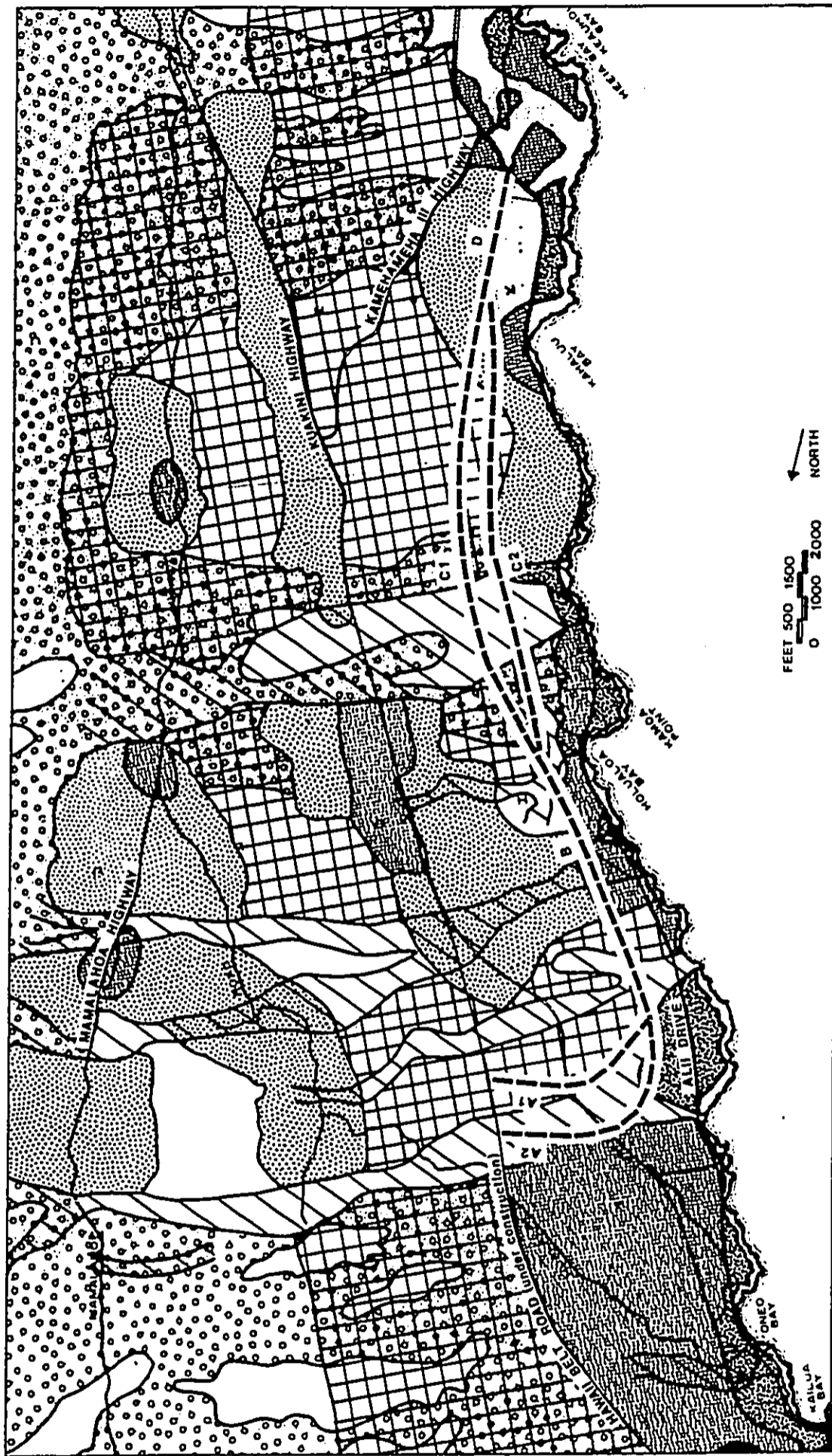
Figure III-6 is a copy of a portion of the LUPAG map for the Kailua-Kona-Keauhou area. With the exceptions of floodplains, a small agricultural area inland of Holualoa Bay, and an open area near Kamehameha III Road and Alii Drive, all the land between Kuakini Highway and its extension, Hawaii Belt Road, is allocated for urban, resort, or alternate urban expansion use.

3.4.1.5 Kona Regional Plan

As already discussed, the Hawaii County General Plan contains policies to guide the long-range development of the island and the LUPAG depicts general patterns of land use. The General Plan calls for the preparation of relatively detailed plans for areas or regions that fill the gap between broad goals and objectives and the site specific zoning code. The Kona Regional Plan was developed to fulfill this need. A draft was circulated in mid-1982. Extensive public review and comment resulted in a revised draft released in November 1983 and adoption of the plan in April 1984. The following discussion is based on the contents of the Kona Regional Plan Revisions, November 1983.

The objective of the Kona Regional Plan:

"is to provide the County Planning Department and the Planning Commission with a land use document by which evaluations of changes in land use could be made on a consistent and rational basis. [It] is intended to delineate areas of urban use and indicate the relationship or overall pattern of this use and area to the region and other uses such as agriculture, and open space. Beyond this, the plan would provide an implementation strategy to direct the expenditure of public funds for capital improvements and coordinate priorities for urban growth". (Hawaii, County of; November 1983:2).



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NORTH

Figure III-6 COUNTY LAND USE PATTERN ALLOCATION GUIDE (LUPAG)

	HIGH DENSITY URBAN		FOREST RESERVE
	MEDIUM DENSITY URBAN		FLOODPLAIN
	LOW DENSITY URBAN		ALTERNATE URBAN EXPANSION
	INDUSTRIAL		EXTENSIVE AGRICULTURE
			ORCHARD
			RESORT
			OPEN

Source: Reproduced from County of Hawaii, Kona Regional Plan. 1984

It is a guide for future land use actions by both public and private sectors. Zoning decisions would be guided by the Plan, but the Plan itself is not regulatory.

The Plan consists of two major parts. The first part projects the economic activity for the region and from these results estimates the population level and housing demand for the next 20 years. The second part is an analysis of land use requirements for growth, taking into consideration physical constraints, existing and planned infrastructure, and existing and future land use designations (State Land Use, County Zoning, LUPAG). The result of this analysis is the Kona Regional Plan consisting of conceptual land use maps, policy recommendations, a list of necessary capital improvements, and an implementation strategy.

Figure III-7 is a copy of the portion of the revised land use concept map from the Kona Regional Plan showing the project area. One of the principles which was followed in preparing the conceptual land use maps was the spatial separation of residential and resort land uses. This is reflected by the designation of residential use mauka of Alii Highway, confining resort use to the coastal area. Alii Highway from Hawaii Belt Road to Keauhou is shown as a proposed road.

3.4.1.6 Hawaii Coastal Zone Management Program

The Hawaii Coastal Zone Management (CZM) law (Chapter 205A, Hawaii Revised Statutes/Act 188, Session Laws Hawaii, 1977) establishes goals for actions affecting coastal lands. Objectives in seven major areas -- recreation, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, and managing development -- are accompanied by policy statements to guide State and County governments in actions affecting the coastal zone.

The Alii Highway corridor is located in Hawaii's Coastal Zone which is defined as all land areas excluding State forest reserves and Federal lands, and all coastal waters seaward to the limit of the State's jurisdiction.

Federal agencies are required to conduct planning, management, development and regulatory activities of their projects within the coastal zone in a manner consistent with the Hawaii Coastal Zone Management Program. "Federal Consistency with Approved Coastal Management Programs" (15 CFR 930) requires the State CZM lead agency to conduct a review of Federal agency actions in the coastal zone to assure consistency. The Office of State Planning is the lead agency for the Hawaii CZM program.

Section 4.2.6 contains the completed assessment format for addressing this Federal consistency requirement. It was reviewed by the staff of the Department of Planning and Economic Development during the Draft EIS review and their comments have been incorporated in the Final EIS.

3.4.2 Land Use Plans

3.4.2.1 State Land Use

The State Land Use Commission classifies all lands in the State into one of four classes. The four classes are: Urban, Rural, Agricultural and Conservation. The State and County regulate land use within the State Urban District. Both the Board of Land and Natural Resources regulates land use in the Conservation District.

Figure III-8 shows the State Land Use designation of land crossed by the alternative alignments. The shaded area is classified in the Agricultural District according to the most current State Land Use District Boundary Map (Kealakekua, Hawaii Map H-8, State Land Use Commission). However, Bishop Estate/Kamehameha Development Corporation has obtained incremental redistricting of the area subject only to demonstration of substantial development of their Keauhou lands in earlier increments. For practical purposes, this area may be considered within the State Urban District.

3.4.2.2 County Comprehensive Zoning Ordinance

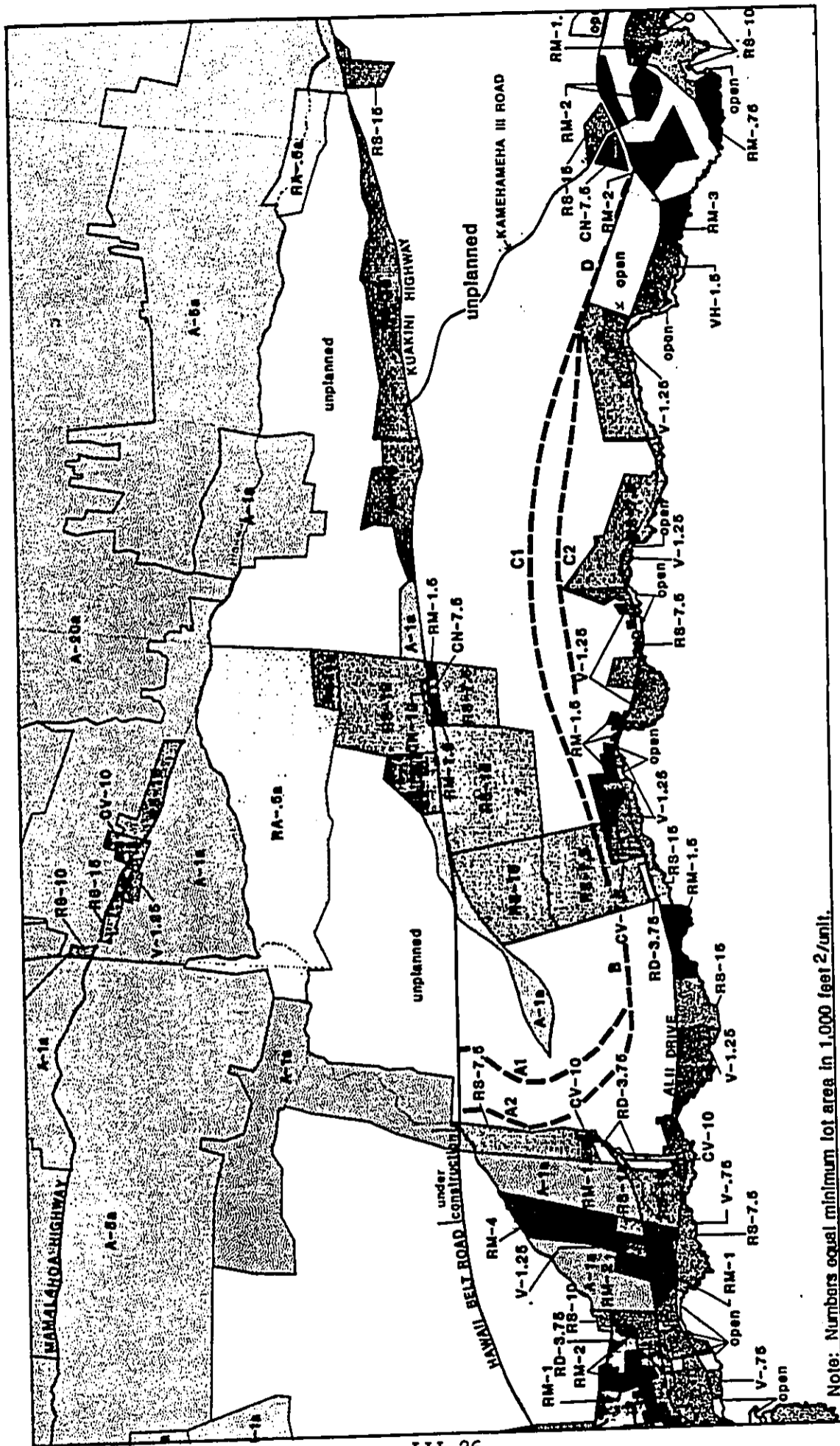
The Hawaii General Plan is the legal basis for Ordinance No. 63, the Comprehensive Zoning Ordinance (CZC), which regulates specific land uses. Figure III-9 shows a portion of the Kailua-Honalo Urban Zone Map, part of Ordinance No. 74 amending the CZC for this area. Not shown on this map are the recent rezonings that have been granted by the County and the minimum 100-foot right-of-way for the proposed Alii Drive Realignment, added to the zoning map by Ordinance 610 in August 1980. [Note: the alignment shown on the zoning map approximates segments A2 (below Kuakini Highway), B, and C2.]

Between Lunapule Road and Kamehameha III Road, nearly all parcels makai of Alii Drive are zoned for either resort, residential or commercial use; just a few areas are designated for open space. Between Alii Drive and Kuakini Highway, parcels are also zoned for resort, residential or commercial use. However, the bulk of the area is in the "Unplanned" district; this designation applies to areas where sufficient studies have not been conducted to adopt specific classifications. Permitted uses in the "Unplanned" district include one single-family dwelling per five-acre building site.

3.4.2.3 County Special Management Area (SMA)

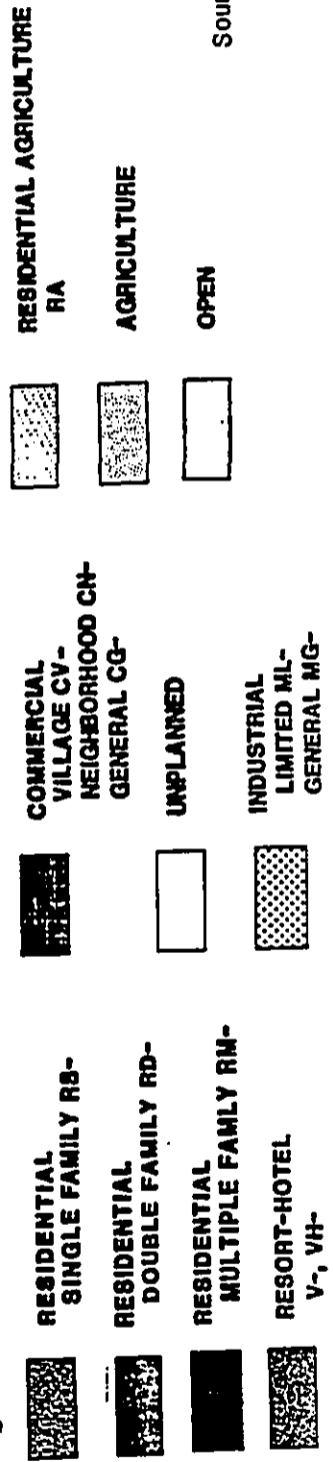
In accordance with Chapter 205A, Hawaii Revised Statutes, the County of Hawaii delineated a Special Management Area (SMA) boundary a minimum of 100 yards inland from the shoreline. The County reviews development proposals within the SMA for potential adverse impacts and for compliance with the objectives and policies of the Hawaii Coastal Zone Management Program (refer to Section 3.4.1.6). Between Kailua Bay and Keauhou Bay, the SMA boundary delineated by the County of Hawaii follows Kuakini Highway. All lands makai of Kuakini Highway are within the Hawaii County SMA.

The portions of Segments A-1 and A-2 connecting to Hawaii Belt Road mauka of Kuakini Highway are not within the SMA. The segments of A-1 and A-2 makai of Kuakini Highway and Segment B, C-1, C-2, and D are within the County SMA. A County SMA assessment application will be filed after the Final EIS is accepted.



III-26

Figure III-9 COUNTY ZONING



Source: Reproduced from County of Hawaii, Kona Regional Plan, 1984

CHAPTER IV

ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

CHAPTER IV

ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

This section of the report assesses the environmental consequences of each of the four alternatives described in Chapter II. Probable effects are described and evaluated. Compliance or noncompliance with existing governmental standards and policies is indicated. Mitigation measures that would eliminate and/or reduce potential adverse effects are identified.

The discussion is divided into four main subsections covering:

- o Urban and Community Impacts,
- o Physical Impacts,
- o Historic and Archaeological Preservation Impacts, and
- o Section 4(F) Impacts.

4.1 URBAN AND COMMUNITY IMPACTS

4.1.1 Social and Economic Impacts

In considering the potential social and economic impacts of the alternatives under consideration, it is important to remember that the project is an integral part of the County's land use plans for the area. The Alii Highway corridor has been shown on the County General Plan since 1971, and County rezonings of private parcels along the corridor (and more specifically along Alignment IV as described in Section 2.2.3.2) granted since that time have provided for the dedication of land within the proposed right-of-way as a condition of zoning approval. Individual property owners and developers have based their development plans on the assumption that Alii Highway would eventually be constructed. As a result, the potential social and economic effects of the new highway would be minimal.

4.1.1.1 Neighborhoods and Community Cohesion

The coastal strip between Keauhou and Kailua contains two fundamentally different types of development. The first is moderate-density single-family residences; the second is medium- to high-density apartment and resort hotel units. The viability of the area for both uses depends on the transportation services provided by the road network. Hence, at existing levels of traffic, Alii Drive is a unifying, rather than a divisive force. However, if no improvements to it are initiated within the next few years, growing congestion will make it difficult to move easily from place to place within the corridor. As discussed in Section 2.2.1, continuing development pressures upon the area render the "no action" alternative unrealistic. What will likely result should FHWA funding of the project not occur is the eventual construction of a new highway corresponding to private development approvals.

If the current Federal Aid project is not implemented, two fundamentally different development scenarios are possible:

Scenario 1 -- A roadway alignment is selected, but the County does not undertake construction of the project. Instead, it creates a roadway reserve and conditions future subdivision, zoning, and other land use approvals for private land traversed by the alignment. Subsequently, each developer would be required to construct the highway improvements within their parcel and dedicate the improvements and underlying land to the County. Under this scenario, roadway segments would be constructed only as rapidly as the adjacent properties are developed, and there is no guarantee that the segments will ultimately be linked to form a through-road. Until they are, each parcel would continue to rely upon Alii Drive and/or Kuakini Highway for access.

Scenario 2 -- A roadway alignment is selected, and the County proceeds with the project without Federal assistance, i.e., using only local funds. Under this scenario, the cost of the proposed land acquisition and highway improvements would be borne solely by local government. In this instance, a variety of methods (e.g., improvement districts, reimbursement upon development approval, etc.) might be used to help offset part or all of the costs.

It is important to note that both of these alternatives involve a high degree of urban development within the corridor served by the proposed Alii Highway. Given the large investments that property owners have in the land, the extent to which land use approvals have already progressed, and the strength of the market for residential and visitor-related land uses, it is not realistic to believe that withholding federal funds will lead to the abandonment of private development plans in the Alii Highway corridor.

In Scenario 1, the "No Project" alternative would result in higher land development costs, greater congestion on Alii Drive and Kuakini Highway than in the "with-project" alternatives, and an overall decrease in transportation efficiency and the attractiveness of the area. Together, these will lower the overall quality of development within the corridor, and they may even result in some landowners abandoning their development plans. However, lacking viable alternative uses for their property, most owners will choose to implement their plans even without the benefit of the proposed new highway.

In Scenario 2, the County would provide the improvements without the benefit of federal matching funds. Instead, local property owners and other taxpayers would be called upon to bear the full costs of the endeavor. Again, the higher taxes might prevent some development, but the marginal costs are relatively small compared to total development costs. Hence, the majority of the secondary growth expected if the proposed federal aid highway is constructed would still be built.

Widening the existing roadway to four lanes would provide adequate service, but it would also result in a significant change in the ambience of the shoreline area. As noted elsewhere in this report, changes in noise and other environmental factors that would accompany the increased traffic volumes would adversely affect properties adjacent to Alii Drive and make them less desirable for residences and visitor accommodations. It is likely that significant landowner opposition to such a widening would be encountered because of the disruptive effect which it would have on existing uses, both during and following construction.

In sharp contrast to the widening alternative, all of the new alignments under consideration run through largely undeveloped land. Subsequent development would be able to take advantage of the roadway rather than be split or otherwise damaged by it.

In the one case where the proposed roadway would bisect an existing subdivision (Alii Kai), it would follow a route that has been reserved for it for over a decade, and would result in the relocation of only one existing home. It would improve access to Kahakai Elementary School (which serves the entire Kailua-Keauhou area) and would eliminate vehicular traffic to and from the school via the streets of the subdivision.

4.1.1.2 Regional Economic Impacts

Without Federally funded highway improvements, a new highway to relieve increasing traffic congestion along Alii Drive will depend upon the acquisition of right-of-way set-asides from proposed subdivisions or piecemeal highway construction as new subdivisions are developed. In either case, the projected growth in traffic along Alii Drive will result in increased noise, travel time, and other adverse impacts. Eventually, the slow deterioration in environmental quality will make abutting properties less marketable, and this will have an adverse effect on their value. The inevitable construction of a reliever highway in response to demand will lag behind continuing residential development, causing an over-burdening of existing roadways. Private development of the highway will result in higher development costs for improved lots than if Alii Highway is constructed with Federal funds. To the extent that these higher costs are translated into higher selling prices, the affordability of new housing would be decreased.

The "No-project" alternative does not involve the expenditure of public funds. Neither does it enhance transportation through the corridor. No quantitative estimate of the dollar value of the travel time losses produced by increasing congestion has been made. However, a review of the projected traffic volumes shown in Chapter I make it clear that they would be substantial.

Construction cost estimates for the alternatives under consideration are presented in Table IV-1. They show that the widening alternative would be by far the most expensive of those under consideration. There are two primary reasons for this. First, most of the additional right-of-way that would have to be obtained in order to widen the existing roadway is zoned for relatively dense urban use and has, as a result, a high value. Because of this, land acquisition costs for the widening alternative are substantially higher than for the new alignments despite the fact that the total land area that would have to be acquired is significantly less. Secondly, existing structures have been built so close to Alii Drive that their taking and demolition would be required in addition to the land itself.

Construction costs would be less for the widening alternative but are higher than one might expect considering that two lanes exist. This is due to a number of factors, the most important being the need to reconstruct the existing two lanes as well as the two new ones, the cost of providing adequate connections with existing development along the roadway, the need to relocate existing utility lines, requirements that sidewalks, curbs, and gutters be provided on facilities passing through existing residential areas, and other factors related to its location within an existing urban area as compared to other alternatives' use of virgin land.

Money spent on construction has a direct, positive effect on employment, business opportunities, and government tax revenue. The State Department of Planning & Economic Development's (1980 and 1982) econometric model of the Hawaii construction industry, indicates that each \$1,000,000 of construction expenditure (not land acquisition) generates approximately 25 person-years of employment in the construction industry statewide (a person-year is one person employed full-time for

TABLE IV-1
Comparative Cost Estimates for Alternatives Under Consideration

Cost Item	Cost (in thousand \$) by Alternative Alignments ^{1,2}				
	Widening ³	I	II	III	IV
Construction	\$ 6,250	\$6,692	\$6,529	\$ 7,330	\$ 7,168
ROW Acquisition	10,300	1,845	1,873	1,887	1,915
Engineering, Design, and Maintenance	<u>300</u>	<u>1,109</u>	<u>1,109</u>	<u>1,109</u>	<u>1,109</u>
TOTAL	\$ 16,850.	\$9,646	\$9,511	\$10,326	\$10,192

¹ The segments constituting each alternatives are as follows:

- I - A1, B, C1, D
- II - A1, B, C2, D
- III - A2, B, C1, D
- IV - A2, B, C2, D

² Cost estimates, especially for right-of-way acquisitions, are order-of-magnitude estimates only.

³ Widening involves increasing the right-of-way width from 50 to 80 feet.

Source: Belt, Collins & Associates.

one year). As construction workers and businesses spend the incomes they derive from construction work, additional employment is generated within the state's economy, so that the total statewide employment impact of \$1,000,000 in construction expenditures is approximately 60 person-years. Applying these factors to the estimated construction and design costs shown in Table IV-1, it can be seen that construction of the proposed Alii Highway would result in 190 to 210 person-years of employment within the construction industry. Total statewide employment would be on the order of 460 to 510 person-years.

Most, but not all, of the construction industry employment would be on the Island of Hawaii; an estimate of 85 percent appears most reasonable. (The remaining 15 percent would be on Oahu in such areas as engineering and design, construction supply houses, and the like.) Total Big Island employment (i.e., indirect and induced employment as well as jobs in the construction industry) would probably also be on the order of 80 to 85 percent of the total statewide employment, i.e., 360 to 430 person-years.

Unlike money spent on construction, funds for land acquisition do not have a direct, positive effect on employment and business opportunities. Landowners who receive the compensation may either spend the money in the local economy, place their funds in institutions where it is available for local investments, or take the money out of the state. Each of these has its own unique implications with respect to personal income, County finances, and other economic and social factors, and it is impossible to pinpoint these at this time.

Current plans call for approximately 75 percent of the construction costs of the proposed project to be paid for with funds from the Federal highway aid program. This constitutes a net inflow of funds into the State and will have a beneficial effect on the economy of the State and County. The local share of construction cost will be paid for by the County of Hawaii, probably with funds obtained from the creation of an improvement district. The exact geographic limits and other provisions of the improvement district have not yet been established. Hence, it is not possible to accurately assess the impacts of this funding mechanism on individual property owners at this time.

4.1.1.3 Support of Public and Private Development Plans

As previously noted, the new alignments under consideration are situated very close to the route designated in the County General Plan since the early 1970s and on official zoning maps. In acting on development/re-zoning proposals submitted by owners of land through which the proposed highway would pass, the County has made provision of an adequate right-of-way (and in many cases the construction of the roadway itself) a condition of approval. Hence, the project is supportive of both public and private development plans for the area.

4.1.1.4 Impact on Existing Business Districts

Kailua is now West Hawaii's largest commercial center. By improving transportation between the town and coastal areas, the proposed highway is likely to reinforce this position. At the same time, it will not reduce transportation times to the point where the small retail businesses that are scattered along Alii Drive become inviable. These will continue to provide convenience goods and services to residents and visitors.

4.1.2 Relocation Impacts

4.1.2.1 Widening Alternative

The widening alternative would involve land taking from approximately 130 parcels. Of these, 70 have structures on them, and about 45 of these would probably have to be taken if the roadway is widened. A few of the structures contain multiple units, but the exact number that would need to be abandoned if the roadway were to be widened has not been determined at this time.

As indicated in Table IV-1, the cost of the widening alternative is more than one and a half times that of the alternatives utilizing all-new rights-of-way and would make the project prohibitively expensive. Because of this, no detailed analysis of relocation impacts for this alternative has been undertaken. However, the number of occupied properties involved suggests that they would be substantial.

4.1.2.2 Alii Highway Alternatives

For the most part, all of the routes under consideration for the proposed Alii Highway run through undeveloped land, and most of the parcels that would be affected by them are relatively large. In many instances the land that would be needed has been designated for highway construction for more than a decade. Only where the proposed highway passes through Alii Kai Subdivision (Segment B) would small parcels containing structures be affected, and even there the effect would be minimal.

Based on the latest information, it appears that land would need to be taken from only one occupied parcel to permit construction of the highway. It is the 8,050 square foot parcel identified by TMK 7-6-16:26. The County's current plans are to acquire only about 30 percent of this lot; the existing house would be relocated to the remaining area. The remnant parcel would be substandard for the RS-7.5 zoning designation, and compensation would probably have to be paid for the restriction which this could impose on its future use. The Alii Kai subdivision contains over 400 parcels. Most of these are similar to the one which would be affected by the proposed project; many have not yet been built on, and those which have contain homes similar to the one which would need to be moved. Hence, relocation to similar circumstances would be possible if the owner of the affected parcel preferred. In view of the foregoing, the relocation impacts associated with construction of Alii Highway are believed to be minimal.

4.1.3 Land Use Impacts

As discussed at length in Section 3.4 of this report, the proposed Alii Highway project is called for in, and consistent with existing State and County land use plans for the region, including the Hawaii County General Plan and the Kona Regional Plan. An alignment closely approximating a combination of Segments A-2 (below Kuakini Highway), B, and C-2 as described in this report has been delineated for roadway use on the official North Kona Zone Map; Segment D within the Keauhou Resort has been reserved for the roadway for many years.

Private landowners have closely followed the County's plans for the roadway, and have taken it into account in their own development plans. As a result, its construction would not represent a stimulus to unexpected growth. Rather it would be consistent with existing growth limits and would make it possible to realize the

objectives of existing public and private plans in the least disruptive manner. Urban growth would be encouraged within a well-drained area which lacks significant agricultural value and which can be efficiently provided with urban services.

In contrast, the "no-action" and widening alternatives would not support existing plans. Neither would they prevent ongoing development of the lands between Kuakini Highway and Alii Drive, however. In the case of the widening alternative, high traffic volumes would be routed within a comparatively narrow right-of-way close by existing development, and this would have an adverse effect on noise levels, air quality, and other measures of environmental quality. Because of interference from the large number of intersecting streets and driveways, the quality of the service provided would always be inferior to that of a new alignment.

4.1.4 Considerations Relating to Pedestrians and Bicyclists

4.1.4.1 Existing Conditions and Plans

Because of its relatively flat terrain and mild climate, the coastal portions of the Kailua-Keauhou region are well-suited for walking and bicycling. However, Alii Drive lacks sidewalks and is relatively narrow, crowded with motor vehicles, and lined with numerous driveways; all of these factors limit its attractiveness and/or safety for pedestrians and cyclists. Kona's growing population and its residents' increasing interest in outdoor sports such as jogging and bicycling have increased conflicts between automobiles and pedestrians/bicyclists.

No quantitative studies of bicycle and pedestrian traffic have been conducted in the Kailua-Keauhou area to date. The traffic accident statistics that have been collected and examined do not show a significant number of automobile/bicycle, bicycle/pedestrian, or automobile/pedestrian accidents. However, the mixing which now occurs of pedestrians and bicyclists with motorized traffic is inherently dangerous, and the potential for injury and death will grow as traffic volumes continue to increase in the years ahead.

The State Department of Transportation's Statewide Master Plan for Bikeways (March 1977: Figs. 26 & 28) acknowledges the need to improve bicycling opportunities within the Kailua-Keauhou corridor. It calls for the construction of bike lanes along Kuakini Highway, the Hawaii Belt Road, and the proposed Alii Highway. It further recommends that Alii Drive be designated as a "bike route".

4.1.4.2 Impact of the Proposed Project

The Statewide Master Plan for Bikeways recommended a bikeway be constructed along the proposed Alii Highway. The current plans for that facility provide paved shoulders within the highway right-of-way for bicycle lanes, but they do not call for construction of separate bicycle lanes at the present time.

It would, of course, be possible to designate the proposed Alii Highway as a "Bicycle Route", the classification recommended in the Master Plan for Alii Drive, but the relatively high average vehicle speeds that are expected on the highway suggest this would be inappropriate, and it is not recommended.

The proposed realignment is situated well inland of most existing development along the Kailua-Keauhou coastal strip, has only a few connections with the existing roadways above and below, and contains relatively steep grades at its northern end.

Hence, it appears likely that the number of pedestrians and/or bicyclists using it will remain small for the foreseeable future.

While the proposed project would not provide separate bikeways or pedestrian walkways, it would significantly reduce traffic volumes on Alii Drive. With decreased congestion, that roadway would be much more suitable for a bike route as called for in the Statewide Master Plan for Bikeways. Hence, despite the absence of a separate bikeway from the highway design, the proposed realignment project would provide paved shoulders suitable for use by bikers and pedestrians and would reduce traffic on Alii Drive thereby having a beneficial effect on bicycle and pedestrian movement.

Because it traverses flatter terrain and is closer to existing sources of bicycle and pedestrian traffic, Alii Drive is superior to the proposed Alii Highway as a route for pedestrians and bicyclists. The reduction in vehicular traffic on Alii Drive that would accompany the opening of the new highway would do much to improve conditions on the existing road. If further improvements to pedestrian and bicycle movement are desired, it is recommended that they be achieved through improvements to Alii Drive rather than through construction of a separate bikeway along the proposed highway. These improvements could take the form of pavement widening or the provision of a separate, parallel bicycle/pedestrian facility. In view of the projected vehicular traffic volumes and the need to provide maximum visibility for cyclists and pedestrians at the many driveways and intersections, the former is probably preferable.

4.1.5 Visual Impacts

As indicated elsewhere in this report, the proposed Alii Highway would consist of a four-lane, asphaltic concrete roadway with paved shoulders. The total width of the disturbed area would vary depending upon the slope of the land and the orientation of the roadway to it. In relatively level terrain, only the 100-foot right-of-way would be disturbed in the course of construction. In steeper areas, more than the 100-foot right-of-way will be needed to maintain cut and fill slopes. The visual effects of the construction activity and changes in landforms are discussed below.

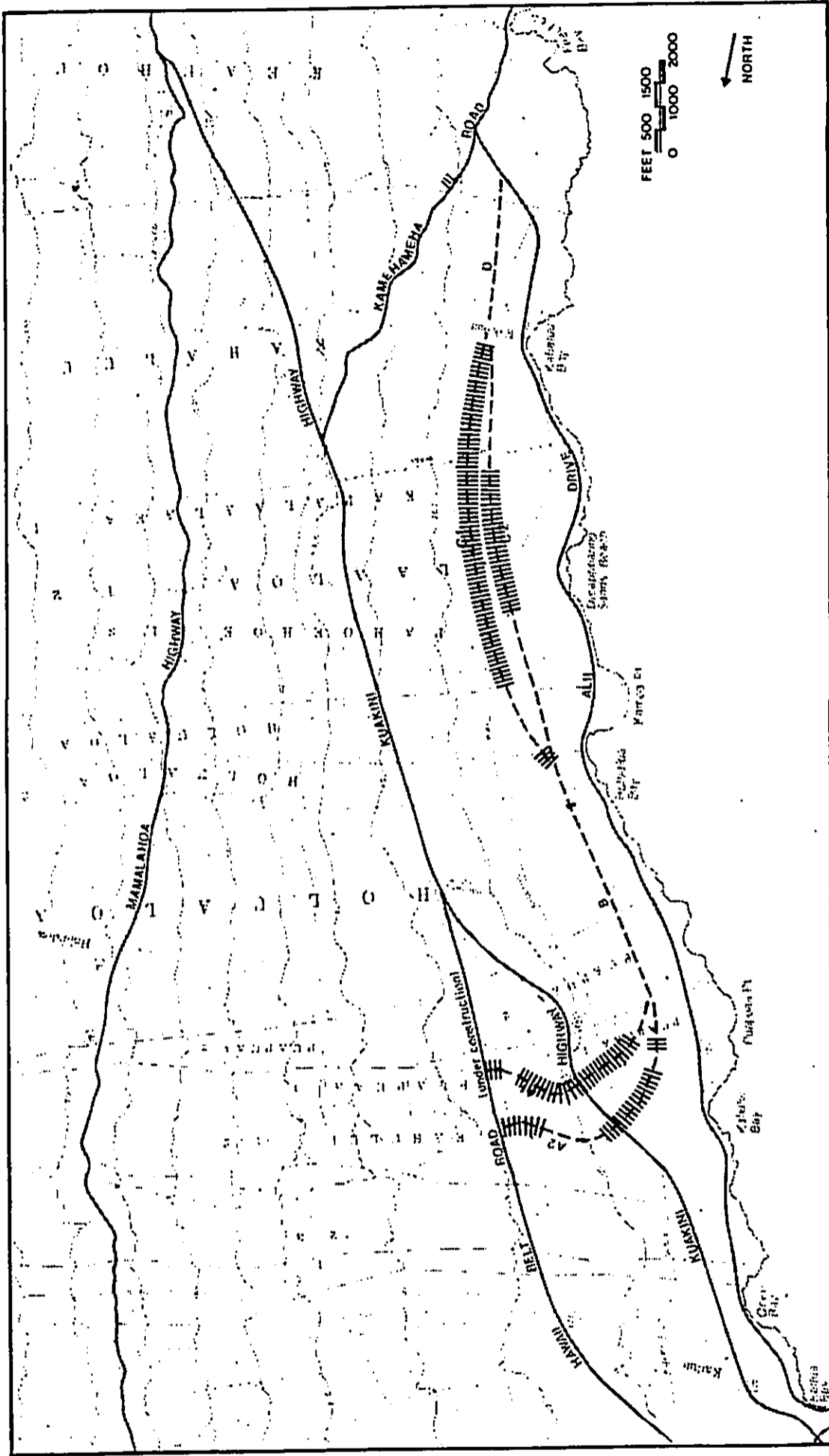
4.1.5.1 Pavement Color

The asphalt pavement would be black and would blend in with the dark lava rock typical of the region. It is not expected to be obtrusive.

4.1.5.2 Distant Views

Because it would traverse land with moderately steep slopes, construction of the proposed Alii Highway would create numerous cut and fill slopes. The approximate location of cut and/or fill slopes at least five feet high are shown in Figure IV-1.

Most of the newly created slopes south of Puapuaa Point would only be visible from areas immediately adjacent to the roadway. Immediately north of Puapuaa, the proposed new roadway turns mauka and runs upslope at a moderately steep gradient between there and the new segment of the Hawaii Belt Road now under construction. Portions of this section of the proposed highway would be visible from other coastal areas. In general, the appearance of this steeper portion of the highway would be similar to that created by the existing Kamehameha III Road at Keauhou and Palani Road as it rises above Kailua.



**Figure IV-1 ROADWAY SEGMENTS WITH CUT AND/OR
FILL SLOPES 5 FEET OR GREATER.**

4.1.5.3 Near Views

The greatest potential for significant visual impacts occurs where the proposed highway passes near existing development, sensitive natural areas, or cultural resources. As shown in Figure II-5, most of the proposed Alii Highway is located on presently undeveloped land. However, it passes through the Alii Kai Subdivision, immediately south of the Kahakai Elementary School, and just north of Kauhale Kahaluu housing on Makolea Street. Effects on these three areas are described below.

Alii Kai -- A 50-foot wide right-of-way through the Alii Kai Subdivision was reserved for realignment of Alii Drive when the subdivision was first constructed. The right-of-way must be expanded to a minimum of 100 feet to accommodate the proposed project, and this will require the relocation of one home. The access road for the Kahakai Elementary School already occupies portions of the right-of-way north of Alii Kai Drive, and the proposed changes would not substantially alter views from the yards of adjacent homes. Hence, no significant visual effects are expected.

Kahakai Elementary School -- The road corridor passes immediately makai of the newly constructed Kahakai Elementary School. School buildings are located on the side of the parcel farthest from the proposed roadway. Vehicles using Alii Highway would be visible from the play yard and the school parking lot, but this would not significantly alter the visual character of the area.

Kauhale Kahaluu Housing -- The proposed highway would run immediately mauka of the parking lot for the Kauhale Kahaluu housing on Makolea Street. The edge of the parking lot is currently marked by a moderately steep exposed dirt slope. It is likely that this will need to be replaced by a retaining wall to provide adequate structural support for the roadway. The wall would be composed of natural materials which blend into the landscape. Unless dense landscaping is provided along the makai side of the road right-of-way, moving vehicles would probably be visible from at least the units on upper floors of the housing project.

4.1.5.4 Effect on Views from Preservation Sites

As indicated in Section 4.3, the proposed project would pass close to four above-ground archaeological sites within the Kahalu'u Historic District that have been recommended for preservation. These are the Halelaau Heiau (Site 37-3822), Site 37-6414 (a possible small heiau attached to Halelaau), Pa-o-Umi Heiau (Site 37-3823), and Site 37-2078, an unnamed heiau that is a specified element of the Kahaluu Historic District. Because the value of these sites is great and stems partially from their relationship to surrounding structures and activities, the indirect effects the proposed project might have on views from the heiau (if they were to be used) or towards them are of some concern. A discussion of these visual effects has been integrated into the analysis of historic sites impacts presented in Section 4.3 of this report.

4.2 PHYSICAL IMPACTS

4.2.1 Air Quality

4.2.1.1 Existing Air Quality

The only air quality monitoring station on the Island of Hawaii is located in Hilo, about 60 miles across the island from Kailua. The only pollutants sampled are suspended particulate matter and sulfur dioxide. During the period from June 1981 to June 1983, particulate concentrations measured in Hilo ranged from 7 to 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$); the monthly mean was $18 \mu\text{g}/\text{m}^3$. The concentration of sulfur dioxide was below $5 \mu\text{g}/\text{m}^3$ for the two-year period with the exception of January 1983 when the range was $5-23 \mu\text{g}/\text{m}^3$ and the monthly mean was $8 \mu\text{g}/\text{m}^3$. This deviation is likely the result of the volcanic eruption at Kilauea. Both Federal and State ambient air quality standards for the pollutants measured were met (refer to Table IV-2). Unfortunately, the principal automotive pollutant, carbon monoxide, is not being monitored.

This project is in an area where the State implementation plan does not contain any transportation control measures, therefore, the conformity procedures of 23 CFR 770 do not apply to this project.

Pollutant concentrations measured in Hilo reflect urban activities and agricultural burning. With much less intense urban development in Kailua-Kona and the lack of agricultural burning, Kailua has far fewer pollutant sources.

The climate in Kona is influenced more by local heating and cooling of the ground than by the effect of tradewinds prevalent in the rest of the state. Normal tradewinds are blocked by the mountain masses of Mauna Kea, Mauna Loa and Hualalai. During the day, the land is warmer than the ocean, and the pressure gradient this creates causes winds to blow from the ocean towards the land. In the evening, the reverse occurs. As the land cools, the evening and night breezes blow from the land towards the warmer ocean. The potential for an air pollution problem exists because an air mass holding pollutants could move in and out from land to ocean and ocean to land without being dispersed by the tradewinds. However, because there are no major stationary sources of pollutants, no agricultural burning, and no intense urbanization, the air quality in Kailua-Kona remains good.

The major source of air pollutants in the study area is emissions from vehicular traffic. Of the pollutants regulated by the State Department of Health, carbon monoxide (CO), hydrocarbons (HC), and oxides of nitrogen (NOx) are emitted primarily by motor vehicles. The standard for carbon monoxide is the most likely to be violated by a highway project. Hence, the analysis focused on this air pollutant.

4.2.1.2 Air Quality Survey

An air quality survey was conducted in June 1983 by the State Department of Transportation, Materials Testing and Research Branch (Hawaii, State of; October 1983). Ambient CO levels were monitored continuously for two days at the Kahakai Elementary School in the Alii Kai Subdivision using an Interscan COtector portable CO analyzer. Ambient CO levels averaged less than 0.5 milligrams per cubic meter during any one-hour period.

TABLE IV-2
Federal and State Ambient Air Quality Standards

Pollutant	Sampling Period	Federal Standards		State Standards
		Primary ¹	Secondary ²	
Suspended Particulate Matter (Micrograms per Cubic Meter)	Annual Geometric Mean	75	60	--
	Annual Arithmetic Mean	--	--	55
	Maximum Average in any 24 Hours	260	150	100
Sulfur Dioxide (SO ₂) (Micrograms per Cubic Meter)	Annual Arithmetic Mean	80	--	20
	Maximum Average in any 24 Hours	365	--	80
	Maximum Average in any 3 Hours	--	1,300	400
Carbon Monoxide (CO) (Milligrams per Cubic Meter)	Maximum Average in any 8 Hours	10	10	5
	Maximum Average in any 1 Hour	40	40	10
Hydrocarbons (HC) Non-Methane (Micrograms per Cubic Meter)	Maximum Average in any 3 Hours	160	160	--
Photochemical Oxidants (Micrograms per Cubic Meter)	Maximum Average in any 1 Hour	240	240	100
Nitrogen Dioxide (NO ₂) (Micrograms per Cubic Meter)	Annual Arithmetic Mean	100	100	70
Lead (Micrograms per Cubic Meter)	Calendar Quarter	1.5	1.5	1.5

¹ Intended to prevent adverse effects on public health.

² Intended to prevent adverse effects on public welfare including effects on comfort; visibility, vegetation, animals, aesthetic values, and soiling and deterioration of material.

Source: State Department of Health: Title 11, Chapter 59, effective 11/29/82.

4.2.1.3 Air Quality Impacts

Traffic projections for the years 1985 and 2005 and auto emission levels for the study years were used by the State Department of Transportation, Materials Testing and Research Branch in the EPA "HIWAY" model to compute future CO concentrations for the project alternatives. The study considered the "worst case" conditions, i.e., peak traffic volume and very low wind speed parallel to the roadway, that produce the highest estimated concentration of pollutants. The "worst case" CO levels plus the ambient CO levels were then compared with Federal and State standards.

The resultant "worst case" one-hour CO concentrations for the project alternatives in the years 1985 and 2005 are shown in Table IV-3. For all project alternatives, the projected CO concentrations are well below the Federal one-hour standard of 40 milligrams per cubic meter and the State one-hour standard of 10 milligrams per cubic meter.

4.2.2 Noise Impacts

4.2.2.1 Existing Noise Levels and Standards

Existing noise levels along Alii Drive and in areas where frequent human use occurs that would be traversed by the proposed Alii Highway were measured by the Materials Testing and Research Branch of the State Department of Transportation in July 1983 (Hawaii, State of; October 1983). The locations of the test (receptor) sites are shown in Figure IV-2, and the average existing ambient noise levels recorded at the sites are presented in Table IV-4.

The State Department of Health's Community Noise Regulations apply only to the island of Oahu, and Hawaii County has not established any noise standards of its own. 23 CFR 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise", is the noise abatement regulation for the Federal Highway Administration. The purpose of the regulation is to provide procedures for noise studies and noise abatement measures, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in planning and design of highways (23 CFR 772.1). A final noise mitigation decision is not required at the EIS stage because highway design details are necessary and these will not be available until an alternative has been selected. However, land use activities which may be affected by noise from the highway can be identified. A traffic noise impact occurs when the predicted traffic noise levels approach or exceed the noise abatement criteria, or when the predicted traffic noise levels substantially exceed the existing noise levels (23 CFR 772.5). The FHWA noise abatement criteria are shown in Table IV-5. The criteria for Category "B" land uses (residences, resort facilities, recreation facilities, etc.) are the most appropriate for judging the traffic noise impacts of the proposed Alii Highway project.

4.2.2.2 Projected Noise Levels and Impacts

The Federal Highway Administration's Highway Traffic Noise Prediction Model (FHWA, 1977) was used together with projected traffic volumes reported in Tables I-4 and II-1 and Figure II-7 to predict the hourly equivalent sound level, $L_{eq}(h)$, at the receptor locations shown on Figure IV-2 (Hawaii, State of; October 1983). The existing and predicted L_{eq} noise levels are provided in Table IV-4.

TABLE IV-3

Predicted 1-Hour CO Concentration
(in milligrams per cubic meter) Under "Worst Case" Conditions

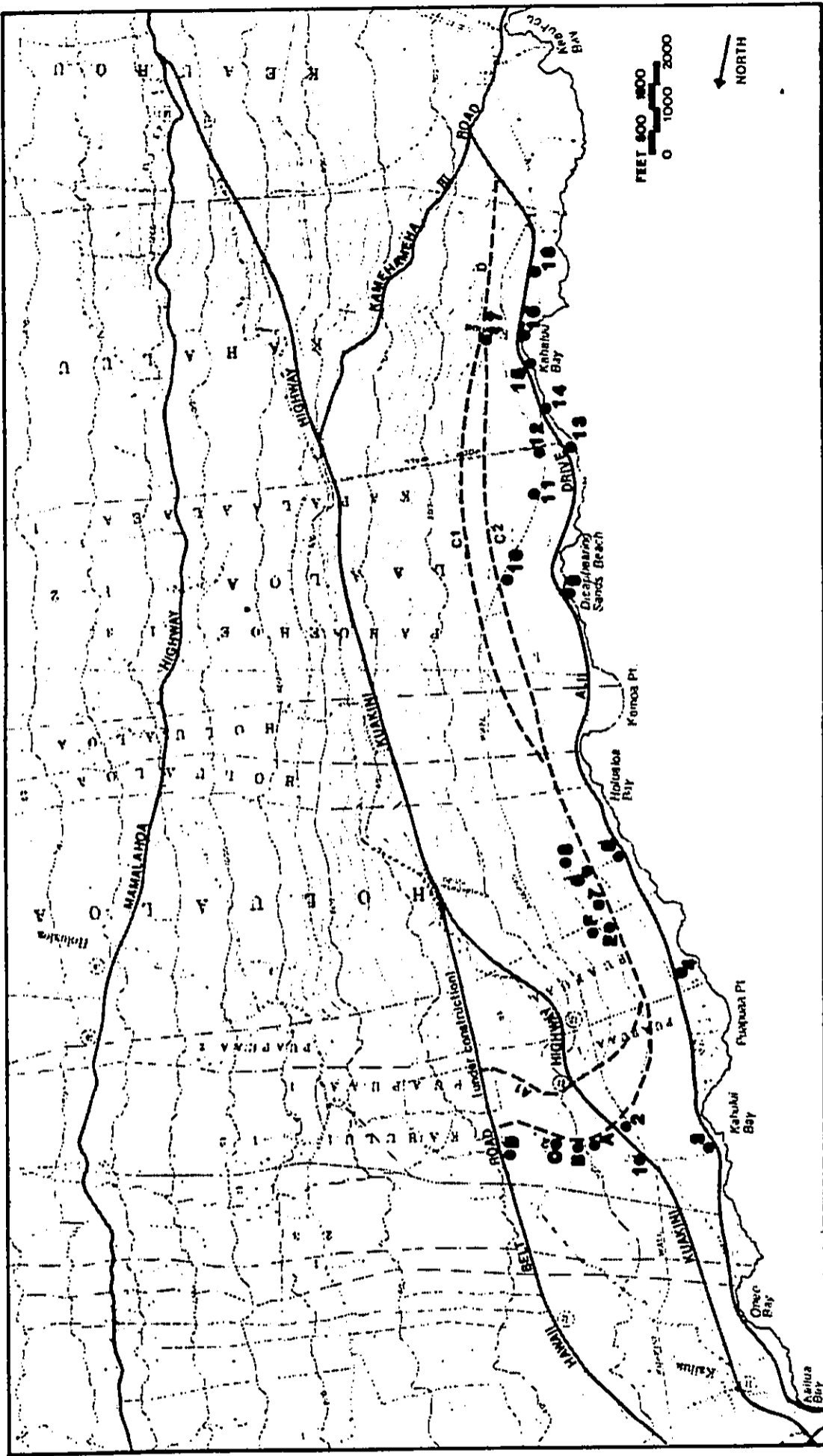
Receptor Location	Existing Alii Drive				Realigned Alii Drive	
	No-Build		Widening 4-Lanes		4-Lanes	
	1985	2005	1985	2005	1985	2005
Edge of Roadway	1.86	2.07	1.03	1.14	1.17	1.30
50' From Roadway	0.29	0.32	0.22	0.24	0.18	0.20
100' From Roadway	0.07	0.08	0.05	0.06	0.05	0.05
200' From Roadway	0.01	0.01	0.01	0.01	0.01	0.01
500' From Roadway	0.00	0.00	0.00	0.00	0.00	0.00

Note: Values shown do not include background CO levels; measured to be no more than 0.5 milligrams per cubic meter. State 1-Hour Standard = 10 milligrams per cubic meter. These estimates are from the U.S. Environmental Protection Agency's "Hiway" Model. Input values were as follows:

Parameter	Assumed Value	
	1985	2005
Vehicle Speed	30 mph	30 mph
Emission Factor	22.3 gm/mi	12.5 gm/mi
Cold Starts	20 percent	20 percent
Hot Starts	0 percent	0 percent
Ambient Temperature	8 degrees F.	80 degrees F.
Wind Speed	1.0 m/sec.	1.0 m/sec.

Source: Tabulation of Selected Low Altitude Vehicle Emission Factors, Federal Highway Administration; based upon Environmental Protection Agency's Mobile Source Emission Factors, March 1978.

Source: State Department of Transportation, June 1983. Originally reported as parts per million; converted to milligrams per cubic meter by Belt, Collins & Associates.



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FIGURE IV-2. NOISE RECEPTOR LOCATIONS

● 2 Noise Measurement Station

Source: Hawaii Department of Transportation, 1983

TABLE IV-4

Existing and Projected Noise Levels in the
Vicinity of Allii Drive and the Proposed Allii Highway

Receptor Number	Distance From Roadway (in feet)	Average Existing Ambient Noise Levels (in dBA)	Predicted Leq Noise Levels, dBA					
			No-Action		Widening Allii Drive		New Allii Highway	
			1985	2005	1985	2005	1985	2005
1	50	63	N/A	N/A	N/A	N/A	N/A	N/A
2	15	70	N/A	N/A	N/A	N/A	N/A	N/A
3	50	60	66	69	65	68	63	66
4	10	69	69	72	68	71	66	69
5	50	61	66	69	65	68	63	66
9	50	58	66	69	65	68	63	66
13	50	60	66	69	65	68	63	66
14	50	60	66	69	65	68	63	66
15	50	56	66	69	65	68	63	66
16	50	60	66	69	65	68	63	66
18	50	57	66	69	65	68	63	66
A	250	47	47	47	47	47	63	65
B	200	47	47	47	47	47	63	65
C	150	45	45	45	45	45	63	65
D	700	40	40	40	40	40	54	56
E	30	43	43	43	43	43	68	70
F	500	43	43	43	43	43	59	61
6	50	59	50	50	50	50	68	70
7	220	54	54	54	54	54	59	62
8	200	52	52	52	52	52	59	62
10	200	40	40	40	41	40	59	62
11	1,050	41	41	41	41	41	50	53
12	1,250	40	40	40	40	40	47	50
17	140	49	49	49	49	49	63	66

Note: The predicted noise levels for the "no-action" and "widening" alternatives at locations distant from Allii Drive are the same as existing noise levels. Thus, they do not take into account probable increases in ambient noise levels at those locations resulting from expected future land use changes near the receptors. Receptor locations are shown in Figure IV-2.

Source: Materials Testing and Research Branch, State Department of Transportation.

TABLE IV-5
Noise Abatement Criteria

Activity Category	Design Noise Levels - dBA ¹		Description of Activity Category
	$L_{eq}(h)$	$L_{10}(h)$	
A ²	57 (Exterior)	60 (Exterior)	Tracts of land on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheatres, particular parks or portions of parks, open spaces, or historic districts which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B ²	67 (Exterior)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, and parks which are not included in Category A and residences, motels, hotels, public meeting rooms, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties or activities not included in Categories A or B above.
D	--	--	Undeveloped Lands. No design noise levels unless development is nearly certain (then see appropriate category).
E	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

¹ Either L_{10} or L_{eq} (but not both) may be used on a project.

² Parks in Categories A and B include all such lands (public or private) which are actually used as parks as well as those public lands officially set aside or designated by a governmental agency as parks on the date of public knowledge of the proposed highway project.

Source: Department of Transportation, Federal Highway Administration. 23 CFR 772. July 8, 1982.

4.2.2.2.1 No-Action Alternative. As shown in Table IV-4, existing ambient noise levels along Alii Drive range from 56 to 61 dBA at a distance of 50 feet from the edge of the roadway. Predicted noise levels 50 feet from the roadway along the busiest sections of Alii Drive in 1985 and 2005 are 66 dBA and 69 dBA, respectively. The latter exceeds the FHWA $L_{eq}(h)$ design noise criteria standard of 67 dBA. Noise abatement measures will need to be considered.

4.2.2.2.2 Widening Alii Drive. Increasing Alii Drive to four lanes and widening the right-of-way from 50 to 80 feet would result in slightly lower noise levels as compared to the "no-action" alternative by decreasing congestion. However, the FHWA 67 dBA design noise criteria would still be exceeded by the predicted 2005 noise levels at receptors near the busiest sections of the road and noise abatement measures would need to be considered.

4.2.2.2.3 Alii Highway. Construction of the proposed Alii Highway would reroute a major portion of the truck and bus traffic, as well as a substantial portion of the passenger cars, away from Alii Drive. The decrease in traffic will produce a reduction in noise levels on adjoining properties. Predicted noise levels 50 feet from the edge of the most heavily trafficked portions of the roadway in 1985 are 63 dBA and 66 dBA in 2005. This is below the FHWA design noise level of 67 dBA for Category "B" land uses.

While construction of Alii Highway would result in lower noise levels along Alii Drive, it would significantly increase traffic noise in areas that are now distant from the nearest roadway. Most of the affected areas are currently undeveloped, and the opportunity exists to provide noise buffers and other noise control provisions at such time as a change in land use occurs. Because of this, the most critical areas from a noise impact standpoint are those where the new highway would pass close to or through existing urban areas, i.e., the Kona Hillcrest Subdivision, the Alii Kai Subdivision, the White Sands Subdivision, and the Kauhale Kahaluu housing along Makolea Street.

Kona Hillcrest Subdivision -- Segment A-2 passes close to Kona Hillcrest Subdivision. Existing ambient noise levels 150 feet to 250 feet from the edge of the proposed road range from 45 to 47 dBA. Predicted noise levels 100 feet from the edge of the roadway are 63 dBA in 1985 and 66 dBA in 2005. Since the closest residence is 110 feet from the edge of the road, predicted noise levels are not expected to exceed the FHWA design noise level of 67 dBA. However, the predicted noise level will exceed the existing noise level by 19 dBA by the year 2005 and noise abatement measures may need to be considered. There is a small park in the Kona Hillcrest Subdivision. This is an "active" park used basically for pick-up baseball games. There are no restrooms or pavilions at this park. The activity category for this park is B with a noise level threshold of 67 dBA.

Alii Kai Subdivision -- Segment B passes through Alii Kai Subdivision and makai of Kahakai Elementary School. Ambient noise levels 50 feet from the edge of the proposed road (Receptor 6) are 50 dBA. Predicted noise levels at the same location are 68 dBA in 1985 and 70 dBA in 2005. The classrooms at Kahakai Elementary School are located more than 500 feet from the proposed road and would experience no significant noise impact from the traffic.

The residences mauka of the proposed alignment would be affected by traffic noise. The proposed alignment is the only alignment that could pass through this area without destroying any developed areas. There are many types of walls that could be constructed to mitigate the noise problem. Any new methods of noise abatement that

will be available at the design stage, will be looked into. Presently, there are various types of noise abatement measures available. The most feasible and cost effective would be wooden fencing. A more costly alternative would be a masonry or concrete wall. These must be decided on an individual basis during the design stage. It may be the landowner's choice to delete any proposed wall. The type, location and cost of noise abatement measures cannot be known until final design.

White Sands Subdivision -- Segment C-2 passes mauka of White Sands Subdivision. Ambient noise levels measured in 1983 200 feet from the edge of the proposed road were 40 dBA. Predicted noise levels at the same location in 1985 are 59 dBA; for 2005 they are 62 dBA. The nearest residence is approximately 100 feet from the proposed roadway. The predicted noise levels at this distance in 1985 and 2005 are 63 dBA and 66 dBA, respectively. These are below the FHWA design level of 67 dBA. However, the predicted noise level will exceed the 1983 noise level by 26 dBA by the year 2005 and noise abatement measures may need to be considered.

Kauhale Kahaluu Housing -- Segment D passes mauka of the Kauhale Kahaluu housing located at the end of Makolea Street. Ambient noise levels at the nearest structure 140 feet from the edge of the proposed road are 49 dBA at present. Predicted noise levels at this point are 63 dBA in 1985 and 66 dBA in 2005. Both are below the FHWA design levels of 67 dBA. However, the predicted noise level will exceed the 1983 noise level by 17 dBA by the year 2005 and noise abatement measures may need to be considered.

Since ambient noise levels are predicted to exceed FHWA design standards at a specific location within the Alii Kai Subdivision, noise abatement measures may be appropriate. A detailed noise evaluation will be necessary during the design phase of the proposed project. Appropriate mitigatory measures will be taken where necessary.

A noise contour map has been prepared, Figure IV-3, and the Planning Department of the County of Hawaii has been provided with a copy. The information can be useful to protect future land development from being incompatible with anticipated highway noise levels.

4.2.3 Energy Impacts

Unlike the construction alternatives that are discussed in this report, the no-action alternative, i.e., leaving Alii Drive as a two-lane roadway and abandoning plans to construct the proposed Alii Highway, would involve no energy consumption by construction equipment or in the preparation and/or manufacture of construction materials. Hence, implementation of the project would result in somewhat higher short-term energy use than the no-action alternative. However, for reasons discussed below, the energy advantage of the no-action alternative disappears within a few years of project completion. Over the long-run, construction of the proposed Alii Highway would reduce total energy use.

It is estimated that vehicular travel on Alii Highway would amount to about 20,000 vehicle-miles per day by 1990 and 25,000 vehicle-miles per day by the year 2000. Based on an estimated future open-highway mileage figure of 40 miles per gallon (significantly higher than the current average), 25,000 vehicle-miles per day, and 365 days per year, estimated annual energy use by vehicles travelling on the proposed Alii Highway is projected at approximately 230,000 gallons of gasoline (5,475 barrels).

If the proposed highway is not built, traffic volumes on Alii Drive and Kuakini Highway will be much higher than would be the case if the proposed project is implemented. This, in turn, will result in increased congestion, reduced average operating speeds, and significantly lower fuel efficiency for vehicles using it. It is impossible to precisely estimate the magnitude of the decrease in fuel efficiency. However, at the very least it would approximate (in percentage terms) the difference between the U.S. Environmental Protection Agency's "highway average" and its "MPG" figure (which is more representative of in-town driving). If this is the case, fuel use without the project would be approximately one-third higher than with it.

Applying this factor to the average number of vehicle-miles expected on the new highway, it is estimated that within five years of its opening the new road would produce energy savings equal to its projected construction energy use. During the remaining 45 years of its design life, the highway would result in average annual energy savings of about 75,000 gallons (1,875 barrels) of gasoline per year.

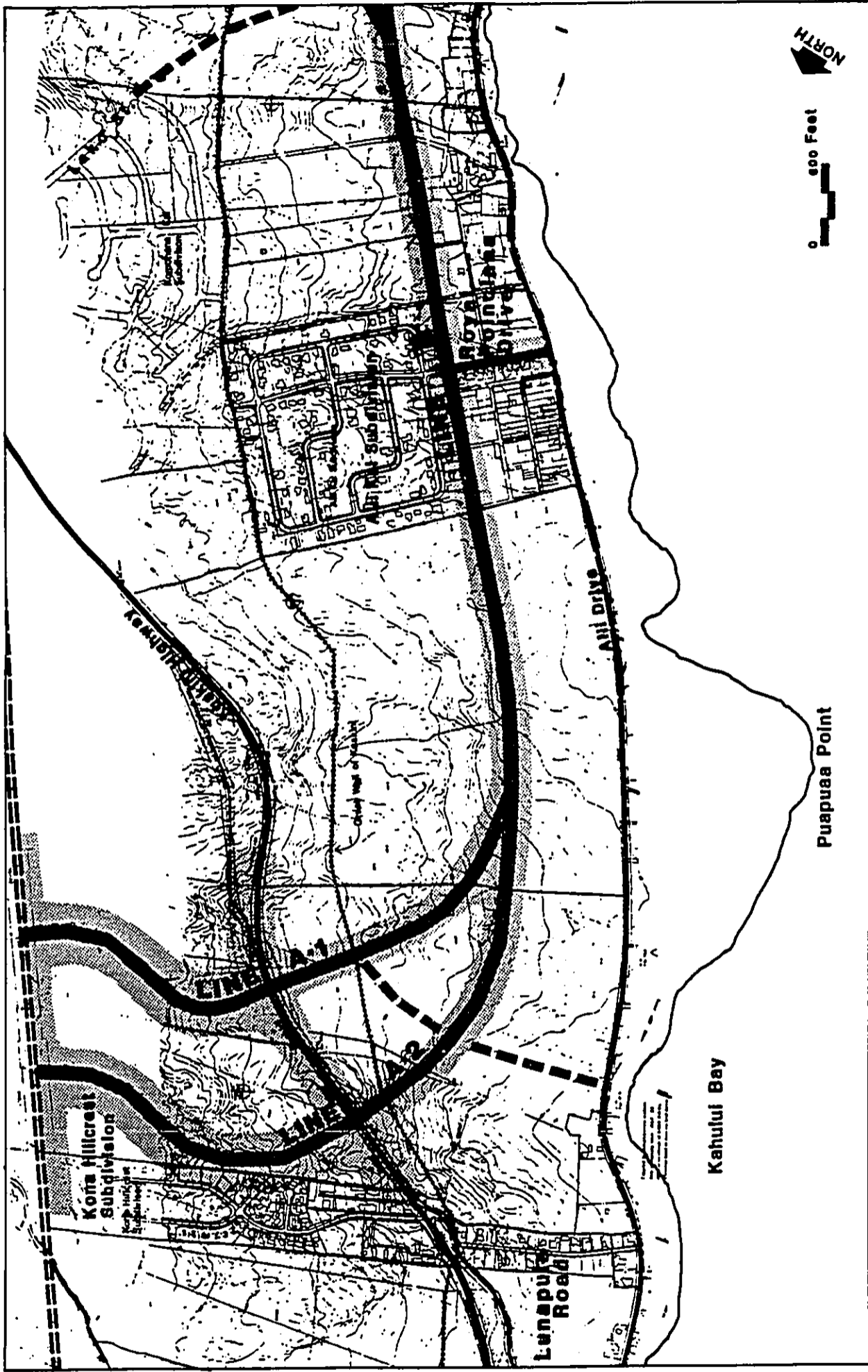
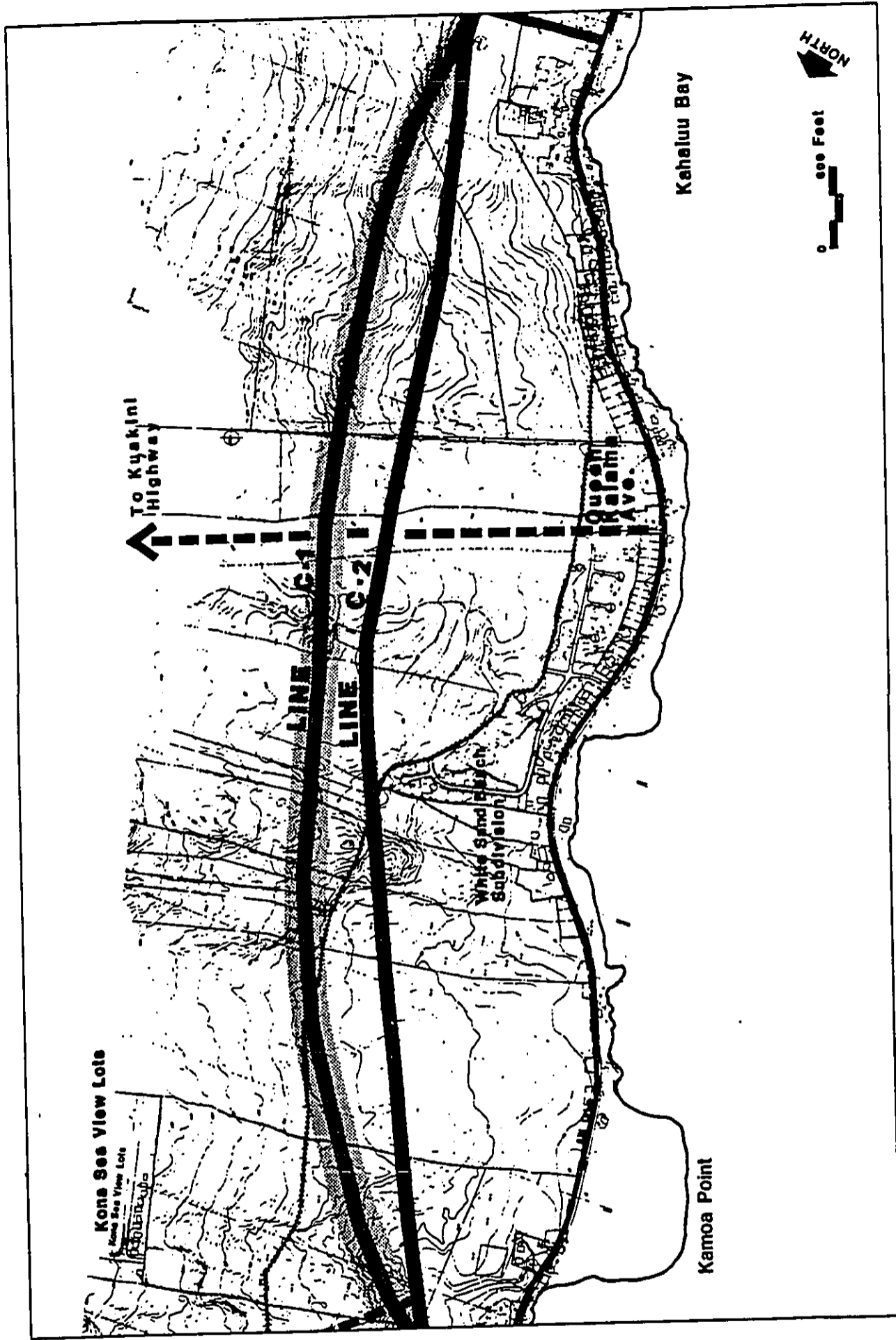


Figure IV-3 ALTERNATIVE A-1, A-2 AND B NOISE CONTOUR : 2005

67dBA

Source: Hawaii, County of, Department of Public Works, 1984

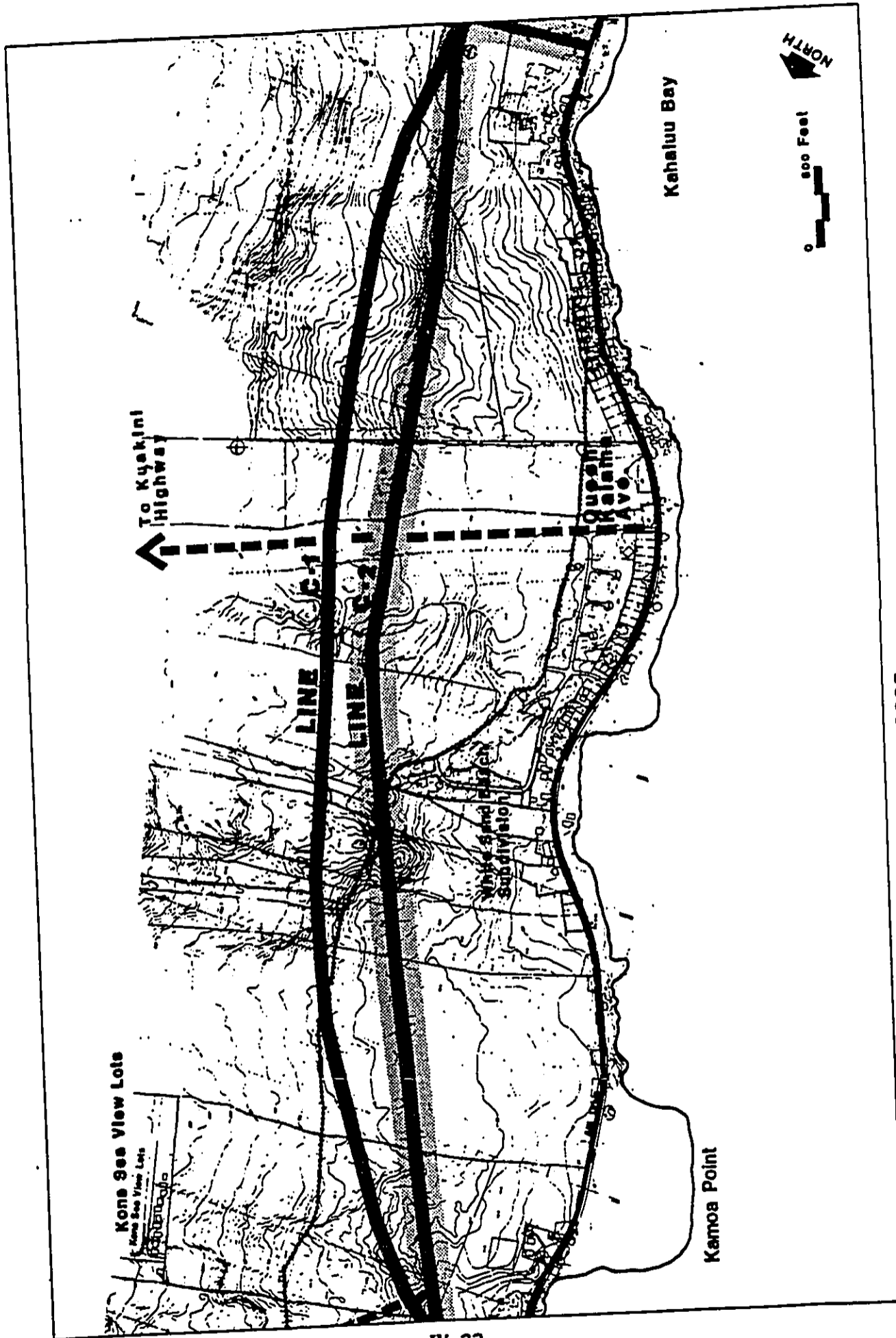


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Figure IV-3 ALTERNATIVE C-1 NOISE CONTOUR: 2005

67dBA

Source: Hawaii, County of, Department of Public Works, 1984



IV-22

Figure IV-3 ALTERNATIVE C-2 NOISE CONTOUR: 2005

Source: Hawaii, County of. Department of Public Works, 1984

67dBA

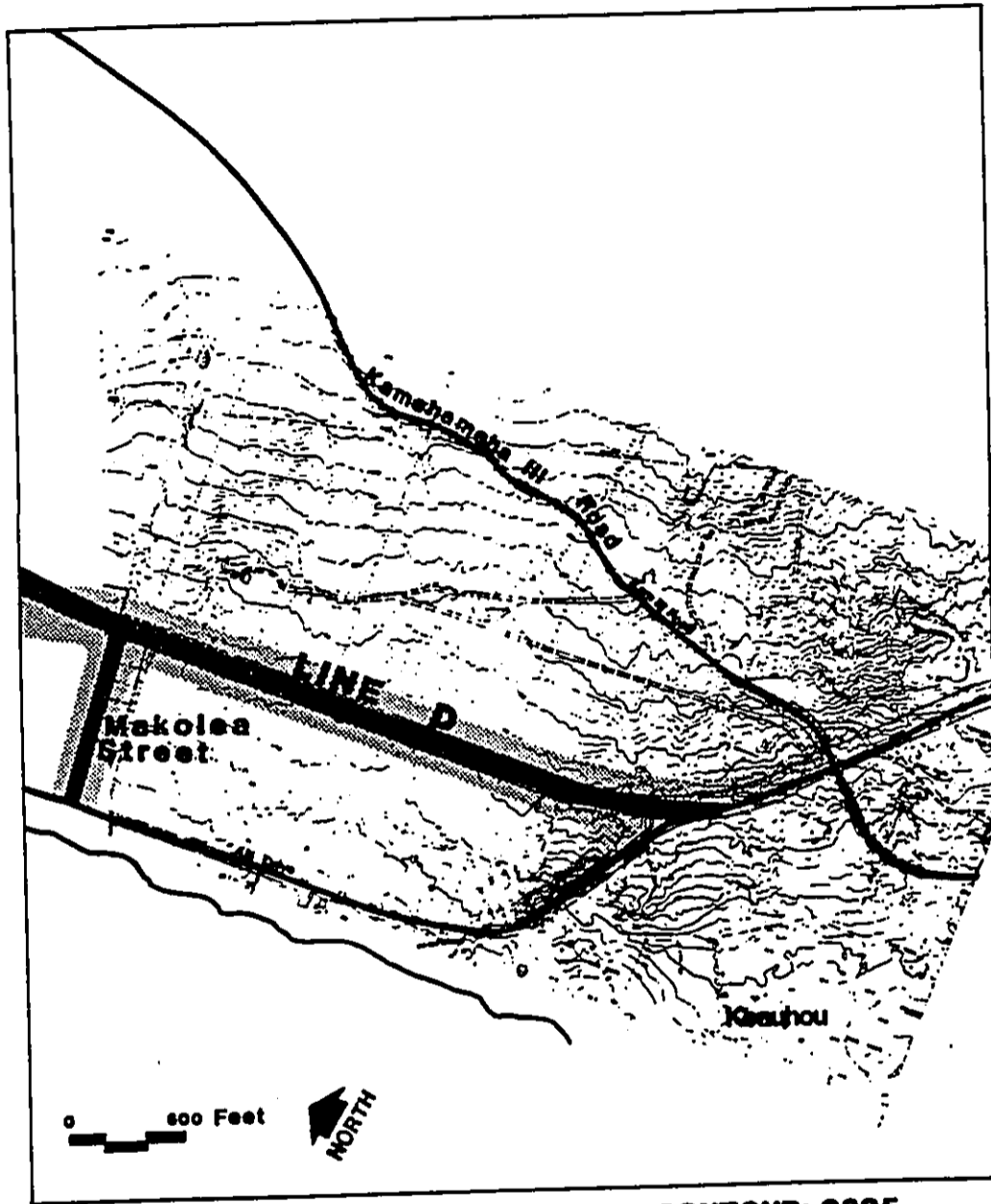



Figure IV-3 ALTERNATIVE D NOISE CONTOUR: 2005

 **67dBA**

Source: Hawaii, County of.
Department of Public Works, 1984

Widening the existing roadway to four lanes would produce nearly the same reduction in average annual energy use as an entirely new roadway while requiring less in the way of construction energy. Hence, it would have a slightly more favorable effect on total energy use. All of the construction alternatives are superior to the no-action alternative from an energy viewpoint.

4.2.4 Wild and Scenic Rivers

The project area has no rivers listed in the Nationwide Inventory of Rivers with potential for inclusion in the National Wild and Scenic Rivers Systems.

4.2.5 Floodplain Impacts

4.2.5.1 Setting

Three major drainageways intersect the proposed Alii Highway route. All begin at or near the top of Mount Hualalai, and all are relatively long and narrow. They are Waiaha Stream, Horseshoe Bend-Holualoa Gulch, and Kaumalumu Gulch (see Figure IV-4). In addition to these large drainageways, a number of much smaller drainage areas entirely below Kuakini Highway are also present and must be considered in highway design.

At the coastline and above 6,000 feet in elevation, average annual rainfall is less than 30 inches; in a high rainfall band between 2,000 and 3,500 feet, it reaches 75 to 100 inches. The 100-year, 6-hour rainfall as estimated by the National Oceanic and Atmospheric Administration (U.S. Department of Commerce, Weather Bureau, 1962) shows a similar variation with elevation. It ranges from about five inches at the coastline and less than three inches near the summit of Hualalai to over eight inches in a small zone near 3,000 feet above sea level.

The western slope of Hualalai, through which the drainageways pass, consists of geologically recent, unweathered lava flows. As a consequence, the drainage courses are poorly developed, and an accurate delineation of drainage basin boundaries is difficult at best. Soils there are generally shallow. Because the relatively young Hualalai lavas are quite porous, most rainfall percolates into the ground, and there are no perennial streams. However, occasional intense storms produce extensive overland sheet flow, as well as channel overtopping.

The Alii Highway corridor lies near the seaward end of the three largest basins. As a result, the amount of streamflow reaching it is heavily dependent upon the nature of upstream land uses and drainage structures, as well as the intensity and duration of storm events. At present, the majority of the upland area is covered with thick vegetation, and this tends to moderate the amount of surface runoff. In addition, existing upstream bridges and drainage culverts such as those under Mamalahoa Highway, Hualalai Road, and Kuakini Highway, have inadequate capacity. These overloaded drainage structures act as impediments to runoff and thus decrease peak flow rates in the downstream area traversed by the Alii Highway corridor.

Several of these moderating influences are unlikely to remain indefinitely. Instead, as upstream drainage structures are demonstrated to have insufficient capacity to accommodate peak flood flows, they will be replaced by higher-capacity structures which will pass peak flows as concentrated streams to low-lying areas where the proposed highway is located. Installation of a substantially larger structure under Mamalahoa Highway at Kaumalumu Gulch following the major storm of October 3, 1982 is an

example of this upgrading process. Moreover, substantial acreage now covered by natural vegetation is likely to be urbanized in the years ahead, and this, too, will tend to produce changes in runoff patterns.

In view of the foregoing, it must be assumed that upstream structures will gradually be improved so that the proposed Alii Highway will eventually receive the full force of upland runoff; and the schematic design takes these changes into account. As explained in the discussion which follows, drainage structures under it will accommodate projected flows without significant damage to the roadway or to nearby properties.

4.2.5.2 Estimated Peak Discharge Rates for Three Major Alii Highway Basins

The U.S. Geological Survey maintains two gaging stations within the area tributary to the proposed Alii Highway; both are on Waiaha Stream, and both were established in 1960. Station 16-7592 is a continuous gaging station located on the right branch of Waiaha Stream near Holualoa at an elevation of 3,280 feet; it measures runoff from a 1.9 square mile area. Average annual discharge at Station 7592 over the 22 years of record is approximately 0.3 cubic feet per second (cfs), and there are long periods when the stream is dry. The highest recorded flow is 1,630 cfs and occurred on October 3, 1968.

Station 16-7593 is a partial record station which measures only the crest stage of streamflow. It is situated at an elevation of 2,580 feet and measures runoff from an 8.74 square mile area. The same storm which produced the record flow at Station 16-7592 resulted in a discharge of 3,100 cfs here. The highest discharge recorded at this location is 3,550 cfs and occurred on February 11, 1982. The same storm produced a peak discharge of 1,090 cfs at Station 7593.

Both of the gaging stations on Waiaha Stream are well above the proposed highway, and there are no flow records for the other drainage courses that affect it. In the absence of such long-term records, design discharge rates for Waiaha Stream, Horseshoe Bend-Holualoa Gulch, and Kaumalumu Gulch at their intersection with the proposed Alii Highway were calculated using a regional analysis of physiographically similar basins for which gaging records are available. The four-step analysis involved:

- (1) selecting comparable basins;
- (2) computing the 100-year and 50-year peak flows for them using the Log-Pearson Type III distribution method;
- (3) identifying and collecting data concerning possible independent variables (i.e., predictors of streamflow) for use in a regression analysis; and
- (4) use of multiple regression analyses to determine the best relationships between observed stream discharge (Q_{50} and Q_{100} the dependent variable) and possible independent variables.

Estimated peak flow rates arrived at using the regional flood analysis are presented in Table IV-6. It should be remembered that the flow rates shown assume drainage structures beneath the upstream roadways, and particularly Kuakini Highway, will be improved so that they can accommodate the full flow potential. While not part of the Alii Highway project, these improvements are likely to be made as part of ongoing capital improvement programs, and they mean that the proposed project will need to accommodate substantially greater discharge rates in these main drainageways than are currently experienced.

TABLE IV-6
Comparison of Other Hydrologic Studies with the Results of the Regional Analysis

Stream Basin	Drainage ¹ Area (sq. mi.)	County ² Drainage Standards	Peak Runoff Rates (CFS)							
			Corps of ³ Engineers		SCS Method		Flood ⁴ Insurance Study		Regional Analysis	
			50- Year	100- Year	50- Year	100- Year	50- Year	100- Year	50- Year	100- Year
Waiaha	10.7	6,100	6,500	9,500	4,180	4,950	2,700	3,850	5,480	7,040
Horseshoe Bend- Holualoa	4.1	3,700	2,800	3,700	2,290	2,670	2,530	3,360	2,550	3,070
Kaunalumalu	7.5	5,100	4,900	6,200	2,492	3,035	2,370	3,310	1,530	1,800

¹ Drainage area determined by delineation of USGS quad maps.

² County Standard curves (Plate 6 of reference 4) are for "approximate 100 year recurrence interval" and are identical to the curve by R.M. Towill Corp. in reference 8.

³ Runoff values are taken from Plate 16 in reference 2.

⁴ Runoff values are computed from regression equations developed in reference 14.

In addition to the three major basins, runoff from the numerous small drainage basins lying between Kuakini Highway and Alii Highway must also be accommodated. Projected peak discharge rates for each of the 21 local basins that would be affected by the proposed project are presented in Table IV-7. Current plans are to intercept overland surface drainage from them and either dispose of it via dry wells or convey it under the realignment via culverts. The culverts would be closely spaced and would minimize interbasin diversions, i.e., runoff would be kept as close as possible to its existing course (see Figure IV-5 for their approximate location).

All runoff passing under the proposed Alii Highway will eventually impact on Alii Drive. At present, drainage structures under Alii Drive have limited capacity. Where culverts are absent or undersized, runoff ponds and either infiltrates into the ground or flows across the roadway. However, with the exception of certain flood prone areas discussed subsequently in this report, this flooding has produced minimal damage in the past, and the structures required to eliminate this condition are not proposed as part of this project.

4.2.5.3 Floodplain Encroachment

The Alii Highway corridor crosses base flood areas identified on the National Flood Insurance Program Flood Insurance Rate Maps at several points. These are shown on Figure IV-6. Four of the crossings are associated with the three major drainageways described previously. The fifth floodplain crossed is an unnamed gulch south of Holualoa Gulch. The designated floodplain crossings are as follows:

<u>Segment</u>	<u>Floodplain Crossing</u>
A-1, D	None
A-2	Waiaha Stream -- Occurs at two points because inadequate culvert capacity at Kuakini Highway on the main channel results in overtopping of the culvert and sheet flow for several hundred feet down the roadway before the water crosses to the downhill side of the pavement and eventually rejoins the main channel.
B	Horseshoe Bend/Holualoa Gulch -- Two drainageways converge above the roadway alignment, reaching it as a single watercourse.
B	Unnamed Gulch -- Relatively small drainageway approximately 1,300 feet south of Horseshoe Bend/Holualoa Gulch.
C-1, C-2	Kaumalumalu Gulch -- Drainageway originates above Kuakini Highway, but the upper reaches of the designated floodplain barely touches the alignment of Segment C-1. C-2 crosses the floodplain.

The floodplain boundaries delineated on Figure IV-6 show the area inundated by the flood having a one percent probability of occurrence in any one year.

In addition to the floodplains shown on Figure IV-6, intense storms also generate runoff within the small drainage basins lying completely below Kuakini Highway. The area of these basins is quite limited, however, and the topography is such that most of the runoff occurs as sheet flow rather than within defined drainage courses.

TABLE IV-7

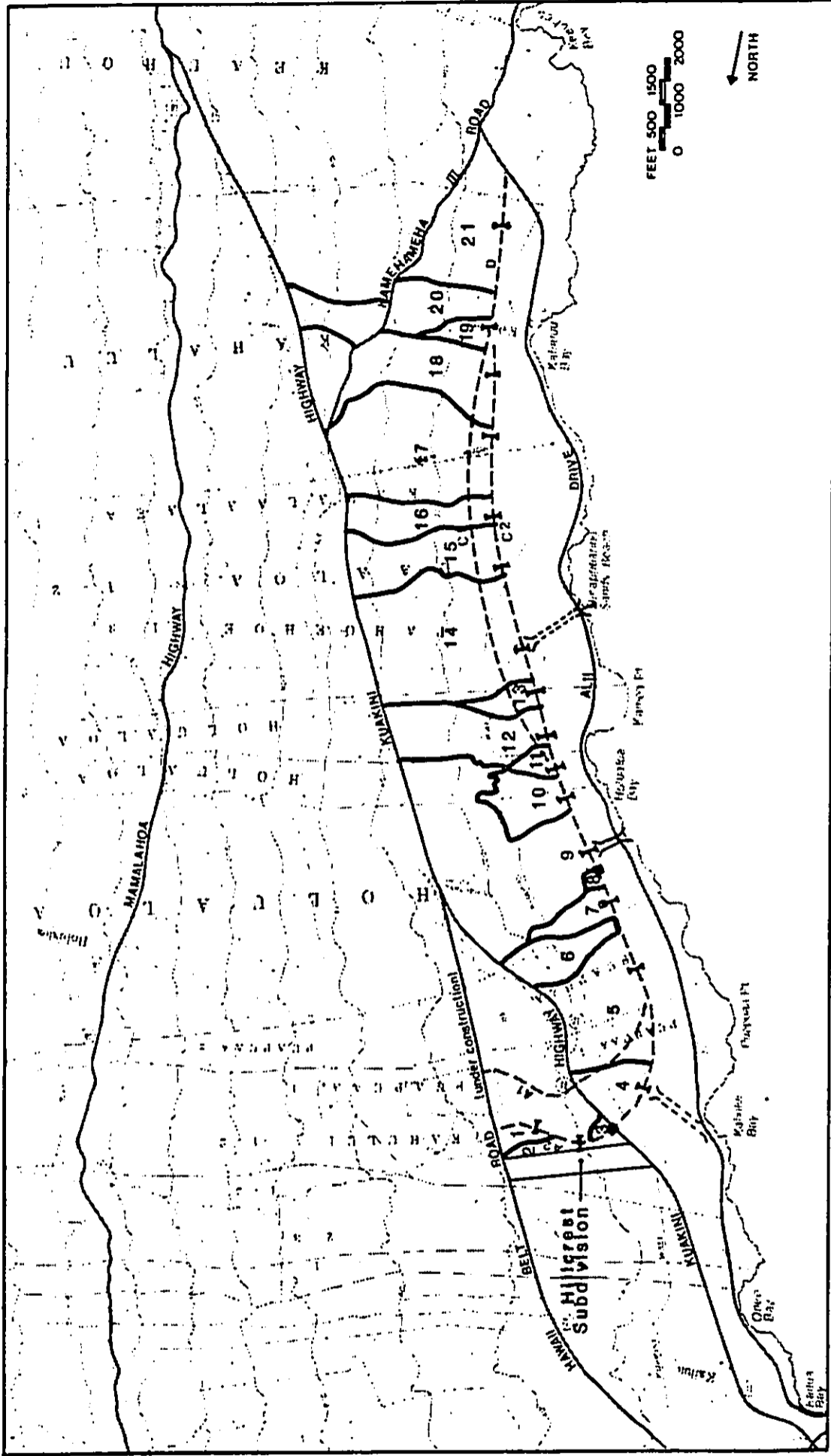
Summary of Peak Runoff Rates for Local Basins

<u>Basin</u>	<u>Area (acres)</u>	<u>Flow Within Basin (cfs)</u>	<u>Added Flow from Culverts</u>	<u>Design Flow (cfs)</u>
1	5	19	--	19
2	7	26	--	26
3	5	19	--	19
4a	108	118	565	683
5	84	227	--	227
6	42	143	--	143
7	23	69	--	69
8	3	13	--	13
10	535	674	--	674
11	14	54	--	54
12	392	494	--	494
13	16	37	--	37
15	612	663	--	663
16	245	308	--	308
17	6,162	5,130	--	5,130
18	84	198	253	451
19	13	49	--	49
20	50	66	363	429
21	4	16	--	16

Notes:

1. See Appendix B for runoff computations.
2. Basins 4, 9, and 14 are major basins.
3. "Added Flow from Culverts" is based on capacities of the existing culverts on Kuakini Highway and Kamehameha III Road.

These figures represent the alignment closest to the shoreline, where drainage flow will be the greatest. Drainage flows for mauka alignments will be either the same or less. Thus, these figures may be interpreted as 'worst-case'.

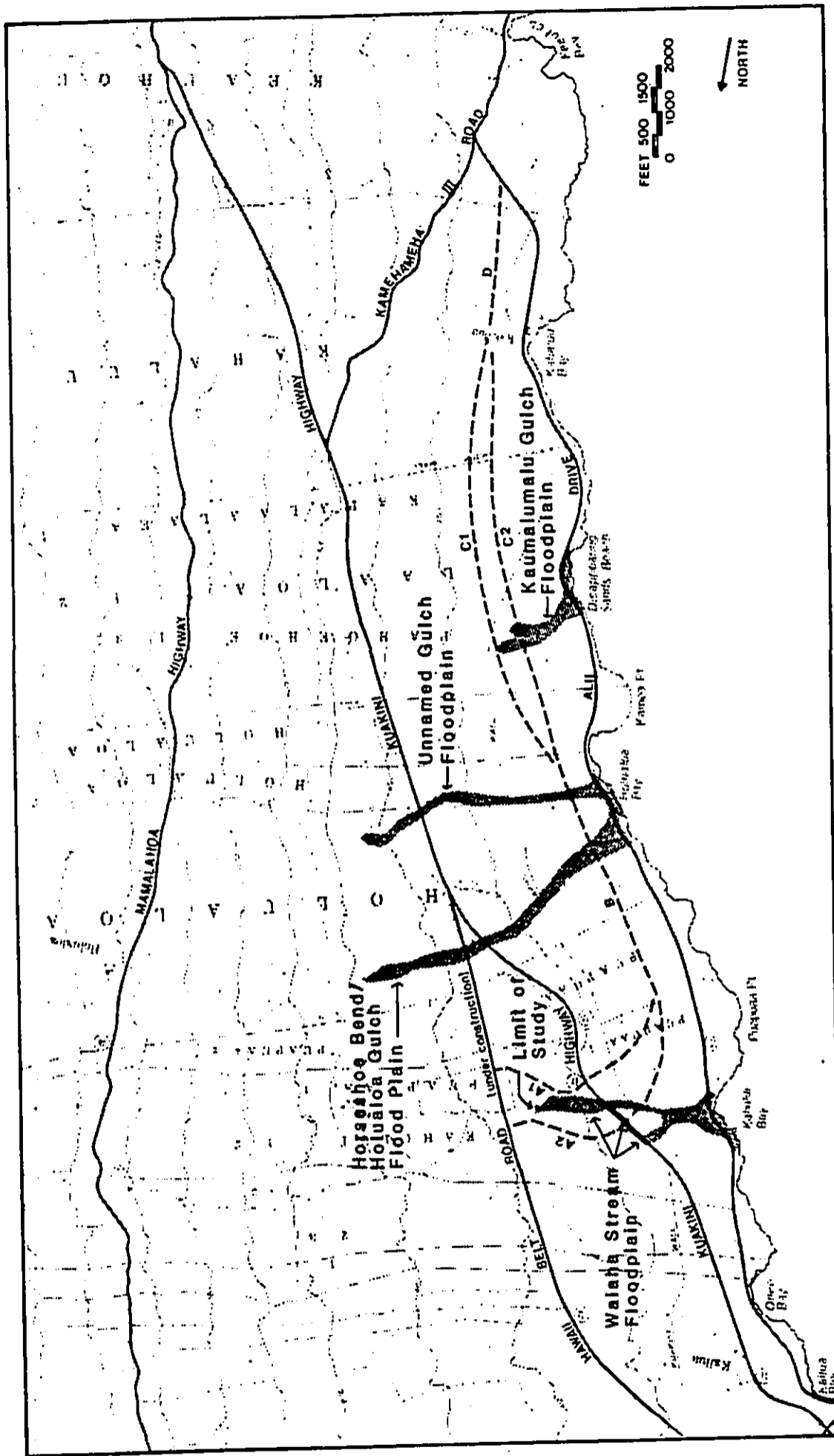


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Figure IV-5 LOCATION OF DRAINAGE BASINS AND PLANNED DRAINAGE STRUCTURES

- I** PROPOSED CULVERT
- II** PROPOSED CHANNEL
- III** FUTURE CHANNEL
- IV** PROPOSED DRY WELL
- V** FUTURE CULVERT
- VI** DRAINAGE BASIN NUMBER

Source: Belt, Collins & Associates, 1983



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Figure IV-6 NATIONAL FLOOD INSURANCE PROGRAM FLOODPLAINS

■ AREAS OF 100-YEAR FLOOD

Source: U.S. Department of Housing and Urban Development
Federal Insurance Administration,
Flood Insurance Rate Map, 1970

23 CFR 650 states that it is the policy of the FHWA to encourage a broad and unified effort to prevent uneconomic, hazardous, and incompatible use and development of the Nation's floodplains by avoiding significant encroachments on floodplains where practicable. An encroachment is defined as an action within the limits of the base floodplain, and a "significant encroachment" is defined as:

A highway encroachment and any direct support of likely base floodplain development that would involve one or more of the following construction or flood-related impacts:

- (1) a significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route,
- (2) a significant risk, or
- (3) a significant adverse impact on natural or beneficial floodplain values.

Regardless of which route is followed, the proposed Alii Highway would involve crossing numerous drainage basins. However, the great majority of them have areas of less than 100 acres and design flows of less than 300 cubic feet per second. Because of the ill-defined nature of the basins (much of the runoff occurs as overland flow) and the intermittent character of the flow within them, there are no natural floodplain values which would be affected by highway construction. Similarly, the local basins (i.e., the basins lying entirely below Kuakini Highway), are so small that their floodplains have not been delineated on the flood insurance maps and runoff from them can be accommodated through appropriately-sized highway culverts that will pass runoff from upland areas beneath the proposed highway while maintaining essentially the same drainage pattern as currently exists. For these basins, no significant adverse effect is to be expected.

Effects of the project on the drainageways that are designated as potential flood hazard areas on the flood insurance maps are described below.

4.2.5.3.1 Waiaha Stream. As indicated in Table IV-6, Waiaha Stream has a predicted 100-year flood discharge of just over 7,000 cubic feet per second (cfs). Construction of Segment A-2 would result in two encroachments on this floodplain. The first is at its intersection with existing Kuakini Highway. Flooding occurs at that point as a result of Waiaha Stream overtopping the existing box culvert. The floodwater flows down Kuakini Highway for several hundred feet until it reaches a topographic low point which allows it to cross to the makai side of the highway and continue its journey to the sea. Segment A-2 of the proposed highway would be subject to this overland flow whenever the culvert is overtopped.

The County, owner of the highway and existing culvert, has no plans to enlarge the drainage structure in the foreseeable future. However, provision of adequate drainage facilities at this location has been made one condition of approval in the rezoning of a large, privately owned parcel adjacent to the makai side of the highway. When this developer's plans are implemented, the existing flooding problem will be eliminated.

The second encroachment on a designated floodplain will occur at the point where the proposed highway crosses the main channel of Waiaha Stream (at an elevation of approximately 80 feet). The culvert provided beneath the highway would be designed to accommodate the 100-year flood. Hence, the project would not result in decreased channel capacity at this point. It should also be noted that rezoning of this area to permit residential development granted by the County in early 1983 carried with it the condition that the private developer "...shall construct and complete drainage improvements within the Waiaha floodplain including the replacement of the Kahalui Bridge on Alii Drive prior to the issuance of occupancy permits on the subject property" (Ordinance No. 869, February 16, 1983:10 and Ordinance No. 870, February 16, 1983:7). These improvements would contain the flood discharge and minimize the threat to the proposed highway and surrounding properties.

Construction of the Alii Highway along alignment A-2 with adequately sized culverts would neither increase nor obstruct streamflow at this point. At present, these are scheduled for installation by the private sector as part of ongoing residential development of the area. If they are not installed, the County will undertake them as part of the proposed highway project.

4.2.5.3.2 Horseshoe Bend-Holualoa Gulch. Segment B of the proposed roadway (for which there is no alternative) would encroach on the Horseshoe Bend-Holualoa Gulch floodplain at a point one block south of Royal Poinciana Drive. This area has historically been subject to flooding. Existing drainage improvements include a 300-foot long lined channel and 3-foot by 5-foot reinforced concrete box culvert under Alii Drive, but runoff from intense storms overwhelms the shallow natural drainageways leading to the lined channel, and the capacities of the channel and the culvert themselves are too small to accommodate the full 100-year storm discharge. As a result, Alii Drive is periodically flooded over a wide area (see Figure IV-6).

The proposed Alii Highway would involve construction of a major culvert under the proposed roadway approximately 600 feet above Alii Drive. The culvert would be sized to accommodate 3,000-plus cubic feet per second estimated as the discharge of the 100-year flood, and would somewhat alter the existing drainage pattern. Instead of reaching Alii Drive and other areas downstream of the new roadway across a broad front as is now the case, runoff would be concentrated. As a result, the existing deficiencies of the channel and Alii Drive culvert would be magnified, and flooding would be even more pronounced.

To avoid this problem, a new channel stretching from the culvert under the proposed Alii Highway to the ocean would be constructed. This would involve reconstruction of the undersized Alii Drive culvert and would eliminate the existing flooding problem. It would enhance flood protection for areas downstream of Alii Highway. Moreover, the area mauka of Alii Highway would not be threatened even in the rare event of rainstorms surpassing the culvert's design capacity because the roadway elevation would be set below that of the lowest floor elevation of homes mauka of the highway.

4.2.5.3.3 Unnamed Gulch South of Horseshoe Bend-Holualoa Gulch. As shown on Figure IV-6, the National Flood Insurance Program Flood Insurance Rate Maps indicate the presence of a flood hazard in an unnamed gulch located approximately 1,300 feet southeast of Horseshoe Bend-Holualoa Gulch. The culvert under the proposed roadway will be designed to accommodate the 100-year flood from this basin.

4.2.5.3.4 Kaumalumu Gulch. Construction of Segments C-1 and C-2 would encroach upon the Kaumalumu Gulch floodplain as delineated for the National Flood Insurance Program (see Figure IV-6). Predicted 100-year flood discharge potential at the Alii Highway alignment is approximately 1,800 cfs. At present, there is no culvert under Kuakini Highway for this gulch. As a result, runoff originating mauka of it splits when it reaches Kuakini Highway. Part of the flow crosses the road at this point and continues downslope towards the ocean; the remainder is diverted along the shoulder of Kuakini Highway towards Kailua. There are no culverts beneath Alii Drive at the outlet of this gulch. Hence, runoff flows across the roadway on its way to the ocean. However, the flooding is reportedly not as severe as in the case of Waiaha Stream or Horseshoe Bend-Holualoa Gulch.

The design of the proposed Alii Highway will provide a culvert at Kaumalumu Gulch which can pass the 100-year flood from the basin. This will insure adequate drainage even after improvements have been made to the drainage facilities beneath Kuakini Highway that eliminate the existing downhill diversion at that location. No drainage improvements makai of Alii Highway are planned as part of this project, but these can be implemented concurrent with future urban development of adjacent lands.

4.2.5.4 Impact on Natural and Beneficial Values

As described above, none of the five floodplains upon which the proposed Alii Highway project would encroach are associated with perennial streams. Flow occurs only intermittently in response to rainfall events. Moreover, because the landforms are in a youthful stage of development, the watercourses are poorly defined. As a result, the drainageways lack many of the attributes that make floodplains valuable natural resources. There are no fish or other aquatic fauna in the streams that would be affected by the projected minor changes in flow regime or runoff location. Similarly, there is no clear relationship between the location of drainage courses and vegetation or terrestrial fauna.

Channelization of Waiaha Stream and proposed drainage improvements in Horseshoe Bend-Holualoa Gulch would reduce or eliminate the flooding that is now prevalent along Alii Drive at those locations. This, in turn, would slightly reduce stormwater retention time in ponds that now form mauka of Alii Drive because of the inadequate drainage facilities there. As a result, there could be a very slight increase in the amount of suspended sediment contained in runoff water reaching the ocean. Given the low frequency of occurrence and the relatively small change in the sediment load that would result, it is not expected that this change would substantially alter conditions in nearshore waters. A slight reduction in groundwater recharge would occur, again as a result of the lowered retention time of stormwater in areas immediately mauka of Alii Drive. However, the amount is trivial in comparison with the amount that occurs in high rainfall/high permeability areas on the higher slopes of the drainage basins. Moreover, the underlying groundwater is saline. Hence, no significant effect on the overall condition of the aquifer is expected.

4.2.5.5 Support of Incompatible Floodplain Development

The proposed project is intended to provide adequate highway capacity in the face of expected continuing growth within the Kailua-Keauhou corridor. Because of the intermittent nature of the streams, the absence of significant floodplain habitats, the limited role which existing floodplains play in flood attenuation, and the strong land use controls in effect which would prevent new development within flood-prone areas, the project is unlikely to lead to significant incompatible development of the floodplain.

4.2.5.6 Impact Mitigation Measures

Encroachment-specific mitigation measures are discussed above. In general, they involve provision of adequate drainage structures under the proposed new highway. In addition, channelization between Alii Highway and Alii Drive would be provided for Waiaha Stream and Horseshoe Bend-Holualoa Gulch, and between Alii Drive and the ocean on Waiaha Stream. This will eliminate existing drainage deficiencies and insure that any flow concentration that could result from construction of the proposed roadway would not adversely affect downstream properties. Changes in the official floodplain designation made under the National Flood Insurance Program will be required in conformance with Hawaii County Code Chapter 27. The project is consistent with existing County land use and watershed plans.

4.2.6 Coastal Zone Impacts

In accordance with the Coastal Zone Management (CZM) Act of 1972 and the regulations on Federal consistency with approved Coastal Management Programs (15 CFR 930), Federal activities must be consistent to the extent possible with approved State CZM programs. The Hawaii Coastal Zone Management Program (HCZMP), Chapter 205A Hawaii Revised Statutes was enacted in 1977 and approved by the Department of Commerce in 1978. The Alii Highway corridor is located in Hawaii's Coastal Zone.

The following assessment discusses the effects of the highway construction in terms of the objectives and policies of the Hawaii Coastal Zone Management Program. Items documented follow the Hawaii Coastal Zone Management Program Assessment Format of the Procedures Guide for Achieving Federal Consistency with the Hawaii Coastal Zone Management Program, prepared by the Department of Planning and Economic Development, State of Hawaii (1980).

Recreational Resources

Objective: Provide coastal recreational opportunities accessible to the public.

Policies

- (1) Improve coordination and funding of coastal recreation planning and management.
- (2) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:
 - (a) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;
 - (b) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites and sandy beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;
 - (c) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

- (d) Encouraging expanded public recreational use of County, State, and Federally owned or controlled shoreline lands and waters having recreational value;
- (e) Adopting water quality standards and regulating point and non-point sources of pollution to protect and where feasible, restore the recreational value of coastal waters;
- (f) Developing new shoreline recreational opportunities, where appropriate, such as artificial reefs for surfing and fishing; and
- (g) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, county planning commissions; and crediting such dedication against the requirements of section 46-6.

Discussion: State parks in the project area are the Kamao Point historic site complex and the Old Kona Airport Park, a regional beach park. County parks include Pahoehoe Beach Park, Kahaluu Beach Park and White Sands Beach Park (refer to Figure III-2). Alii Highway will not use lands from any Federal, State, County, or private park or recreational area. It will relieve traffic congestion on Alii Drive, separate local and through traffic, improve safety conditions for pedestrians, joggers and cyclists, and reduce levels of air pollutants along Alii Drive. These changes will enhance recreational opportunities along the coastline.

Historic Resources

Objective: Protect, preserve, and where desirable, restore those natural and man-made historic and pre-historic resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies

- (1) Identify and analyze significant archaeological resources;
- (2) Maximize information retention through preservation of remains and artifacts or salvage operations; and
- (3) Support State goals for protection, restoration, interpretation, and display of historic resources.

Discussion: The Alii Highway corridor passes through an area that was an important center of population and economic and political power in the pre-contact and early monarchy period. All sites within the realignment corridor are eligible for inclusion on the National Register of Historic Places by virtue of their location within the Kahaluu Historic District and/or the Kona Field System. The Kona Field System encompasses the Kahaluu Historic District and the entire realignment corridor. In addition, the Great Wall of Kuakini, determined eligible for the National Register in 1978, is breached by portions of the alternative alignments. Section 4.3 of this Final EIS discusses the historic and archaeological preservation impacts of the proposed project. A Planning Memorandum of Agreement (MOA) was concluded between the National Advisory Council on Historic Preservation, the FHWA, and the State Historic Preservation Officer prior to filing this document.

Scenic and Open Space Resources

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies

- (1) Identify valued scenic resources in the coastal zone management area;
- (2) Insure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;
- (3) Preserve, maintain and, where desirable, improve and restore shoreline open space and scenic resources; and
- (4) Encourage those developments which are not coastal dependent to locate in inland areas.

Discussion: Section 4.1.5 discusses the visual impacts of the proposed highway and Section 4.3.4.4 discusses specifically the visual effects on the five archaeological sites recommended for preservation.

Coastal Ecosystems

Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Policies

- (1) Improve the technical basis for natural resource management;
- (2) Preserve valuable coastal ecosystems of significant biological or economic importance;
- (3) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, similar land and water uses, recognizing competing water needs; and
- (4) Promote water quantity and quality planning and management practices which reflect the tolerance of freshwater and marine ecosystems and prohibit land and water uses which violate State water quality standards.

Discussion: There are no perennial streams in the project area so no freshwater flora or fauna could be affected. The rate of erosion within the tributary watersheds would not be significantly affected by the proposed project; hence, the total sediment load reaching the ocean would remain virtually unchanged. The water quality impacts of the proposed project are discussed in detail in Section 4.2.8.

Economic Uses

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies

- (1) Concentrate in appropriate areas the location of coastal dependent development necessary to the State's economy.
- (2) Insure that coastal dependent development such as harbors and ports, visitor industry facilities, and energy generating facilities are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and
- (3) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such development and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:
 - (a) Utilization of presently designated locations is not feasible;
 - (b) Adverse environmental effects are minimized; and
 - (c) Important to the State's economy.

Discussion: West Hawaii is the major resort destination on the Big Island and Kailua its largest commercial center. Improving transportation between Kailua and Keauhou is likely to reinforce this position.

Coastal Hazards

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, and subsidence.

Policies

- (1) Develop and communicate adequate information on storm wave, tsunami, flood, erosion, and subsidence hazard;
- (2) Control development in areas subject to storm wave, tsunami, flood, erosion, and subsidence hazard;
- (3) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and
- (4) Prevent coastal flooding from inland projects.

Discussion: The Alii Highway corridor crosses base flood areas identified on the National Flood Insurance Program Flood Insurance Rate Maps at several points (refer to Figure IV-6). Section 4.2.5.3, Floodplain Boundaries, describes the five designated floodplain crossings. Adequate drainage structures will be provided under the proposed new highway. Channelization between Alii Highway and Alii Drive would be provided for Waiaha Stream and Horseshoe Bend-Holualoa Gulch, and between Alii Drive and the ocean on Waiaha Stream.

This will eliminate existing drainage deficiencies and insure that any flow concentration that could result from construction of the proposed roadway would not adversely affect downstream properties. Changes in the official floodplain designation

made under the National Flood Insurance Program will be required in conformance with Hawaii County Code Chapter 27. The project is consistent with existing County land use and watershed plans.

Managing Development

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies

- (1) Effectively utilize and implement existing law to the maximum extent possible in managing present and future coastal zone development;
- (2) Facilitate timely processing of application for development permits and resolve conflicting permit requirements; and
- (3) Communicate the potential short- and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the general public to facilitate public participation in the planning and review process.

Discussion: This objective is not relevant to the proposed project.

4.2.7 Wetlands

Based on a survey of wetlands and wetland vegetation prepared for the U.S. Army Corps of Engineers in 1977, there are no wetlands in the project area (EARTHWATCH; 1977).

4.2.8 Water Quality Impacts

4.2.8.1 Existing Conditions

As discussed in Section 4.2.5, there are no perennial streams in the study area. Records show that there are small flows on Waiaha Stream at elevations above 2,500 feet on approximately 30% to 40% of the days each year. However, except during periods of intense rainfall, this water infiltrates into the streambed before reaching the coastline. Average groundwater discharge along the coastline has been estimated at less than 0.5 million gallons per day (Technical Committee on Water Quality Standards, December 1, 1977).

In the vicinity of potential discharge points for surface runoff (e.g., Waiaha Stream and Holualoa Gulch-Horseshoe Bend) the shoreline and ocean bottom is periodically subjected to high-energy waves. The shoreline and near-shore environment therefore consists mostly of basalt boulders and cobbles. These have been shaped by marine processes such as wave scour, currents, and other erosive factors. Because of the constant scouring, few organisms inhabit them; grapsid crabs and sparse interstitial and underrock fauna are the most common. According to Hobson (1974), the majority of the fish present in the nearshore area are herbivorous ones which graze on benthic algal turf. Finer-grained bottom material is generally absent because of the high wave energy. As a result, there is little, if any, infaunal biota.

Well out from the boulder beach, at depths where the benthos is protected from the full force of waves (i.e., generally below 30 feet) is a protected coral community. Typically, finger-coral (Porites compressa) and Porites lobata are among the more common coral species. Porites lobata is particularly abundant closest to shore where wave energy is still relatively high. Other invertebrates usually found in this zone include the slate pencil urchins (Heterocentrotus) and (Chondreocidaris), the heart urchin (Tripnuestes), the sea urchins (Echinothrix spp.) and mollusks of many varieties, including the cowries. Filamentous algae, crustose corraline algae, bryozoans, and sponges are seen on rocky surfaces. Among the more common reef fish usually present are the surgeonfishes (Acanthurus flavescens and Ctenochaetus strigosus), the yellow tang (Zebrasoma flavescens), the achilles tang (Acanthurus achilles), and the wrasse (Thalassoma duperreyi).

No detailed water quality data is available for the area, but surveys of similar coastlines indicate that terrigenous sediment carried by surface runoff is not a major influence or adverse environmental factor in this area at present. This is due both to the limited size and intermittent nature of the tributary streams and to the rapid dispersion of suspended sediments in the high-energy nearshore environment.

4.2.8.2 Effect on Rates of Erosion

Construction of Alii Highway within any of the alignments under consideration would require cuts and fills at a number of points. These are shown in Figure IV-1. To the extent that cut and fill slopes are stripped of their protective cover, consist of deep, easily erodible soils, and/or are steeper than the existing terrain, this would increase the potential for erosion and could add to the suspended load of watercourses draining the area.

Plans for the proposed highway call for fill slopes and cut slopes through soils to be seeded with grass and irrigated until the groundcover has become established. Only cuts through rock, where the erosion potential is insignificant, would be left bare. For the most part, this should prevent excessive erosion. However, some increase in the potential for soil loss would exist during the construction period. In addition, the relatively dry climate makes it likely that some areas will require re-seeding from time to time in order to maintain the effectiveness of the grass as a groundcover.

It is important to note that the extent of the cut and fill slopes is extremely small compared to the total tributary area of any of the affected drainage basins. Hence, the potential for significant degradation in water quality resulting from changes in erosion within the highway right-of-way is extremely small. More substantial effects could result from already planned urban development in the area if adequate erosion control procedures are not implemented. However, these developments would occur even without the proposed project, and their impacts can be effectively mitigated through application of appropriate erosion control techniques.

4.2.8.3 Effect on Sediment Deposition and Coastal Water Quality

As shown on Figure IV-5 in Section 4.2.5, runoff from mauka of the proposed project will be collected and carried beneath the roadway using appropriately sized culverts. For the most part, this will not entail a change in the path taken by stormwater runoff. In some instances, however, fill upon which the highway would be constructed would intercept and concentrate runoff which currently travels overland in a dispersed fashion. Once passing under the new highway, runoff would continue downslope towards Alii Drive and the ocean.

With a few exceptions discussed below, no improvements to drainage structures makai of the proposed Alii Highway are planned as part of this project. Hence, Alii Drive would continue to form a partial barrier to the seaward movement of sediment-laden water. This downstream control would greatly restrict any possible effect of the proposed project on coastal water quality.

Exceptions to the "no change to Alii Drive" rule described above would occur at Waiaha Stream and Horseshoe Bend-Holualoa Gulch; in the future, changes might be made at Kaumalumu Gulch as well. New culverts would be provided under Alii Drive at all three locations. In addition, stabilized channels would be provided between Alii Highway and Alii Drive.

As a result of the channelization, existing flood problems along Alii Drive would be greatly alleviated. An inevitable side effect of this is decreased residence time for floodwaters, increased flow velocity, and a consequent reduction in the amount of sediment deposition which takes place within the floodway. In some situations this can have a significant adverse effect on water quality and the health of marine biota, but, for reasons outlined below, this is not likely to be the case here:

- o The intermittent nature of the affected streams means that there is no resident freshwater flora or fauna whose habitat could be affected.
- o The proposed project would not significantly affect the rate of erosion within the tributary watersheds; hence, the total sediment load reaching the ocean would remain virtually unchanged.
- o Measurably higher flow velocities for a given discharge rate would occur in the channelized portions of watercourses. As a result, there would be slightly less in-channel sediment accumulation between major storm events. This, in turn, suggests that sediment would tend to reach the shoreline in smaller "pulses", i.e., to be spread more evenly over time. In general, such a regime results in more stable water quality and imposes less stress on marine ecosystems.
- o Sediment reaching the ocean would remain suspended for long periods of time due to the high wave energy there, allowing sediment to be dispersed over wide areas. As a result, it is not expected to have a detrimental effect.

4.2.8.4 Other Highway-Related Pollutants

Numerous studies have demonstrated the presence on roadways of a wide variety of other pollutants which can be carried into receiving waters by storm runoff. These include coliform bacteria, heavy metals, petroleum-based chemical contaminants, rubber, algal nutrients and waste materials leading to increased biological oxygen demand, and pesticide residues. These originate from such things as the surrounding soils, motor vehicle traffic, dead vegetation and other organisms, and decomposition of the pavement surface itself.

In situations where the amount of road surface is large relative to the total watershed area, where vehicular traffic is heavy, where the water bodies which receive the pollutant-laden runoff are relatively small, closed systems (as with lakes), where the dispersion of pollutants is slow, and/or where the affected aquatic ecosystem is particularly sensitive to minor fluctuations in water quality, the effect of these other highway-related pollutants can be significant. In the case of the Alii Highway project,

however, virtually none of the environmental conditions which tend to result in significant adverse impacts from this source are present. Hence, the minor changes in the concentration of these pollutants cannot be considered significant.

4.2.9 Threatened and Endangered Species

4.2.9.1 Introduction

Construction of the proposed highway would involve clearing the vegetation and grading a corridor a minimum of 100 feet wide and approximately 4.0 to 4.5 miles long. Loss of vegetation will cause some displacement of faunal species. Therefore, the existing flora and fauna were studied so the future impacts of the construction of the proposed realignment could be evaluated.

4.2.9.2 Existing Flora and Fauna

U.S. Fish and Wildlife Service staff was contacted in February 1983, prior to the field survey conducted for this project, concerning whether any endangered bird, mammal, or plant species were recorded or known in the area of the proposed highway. The Hawaiian Hoary Bat was the only known endangered species reported in the project vicinity. No proposed, candidate, or listed endangered plant species were known for the area. See Appendix A-21(a).

In February 1983, a field survey was conducted by EARTHWATCH to determine the existing vegetation, birds and mammals in the project area. Results of the fieldwork are summarized in the paragraphs that follow.

4.2.9.2.1 Flora. Results of the field survey indicate that six major vegetation cover types occur within the study area. These are: Grassland, Open Mixed Scrub, Koa Haole Woodland, Kiawe Forest, Mixed Forest and Recent Lava Flow Vegetation. The majority of plant species observed during the survey (see Table IV-8) are exotics (plants of accidental or deliberate introduction after contact with the Western world). They are commonly found in dry lowlands throughout the Hawaiian Islands where kiawe, koa haole, and exotic weeds and grasses have replaced most native species. Of the 72 plant species observed, 62 are exotic, 2 are Polynesian introduced, 5 are indigenous (occur naturally here and elsewhere), and 1 is endemic to the Hawaiian Islands (occur only here). No listed or proposed endangered or threatened plant species were observed within the project area.

4.2.9.2.2 Fauna. A total of 15 species of birds were observed within or near the proposed alignments during field studies conducted by a two-person team (EARTHWATCH, August 1983). The names of these species, together with information regarding their relative and absolute abundance, are presented in Table IV-9. None of them are endangered or threatened.

Five mammalian species are believed to be present within the Alii Highway corridor. They are the mouse (Mus musculus), cat (Felis domesticus), mongoose (Herpestes auropunctatus), dog (Canis familiaris), and rat (Rattus, spp.). The first three were actually observed during the course of the study, while the latter two are commonly reported by residents of the area. None of these mammals are considered threatened or endangered. A sixth mammal, the Hawaiian hoary bat, which has reportedly been seen in the Kailua-Kona area by other observers and is listed on the State and Federal endangered species list was not seen during this study.

TABLE IV-3
Plant Species Present

Family	Scientific Name	Common Name	Hawaiian Name	Status
Polypodiaceae	<i>Microsorium scolopendrium</i>	Lau's fern	lauwa'e kupukupu	exotic
	<i>Spheralipsis mufliflora</i>	Sword fern		exotic
Commelinaceae	<u>Monocotyledonae</u>			
	<i>Zabina pendula</i>	Wandering Jew	honohonohu	exotic
	<i>Chloris inflata</i>	Swollen fingergrass	mau'ulei	exotic
	<i>Cynodon dactylon</i>	Bermuda grass	manilele	exotic
	<i>Echinochloa indica</i>	Wiregrass	manilele-ali'i	exotic
	<i>Eragrostis ciliaris</i>	Stinkgrass		exotic
	<i>Panicum maximum</i>	Kuhua grass		exotic
	<i>Panicum clandestinum</i>	Kuhua grass		exotic
	<i>Pennisetum setosum</i>	Feathery pennisetum		exotic
	<i>Rynchospora repens</i>	Natal reedtop		exotic
	<i>Setaria verticillata</i>	Brittly foxtail		exotic
	<i>Tripsacche inularis</i>	Sourgrass		exotic
	Palmae	<i>Cocos nucifera</i>	Coconut	niu
Amaranthaceae	<u>Dicotyledonae</u>			
	<i>Amaranthus spinosus</i>	Spojy amaranth	pakai-kaku	exotic
	<i>Amaranthus viridis</i>	Slender amaranth	pakai	exotic
Anacardiaceae	<i>Schinus terebinthifolius</i>	Christmas berry	nani-o-hilo	exotic
Juncaceae	<i>Catharanthus roseus</i>	Madagascar periwinkle	kibupai	exotic
Araliaceae	<i>Brassia actinophylla</i>	Octopus tree	pa-nini	exotic
Cactaceae	<i>Opuntia megacantha</i>	Prickly pear	pa-nini	exotic
Capparidaceae	<i>Capparis sandwicensis</i>	Native caper	pua-pilo	endemic
	<i>Gynandropsis gynaëra</i>	Wild spider flower	honohina	exotic
Chenopodiaceae	<i>Chenopodium murale</i>	Nettle-leaved goose-foot		exotic
Compositae	<i>Bidens cynapiifolia</i>	W. Ind. Beggar's tick		exotic
	<i>Bidens pilosa</i>	Beggar's tick	hohohohu	exotic
	<i>Emilia javanica</i>	Red pus-jele		exotic
	<i>Erechtites hieracifolia</i>	Fireweed		exotic
	<i>Pluchea odorata</i>	Pluchea, sour bush		exotic
	<i>Vedella trilobata</i>	Vedella		exotic
	<i>Ipomoea congesta</i>	Morning-glory	koali-'awania	indigenous
Convolvulaceae	<i>Ipomoea obscura</i>	Little bell	exotic	
	<i>Ipomoea triloba</i>	Hairy metremia	exotic	
Crasulaceae	<i>Kalanchoe pinnata</i>	Air plant	koala-kui-hulu	exotic
Cucurbitaceae	<i>Cucumis dipsacatus</i>	Wild spiny cucumber	'oliva-ku-kahakai	exotic
	<i>Vernonia charantia</i>	Balsam apple		exotic
Euphorbiaceae	<i>Aleurites moluccana</i>	Candlenut tree	kukui	Polynesian
	<i>Euphorbia hirta</i>	Garden spurge	koko-kahiki	exotic
	<i>Euphorbia heterophylla</i>	Mexican fire plant		exotic
	<i>Euphorbia geniculata</i>	Wild spurge	kaliko	exotic
	<i>Ricinus communis</i>	Castor bean	koli	exotic

Source: Earthwatch, August 1983.

TABLE IV-9

Bird Species Present Within the AllI Highway Corridor

Common Name	Scientific Name	(1)		(2)		(3)		(4)		(5)	
		Total Recorded Obs."A"	Obs."B"	Species Recorded Obs."A"	Obs."B"	Species Frequency Obs."A"	Obs."B"	Species Incidence Obs."A"	Obs."B"	Relative Abundance Obs."A"	Obs."B"
Gray Francolin	<i>Francolinus pondicerianus</i>	4	3	3	2	.06	.04	1.33	1.50	.02	.01
Golden Plover	<i>Pluvialis dominica</i>	3	3	1	1	.02	.02	3.00	3.00	.01	.01
Spotted Dove	<i>Streptopelia chinensis</i>	9	11	8	7	.15	.13	1.13	1.57	.03	.03
Barred Dove	<i>Geopelia striata</i>	261	198	48	48	.91	.91	5.44	4.13	1.00	.55
Japanese White Eye	<i>Zosterops japonicus</i>	222	362	52	53	.98	1.00	4.27	6.83	.85	1.00
Common Mynah	<i>Acridotheres tristis</i>	151	112	45	33	.85	.62	3.36	3.39	.58	.31
Warbling Silverbill	<i>Lonchura malabarica cantans</i>	3	16	1	7	.02	.13	3.00	2.29	.01	.04
Spotted Munia	<i>Lonchura punctulata</i>	17	22	8	11	.15	.21	2.13	2.00	.07	.06
Java Sparrow	<i>Padda oryzivora</i>	4	4	1	1	.02	.02	4.00	4.00	.02	.01
House Sparrow	<i>Passer domesticus</i>	15	19	5	7	.09	.13	3.00	2.71	.06	.05
Yellow-Billed Cardinal	<i>Paroaria capitata</i>	32	44	15	21	.28	.40	2.13	2.10	.12	.12
Northern Cardinal	<i>Cardinalis cardinalis</i>	199	185	53	52	1.00	.98	3.75	3.56	.76	.51
House Finch	<i>Carpodacus mexicanus frontalis</i>	130	165	41	47	.77	.89	3.17	3.51	.50	.46

(1) This is the total number of individuals recorded during all 53 eight-minute counts.

(2) This is the total number of periods during which at least one member of the species was recorded.

(3) "Species Frequency" is the number of counts during which one or more individuals of the species was recorded divided by the total number of periods (53).

(4) "Species Incidence" is the total number of individuals of the species recorded during all counts divided by the number of counts during which one or more individuals of that species were recorded.

(5) "Relative Abundance" is the total number of individuals of a particular species recorded during all counts divided by the total number of individuals recorded in the most abundant species (261 for "A" and 362 for "B").

Source: Earthwatch, August 1983.

4.2.9.3 Probable Biological Impacts

4.2.9.3.1 Impacts on Flora. Clearing and grading for the proposed realignment would involve the permanent loss of existing vegetative cover within a minimum 100-foot wide, 4.0- to 4.5-mile long corridor. Vegetation would be temporarily disturbed in a somewhat wider area due to the movement of heavy equipment. The plant species are primarily exotics typical of the lowland Kailua-Kona area and other leeward areas of similar rainfall and elevation. Most of the species observed within the proposed alignments are commonly found in nearby or adjacent lands. No listed or proposed endangered or threatened species were observed. There were no significant differences in the vegetation along the alternative alignments, therefore no alignment is considered more favorable than another in terms of vegetation resources.

At the southern end of the proposed alignment (Segment D), cover consists of scattered vegetation over a'a lava flow. The endemic species, pua-pilo, is found scattered throughout this cover type. Although not endangered or threatened, it is found less commonly today throughout most of its range.

4.2.9.3.2 Impacts on Fauna. The loss of vegetation due to clearing and grading for highway construction will cause displacement of faunal species in the project area. However, only a small portion of the total habitat would be affected, and it is expected that displaced fauna will relocate to adjacent or nearby lands. More significant changes will occur as a result of future urban development of the region called for on County plans. Certain species which have specific habitat requirements would probably be displaced at a rate similar to the rate of habitat modification. Fauna will relocate to similar habitat as long as such habitats are available. The carrying capacity of the nearby habitats and species competition will eventually cause the number of faunal species to be permanently lost.

No listed or proposed endangered or threatened species were observed in the project area. However, the Hawaiian hoary bat, which is listed on both the Federal and State endangered species list, has been observed in the Kailua-Kona area a number of times. At this time, it cannot be said whether the project area is habitat for the bat. Because the bats occur in elevational, rainfall and vegetative ranges similar to the project area, the possibility of their presence cannot be dismissed. Extensive additional fieldwork would be required to establish their range and numbers. The Department of the Interior, U.S. Fish and Wildlife Service has been contacted, and has indicated that the proposed action will not affect the hoary bat.

4.2.10 Prime and Unique Agricultural Lands

4.2.10.1 Introduction

In 1975 the U.S. Department of Agriculture, Soil Conservation Service (SCS) adopted a program to identify and locate the nation's best available agricultural lands. The program required participation from state and local government. In Hawaii, an ad hoc committee representing the SCS, the University of Hawaii's College of Tropical Agriculture, the State Rural Development Committee, the State Departments of Agriculture, Planning and Economic Development, and Land and Natural Resources developed a classification system and criteria for classification of agricultural lands. Agricultural Lands of Importance to the State of Hawaii (ALISH) were delineated on maps and categorized according to the criteria developed. This classification system and the criteria were adopted by the Board of Agriculture on January 28, 1977. Three classes of agriculturally important lands were established: (1) "Prime Agricultural

Land", (2) "Unique Agricultural Land", and (3) "Other Important Agricultural Land". These correspond to the national SCS classes which are: "Prime Farmland", "Unique Farmland", and "Additional Farmland of Statewide and Local Importance".

The State's criterion for the classification of Prime Agricultural Land are the same as the national criterion:

Prime Agricultural Land has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops economically when treated and managed, including water management, according to modern farming methods (DOA; 1977).

The criteria for classifying unique agricultural lands and other agricultural lands were established jointly by the SCS, the College of Tropical Agriculture, and the State Department of Agriculture. They are:

Unique Agricultural Lands have the special combination of soil quality, growing season, temperature, humidity, sunlight, air drainage, elevation, aspect, moisture supply, or other conditions, such as nearness to market, that favor the production of a specific crop of high quality and/or high yield when the land is treated and managed according to modern farming methods (DOA; 1977).

Other Important Agricultural Lands are land important to agriculture in Hawaii yet they exhibit properties such as seasonal wetness, erodibility, limited rooting zone, slope, flooding, or droughtiness, that exclude them from the Prime or Unique Agricultural Land classification (DOA; 1977).

4.2.10.2 ALISH Land in the Project Area

Figure IV-7 delineates the ALISH lands in the project area. No Prime or Unique Agricultural Lands are located in the highway corridor; hence, construction of the proposed roadway would have no impact on Prime or Unique Agricultural Lands.

Parts of Segments C-1 and C-2 cross lands classified as "Other Important Agricultural Land". Mauka of Kamoia Point, C-1 would cross approximately 1,400 feet of lands in this category, and C-2 would cross approximately 1,750 feet. Since the right-of-way is a minimum of 100 feet, the affected area would be approximately 140,000 square feet (3.2 acres) and 175,000 square feet (4.0 acres), respectively. The second area where Segments C-1 and C-2 would cross lands in this category is mauka of White Sands Subdivision. There, Segment C-1 would cross 75,000 square feet (1.7 acres) and Segment C-2 would cross 80,000 square feet (1.8 acres).

These areas were designated "Other Important Agricultural Lands" on the basis of the SCS soil survey. Both are covered by the same soil series, Kaimu extremely stony peat, 6-20 percent slope, and were probably placed in this category because they are physically suitable for orchards, e.g., macadamia nuts, papaya, and citrus fruits. The land is not presently used for those crops. While a few head of cattle are present, they are not part of a commercial ranching operation. The southernmost area is in the State Land Use Urban District, and an application to amend the County zoning from "Unplanned" to "Residential" was submitted by Pacific Basin Resorts in April 1983. Action on the application is still pending.

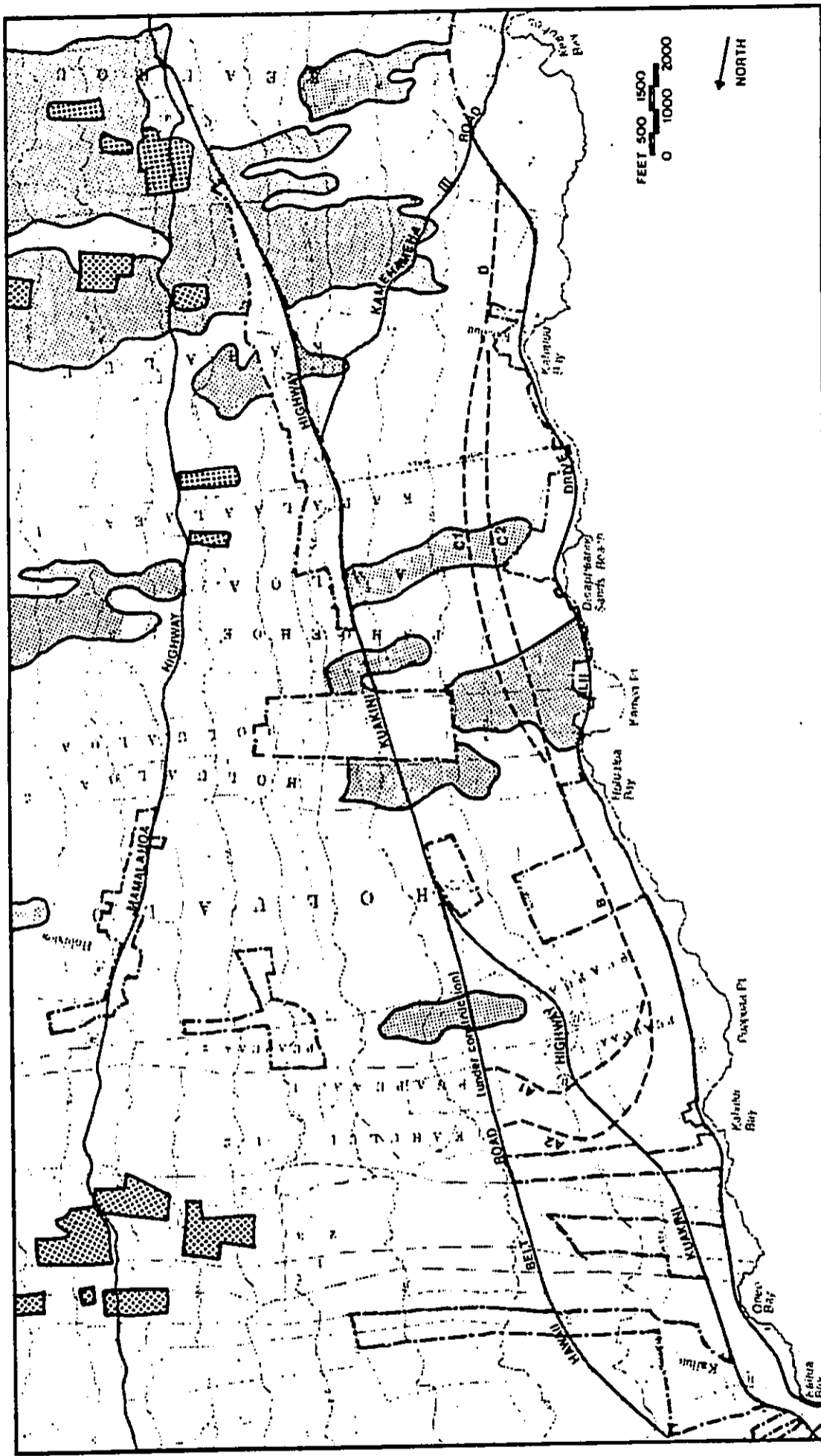


Figure IV-7 AGRICULTURAL LANDS OF IMPORTANCE TO THE STATE OF HAWAII (ALISH)

- PRIME AGRICULTURAL LAND (None located in highway corridor)
- UNIQUE AGRICULTURAL LAND (None located in highway corridor)
- OTHER IMPORTANT AGRICULTURAL LAND
- EXISTING URBAN DEVELOPMENT

Source: Hawaii Department of Agriculture
January 1977

4.3 HISTORIC AND ARCHAEOLOGIC PRESERVATION IMPACTS

This discussion of archaeological and historic preservation impacts, taken in part from the archaeological consultant's report, is divided into five main parts. Section 4.3.1 contains a brief history of the area through which the proposed project would pass. Section 4.3.2 reviews the historic and archaeological studies that have been conducted and briefly describes the types of sites that have been encountered within 150 feet of the centerline of the various alternatives. The eligibility of these sites for the National Register of Historic Places is discussed in Section 4.3.3. Section 4.3.4 assesses the effect that each alternative would have on eligible sites and discusses the measures that would be taken to mitigate them. The following part, Section 4.3.5, compares the alternatives with respect to their effect on National Register-eligible sites.

4.3.1 Historical Setting

4.3.1.1 Political Factors

The Alii Highway corridor passes through 18 named land divisions as shown in Table IV-10. According to tradition, the area was favored by high ranking chiefs of Hawaii from at least the time of Umi-a-Liloa (who reigned nine generations before Kamehameha I, or about 1600 A.D.). The lands of Keauhou and Kahaluu also figure prominently in eyewitness accounts of the early 19th century reigns of Kamehameha I and II.

In 1812, Kamehameha I moved his court from Oahu to Kamakahonu on what is now called Kailua Bay in the ahupuaa of Lanihau. (An ahupuaa is a land division generally extending from the mountain to the sea.) The various ranking chiefs associated with Kamehameha's court probably occupied a considerable portion of the nearby coastline and were provisioned in part with produce from the study area. Unfortunately, there are few contemporary accounts of the land traversed by the proposed highway (Kelly and Barrere 1980:2, 7, 9, and Figure 5). Kamakau (1961:222) does contain a brief description of the area as it appeared around 1820:

...at Kamakahonu could be seen at night the sparkle of lights reflected in the sea like diamonds, from the homes of the chiefs from Kahelo in Puapua'a I to Lanihau. The number of chiefs and lesser chiefs reached into the thousands.

The death of Kamehameha I in 1819 was the first in a rapid succession of events that greatly reduced the region's political importance and transformed its society. Among the most important of these were the abolition of the kapu system, the arrival of the first company of protestant missionaries, and the transfer of Liholiho's (Kamehameha II) court to Oahu in 1821. When Liholiho departed, he appointed Kuakini governor of the Island of Hawaii, a position which he held until his death in 1844.

During the nineteenth century, Hawaii moved from a semi-feudal society to one closer to western models. As part of this change, the Great Mahele of the mid-nineteenth century resulted in the creation for the first time of privately held parcels of land and their assignment to specific individuals. A total of 233 of these "Land Commission Award" (L.C.Aw.) properties lay within the ahupuaa crossed by the proposed Alii Highway. The vast majority of them were small, i.e., less than five acres, contained agricultural plots and/or houses, and are believed to have been owned by commoners. However, none of these small holdings is actually crossed by the

TABLE IV-10

**Lands and Land Commission Awards
(with Awardees) Crossed by the Alii Highway Corridor**

<u>Land (From N to S)</u>	<u>Land Court Award</u>	<u>Awardee</u>
Kahului 2nd	8516-B3(Ahp. Por. 3) ¹ (p.469) ²	Kamaikui (Sister of Keoni Ana - John Young) ³
Puapuaa Iki (1st)	4887:2 (170 acres) (p.488)	Sam (or Sams), Thomas
Puapuaa Nui (2nd)	8559-B:8 (379 acres) (p.488)	Lunalilo, William C. (King)
Holualoa 1st	--	--
Holualoa 2nd	7713:43(por.) (Ahp. 43) (p.458)	Kamamalu, Victoria (Sister of Alexander Liholiho - Kamehameha IV)
Holualoa 3rd	--	--
Holualoa 4th	7228 (638 acres) (p.459)	Loe
Kaumalumalu	9971:28 (Ahp.) (p.475)	Leleiohoku, William Pitt (Husband of Nahienaena - Sister of Kamehameha II - and later husband of Ruth Keelikolani)
Pahoehoe 1st	--	--
Pahoehoe 2nd	8520-B:3 ("By Name") (p.485)	Lahilahi, Gini (Sister of Keoni Ana - John Young)
Pahoehoe 3rd	--	--
Pahoehoe 4th	--	--
Laaloa 1st	7716:4 (Ahp.) (p.483)	Keelikolani, Ruth (Half-sister of Alexander Liholiho - Kamehameha IV)
Laaloa 2nd	--	--
Kapalaalaea	4452:2 (Ahp.) (p.474)	Kalama, Hazaleleponi (Queen; Wife of Kauikeaouli - Kamehameha III)
Kapalaalaea 2nd	--	--
Kahuluu	--	--
Keauhou 1st	--	--

¹ Portion of ahupuaa in award ("Ahp." indicates complete ahupuaa minus exclusions)

² Page reference in Indices of Awards... (Office of the Commissioner 1929)

³ Portion of identification of alii awardees from Indices of Awards...

Source: Compiled by Hommon and Rosendahl, September 1983:9.

alignments being considered for the proposed roadway. Instead, all nine of the L.C.Aw.'s crossed by the alignments are large parcels, most of which were awarded to members of royal lines and other high-ranked chiefs (see Table IV-10).

At least five of the L.C.Aw. parcels crossed by the proposed Alii Highway constitute entire ahupuaa (exclusive of minor inholdings). Except for Thomas Sams and Loe, each of the individuals who received these also received numerous, usually widely distributed parcels in the mahele. Review of transcripts of the Native Testimony given in support of these large claims yielded nothing of archaeological or ethnohistoric interest (Archives ...1974-75).

The political importance of the Kailua-Keauhou region declined steadily after the removal of the royal court to Oahu in 1821. When economic development began to affect island lifeways during the second half of the nineteenth and first half of the twentieth centuries, the changes were concentrated in areas better suited to large-scale agriculture, and political influence followed this move away from the Kailua-Kona area.

4.3.1.2 Social and Economic Conditions

British missionary William Ellis (1963:72-76) travelled completely around the Island of Hawaii in 1823. Excerpts from his journal provide a glimpse of the coastline from Kailua to Keauhou as it was at that time:

Leaving Kairua [Kailua], we passed through the villages thickly scattered along the shore to the southward. The country around looked unusually green and cheerful, owing to the frequent rains, which for some months past have fallen on this side of the island. Even the barren lava, over which we travelled, seemed to veil its sterility beneath frequent tufts of tall waving grass, or spreading shrubs and flowers.

The sides of the hills, out for a considerable extent in gardens and fields, and generally cultivated with potatoes and other vegetables, were beautiful.

The number of heiaus and depositories of the dead which we passed convinced us that this part of the island must formerly have been populous....

Ellis identified 19 heiau, including several which he described in some detail. During the course of his trip from Kailua to Keauhou, he counted six hundred and ten houses near the route and judged that there were another hundred scattered among the plantations on the sides of the mountain. Estimating an average of five persons per house, he calculated the population at about 3,500. The eyewitness accounts of Ellis, Kamakau, and Ii indicate that population throughout the lands crossed by the proposed Alii Highway was concentrated in a relatively narrow zone along the coast. Marine resources were heavily utilized for both subsistence and leisure. Potable water springs, coconut groves, and access to both trails and canoes for transportation and communication were also factors in the tendency of population to be concentrated along the shoreline (see Holland 1971:Map 4, p. 31).

During his 1823 expedition, Ellis (1963:32) described the upland area about a mile above Kailua (i.e., well inland of the proposed Alii Highway) as follows:

The path now lay through a beautiful part of the country, quite a garden compared with that through which they had passed on first leaving the town. It was generally divided into small fields, about fifteen rods square [1.4 acres], fenced with low stone walls, built with fragments of lava gathered from the surface of the enclosures. These fields were planted with bananas, sweet potatoes, mountain taro, paper mulberry plants, melons, and sugarcane, which flourished luxuriantly in every direction.

Archibald Menzies, surgeon and naturalist for George Vancouver aboard the HMS Discovery provided a similar description of the upper slopes of Kona when he visited them in 1794, thirty years earlier. However, his notes indicate that he first passed through three miles of "rugged porous lava and volcanic dregs" before reaching the breadfruit plantations on the upper slopes of Kona where:

...the country began to assume a pleasant and fertile appearance through which we continued our ascent for about two miles further, surrounded by populations of the esculent roots and vegetables of the country industriously cultivated... (Menzies, 1920:154).

The zone of intensive large-scale agriculture between Kailua and Keauhou to which both Ellis and Menzies refer appears to have begun at least a mile from the shoreline at elevations of 400 feet and higher, i.e. above the highest and most inland extent of any of the alignments being considered for the proposed highway.

Ellis' description of the area adjacent to Kailua, between the shoreline zone of relatively dense settlement and the upper field system seems to apply to the area through which the proposed Aii Highway would pass:

The environs were cultivated to a considerable extent; small gardens were seen among the barren rocks on which the houses are built, wherever soil could be found sufficient to nourish the sweet potato, the water melon, or even a few plants of tobacco, and in many places these seemed to be growing literally in the fragments of lava, collected in small heaps around their roots (Ellis, 1963:31).

The sweet potato is believed to have been the staple crop throughout the lower kula zone crossed by the proposed highway (Kelly & Barrere, 1980:36-39; Tables 2 & 3, pp. 36 & 37; Handy and Handy, 1972:526; see also Hommon, 1976:258-269).

The absence of small Land Commission Award parcels in the zone traversed by the proposed roadway is consistent with the settlement pattern described above -- a concentration of residential structures and uses along the coastline in conjunction with intensive agricultural activities inland of the study area. However, it is somewhat at variance with archaeological evidence discussed later which indicates considerable activity throughout the length of both possible highway alignments.

Two possible explanations for the absence of small mahele awards within the corridor affected by the proposed Aii Highway may apply. First, much of the archaeological evidence may predate the mid-19th century mahele. Current use was an important criteria in deciding who should receive Land Commission Awards, and the extensive use of the lower part of the kula area suggested by the archaeological evidence may have ceased before the L.C.Aw.'s were given. Another possible explanation for the

absence of small L.C.Aw.'s within the highway corridor is that agricultural use within this portion of the kula zone may have involved non-intensive, short-term use of scattered small plots. Such short-term or seasonal use would contrast with the long-term intensive agriculture practiced in the upland fields claimed during the mahele, and it is possible that it did not qualify the users for a Land Commission Award.

There is no known documentary or archaeological evidence that cotton, tobacco, coffee or other crops mentioned by Kelly and Barrere (1980:24 and 40-51) as having been grown in Kona after 1850 were ever planted within the highway corridor. On the contrary, the low rainfall typical of the area would almost certainly have prevented their successful cultivation.

Low-intensity ranching was prevalent throughout the Kailua-Keauhou area during the late 19th and 20th centuries, and has only recently been displaced by the expansion of the visitor industry and the emergence of Kailua-Kona as West Hawaii's largest commercial center. Corrals, fences, and stone walls were all a part of this enterprise, and many remnants of these have been identified within the Alii Highway corridor during the archaeological reconnaissance survey conducted for the project.

4.3.2 Historic and Archaeological Features Present

Numerous archaeological research projects have been conducted in the Alii Highway corridor over the past 15 years. This is a function of many factors, including the region's abundant archaeological resources, rapid urban development, and the importance attached to historic preservation in the Hawaii County General Plan. The Alii Highway alignments discussed in this report include portions of areas covered by 18 historic and archaeological surveys. Table IV-11 lists these sources, notes the portions of the alignments which cross the areas of previous archaeological work, and identifies the previously recorded sites.

Two of the reconnaissance surveys listed in Table IV-11, Ching's 1973 work and Hommon & Rosendahl's 1983 survey, were carried out as part of the overall planning for the proposed Alii Highway. The 1973 Ching et al. report covered much of Segments A-2, B, and C-2 as described in Section 2.2.3.2 of this report. The Hommon & Rosendahl report covers the remainder of the areas under consideration for the highway and updates the information obtained in 1973.

In two cases (Hammatt & Clark, 1980, and Hammatt & Folk, 1980), sites recorded by Ching et al. in 1973 and referred to by designations in that report have been the subject of further archaeological work. In three other cases (Soehren 1976; Welch 1982; and Barrera 1980), new numbers have been assigned to sites or portions of sites already bearing numbers assigned by Ching et al. in 1973. Original descriptions of sites other than those listed by Ching et al. (1973) that are within the Alii Highway corridors appear in Schilt 1982, Welch 1982, Hammatt 1980a, Hammatt & Folk 1980, Hammatt et al. 1981, and the three National Register of Historic Places (NRHP) manuscripts listed in Table IV-11.

Controlled archaeological excavations have been conducted at 13 sites and features within Segments A-2, B, and C-2 (Hammatt & Clark 1980:59-60, 107-111; Welch 1982:43, 98-99). The excavation of Site 37-6357 resulted in the recovery of human skeletal remains that were collected for reinterment (Hammatt & Clark 1980:59-60). With the exception of a few scattered portable cultural items, little useful material or information was collected from the other excavated sites and features.

TABLE IV-11
Previous Archaeological Research
in Areas Crossed by the Allii Highway Alignments

Report Reference	Approximate Portions of Allii Highway Alignments Covered ¹	Previously Recorded Sites Noted in References Within the Corridors
Ching et al. 1973 (See also Neller 1974)	CL-A, 26+00-210+00	Numerous
Schilt 1982	CL-A, 0-3+00	Site 28-9802
Soehren 1976	CL-A, 31+50-47+00 CL-B, 21+50-36+00	Site 15 may be part of 37-6331 (PD). Site 18 may be 37-6332 and -6371. None (Area Bulldozed)
Dye 1978	CL-A, 66+00-75+00	None
Welch 1982	CL-A, 73+50-75+00	Site D-81(=37-6313); Site D6-54 (=37-6314); Site D6-53
Soehren 1980	CL-A, 113+00-125+50 CL-B, 109+00-117+00	None None
Hammatt 1980a	CL-A, 145+50-145+00 CL-B, 117+00-135+00	None Sites 37-9846; -8093; -8083
Barrera 1980c	CL-A, 145+00-149+50 CL-B, 137+50-142+50	A portion of Barrera's Site 37-6990 Includes sites 37-6348, -6349 & -6350 None
Hammatt & Clark 1980	CL-A, 152+00-167+50 CL-B, 144+50-163+50	Sites and features 37-6356, -6356a, -6356c, -6357, -6360, -6362, -6362b, -6363b and -6383 None
Hammatt & Folk 1980	CL-A, 173+50-205+00 CL-AB, 203+00-225+00	Numerous Numerous
Hammatt et al. 1981	CL-AB, 203+00-225+00	Feature 7847a and Site 7914
Soehren 1980a/ Rosendahl 1981b	CL-A, 207+0-210+00	None
NRHP, ms a.	CL-A, 151+00 and CL-B, 26+00 & 127+00	Great Wall of Kuakini (28-7276)
NRHP, ms. b.	CL-A, 189+00 southward CL-B, 178+60 southward & CL-AB (All)	Kahaluu Historic District (37-4150): 63 sites along the 3 centerlines
NRHP, ms. c.	All (see text)	Kona Field System

¹ The archaeologists reference locations within the 300-foot-wide alignments by the distance (in hundreds of feet) measured along the centerlines, starting with zero at the Hawaii Belt Road (FAP 11). Their system designates the makai alignment as CL-A and the mauka alignment as CL-B where there is a choice; what is called segment B in the EIS, they designate as continuation of CL-A and segment D is designated CL-AB. The chart can be used to convert their designations into the ones used in the remainder of the EIS.

EIS Term	Archaeologists' Designation
Segment A-1	CL-B, 0 - 50+00
Segment A-2	CL-A, 0 - 60+00
Segment B	CL-A, 60+00 - 105+00
Segment C-1	CL-B, 95+00 - 205+00
Segment C-2	CL-A, 105+00 - 210+00
Segment D	CL-AB, 205+00 - 242+17.82

Source: Compiled by Hommon and Rosendahl, September 1983:20.

Detailed site descriptions and maps showing the exact locations of the archaeological remains that have been located are contained in the Hommon and Rosendahl (September 1983) survey report. However, at the request of the Historic Sites Section of the State Department of Land and Natural Resources, these have been omitted from this document as a means of discouraging unauthorized access to the sites that might result in the destruction of the features or the removal of their contents. The discussion which follows briefly summarizes the contents of that report and conclusions that have been reached about the effect that each alternative would have on historic and archaeological remains.

As shown by Table IV-12, the most common archaeological features found are those for which agricultural functions have been inferred. These features include stone mounds, modified bedrock outcrops, and clearings and terraces that probably served as plots for cultivated plants. In general, they are relatively small and simple. Their abundance indicates that the kula area was used for growing sweet potatoes (the probable staple) and other crops.

The habitation features listed include lava tubes containing evidence of human occupation as well as structures believed to have been the foundations of houses. Included among these lava tubes is Ohia Cave (Site 37-7962), an exceptionally large and long lava tube which passes under the southern end of the corridor and which may have served as a refuge cave for people seeking protection from war or other calamities.

The large boundary walls located during the surveys mark the borders between ahupuaa and other lands crossed by the highway corridor. These sites contain useful information regarding construction techniques and land use in the region.

The size and form of the features tentatively identified as grave monuments suggest that each was built to mark and/or cover the remains of one or more human burials. This includes known human burials in Ohia Cave. However, the presence or absence of remains beneath the monuments can only be ascertained through excavation. In this respect, it should be noted that a number of the monuments identified during the preceding surveys as possible grave markers have been found not to contain human remains.

The religious features identified are structures which were intended chiefly for the performance of religious ceremonies or which appear, on the basis of the available archaeological evidence, to have been built for such purposes. Included in this category are Pa-o-umi Heiau, Halelaau Heiau, and two other unnamed heiau.

Site 37-7962, the Ohia Cave, which has been included in the burial category, is an extremely large lava tube, a portion of which passes under the proposed roadway. In addition to the burials, it contains other archaeological material. Concern for the cave and its contents has been expressed at public meetings held to discuss the proposed project, and the interior of the cave in the vicinity of the proposed alignment has been mapped as a result. The Memorandum of Agreement (MOA) between the State Historic Preservation Officer, the Advisory Council on Historic Preservation, the Federal Highway Administration, and the County of Hawaii provides for preservation of the Ohia Cave (see Appendix D). Detailed engineering studies indicate that the roadway can be carried over the cave on a structural span which would support the weight of the road and the vehicles travelling on it.

TABLE IV-12

Summary of Results of Alii Drive Realignment Reconnaissance Surveys

Center Line Section	Boundary Walls	Habitation Features	Religious Features	Grave Monuments	Agricultural Features	Miscellaneous Sites	Total Features	Total Sites
Hommon/Rosendahl Survey:								
CL-A 3+00-25+00		13		8	32+		53+	17
CL-A 193+00-205+00		2+	1	18+	11+		32+	12
CL-AB 203+00-223+50		28(b)	2	14+(c)	11+		55+	22
CL-B 0-42+00	1	5		10	4+	1(d)	21+	15
CL-B 95+05-201+75	10	12	3	32	79+	1(e)	137+	73
SUBTOTALS	11	60+	6	82+	137+	2	298+	139
Ching Survey:								
CL-A 26+00-207+00	13(a)	58(a)	5(a)	23(a)	12(a)	21(a)(f)	55(a)	132(a)
COLUMN TOTALS	24	118+	11	105+	149+	23	353+	271

- (a) Archaeological survey by Ching et al., 1973
- (b) Including 17 features in a single complex structure and 'Ohia' Cave
- (c) Including 4 known human burials in 'Ohia' Cave
- (d) Great Wall of Kuakini
- (e) Judd Trail
- (f) Miscellaneous Sites include 9 ahu, 8 mound complex, 2 stepping stone trails, 1 cistern and 1 lava bubble

Source: Hommon and Rosendahl, September 1983:45 and Ching et al., 1973

4.3.3 Eligibility of Sites for the State and National Registers of Historic Places

The proposed Alii Highway passes through an area that was an important center of population and economic and political power in the pre-contact and early monarchy period. All sites within the realignment corridor are eligible for inclusion on the National Register of Historic Places by virtue of their location within the Kahaluu Historic District (Site 37-4150) and/or the Kona Field System (Site 37-6601). The Kona Field System boundary encompasses the Kahaluu Historic District and the entire realignment corridor. In addition, the Great Wall of Kuakini (Site 28-7276 or 28-6302), which is crossed by Segment A-2 near centerline markers 28+00 and C-2 near centerline marker 151+00 and by Segment A-1 near centerline markers 26+00 and C-1 near centerline marker 127+00, was determined eligible for inclusion on the National Register in 1978. These districts and sites are also eligible for inclusion on the State Register of Historic Places. Brief descriptions follow below.

4.3.3.1 Historic Districts and Other Eligible Sites

The National Register nomination form for the Kona Field System (Site 37-6601) describes it as the most extensive and monumental work of ancient Hawaii. It consists of an integrated complex of dryland agricultural fields measuring approximately 3 miles by 18 miles. The fields form a patterned network of elongated rectangles lying in a band parallel to the coast.

The nomination form goes on to state:

Ground inspections in the Kealekekua Bay area have shown that the patterning is caused by earthen and rock ridges which enclose rectangular field areas, generally oriented with their long axes perpendicular to the sea.... Individual fields vary in size from 9 meters wide by 15 meters long to fields measuring 50 by 300 meters. The field dimensions appear related to local topography. A field may widen to take in a feature such as an outcropping, or it may narrow to go around one, for example.

Some field boundaries are well constructed of stacked stone while others are merely piles of rock lining the field borders. These walls vary in height from about 0.5 to 1.0 meters. The earthen mounds vary from about 0.5 to 1.0 meters in height and are quite rounded. The width of these field boundaries ranges from about 1 meter for well constructed stone walls to about 3 meters for the rounded earthen mounds.

There was no evidence of irrigation as shown by traces of water diversion or by terracing; the mounds and walls apparently were for rainfall retention, boundary markers, and depositories for field rocks. In addition, the upslope orientation of the fields rules against their use for holding surface water, indicating that water was limited to rainfall.

In discussing the significance of the Kona Field System, the nomination papers note that the system is the equal of any in the nation in terms of the extensiveness of the prehistoric modification of the land. It is offered as a physical demonstration of the highly developed farming economy of ancient Hawaii and illustrative of the complexity and advanced state of aboriginal Hawaiian culture. In addition to the fields themselves, the extensive habitation remains within the context of other physical features such as burial areas, religious structures, cave shelters, refuge caves,

animal enclosures, and work platforms are cited as contributing to the research importance of this system.

4.3.3.2 Kahaluu Historic District

The Kahaluu Historic District was placed on the National Register of Historic Places in 1974. It encompasses the seaward half of the ahupuaa of Kahaluu, as well as a small portion of the ahupuaa of Keauhou. The district is most noteworthy for the presence of at least ten major heiau. These are massive structures of stacked stone dedicated to the worship and propitiation of the Hawaiian gods. According to the nomination form:

It is very unusual, and highly significant, that so many heiau are to be found in this rather small area. A number of these heiau have important associations with major events of traditional Hawaiian history and with occurrences in Hawaiian legend. Almost all are in good condition and have been untouched by the ravages of time and urban development.

[The concentration of heiau] indicates that the Kahaluu ahupuaa was one of major importance in Hawaiian culture and history during the times before European contact, for heiau are built only after careful consideration of all geographical, social, political, and supernatural factors. The mere fact that so many heiau exist in the district shows the complexity of Hawaiian society, for it must have taken literally thousands and thousands of man days to build them.... The heiau also show the central role of religion in ancient Hawaiian society and illustrate the lengths to which the ancient rulers would go to insure proper respect, worship, and propitiation of the Hawaiian gods.

...It is especially significant that associated with the many heiau are the other types of ancient Hawaiian sites, such as petroglyphs, walls, enclosures, habitation areas, caves, and so forth. [This provides] an excellent opportunity ... for detailed research on Hawaiian settlement patterns and social interaction processes.

4.3.3.3 Great Wall of Kuakini

The Great Wall of Kuakini is the third National Register site within the Alii Highway corridor. It is a core-filled wall that extends through all of the ahupuaa which the proposed highway would traverse. Overall, the wall is about 9 kilometers (5.6 miles) long and varies in height from 1.5 to 3 meters. It is 1 to 2 meters wide and usually tapers somewhat in cross-section so that the top is narrower than the bottom. A portion of the wall within Segment C-1 is incorporated with a series of walls surrounding livestock pasture areas.

According to Baker (1915:83), the wall was "built in Kuakini's time to keep pigs from the cultivated lands above". The wall derives its name from the fact that it was erected under the direction of Kuakini while he was governor of the Island of Hawaii (1821-1844). However, Kelly and Barrere (1980:30) indicate that the wall was referred to simply as the "Great Wall" until 1855, 11 years after Kuakini's death. Like the Kona Field System, it is a graphic illustration of the high degree of organization typical of Hawaiian aboriginal society, and was determined eligible for the National Register in 1978.

4.3.3.4 Eligibility of Specific Sites

As noted above, the Kona Field System and the concentration of heiau in the ahupuaa of Kahaluu have already been placed in historic districts listed on the National Register of Historic Places. All of the sites identified during the course of the archaeological reconnaissance surveys conducted for this project fall within one or both of the existing historic districts and are, therefore, subject to those portions of 36 CFR 800 pertaining to sites having been determined eligible for inclusion on the National Register. In general, this makes them eligible for inclusion on the State Register of Historic places as well.

The information currently available makes it clear that a large number of eligible properties would be affected by the proposed project regardless of which of the alignments under consideration is selected. In fact, it is impossible to distinguish between the alternatives in this respect. At the same time, it is also evident that the value of most sites lies primarily in the scientific information which they can provide concerning the material and spiritual aspects of aboriginal Hawaiian culture. Mitigation of impacts on sites valued for the research information which they contain can be effectively accomplished by development and implementation of an archaeological data recovery program involving intensive survey and appropriate salvage. So long as this is completed prior to construction, no significant adverse impacts to such sites would occur.

However, in addition to their research value, some sites also have significant interpretive and cultural value. Recovery of archaeological data through intensive survey and salvage cannot mitigate the adverse effect that highway construction would have on these sites. Rather, preservation in place will be required. Sites recommended for preservation in place are listed in Section 4.3.4.4.

4.3.4 Impact of the Proposed Alii Highway Project

4.3.4.1 Introduction

As indicated in Sections 4.3.2 and 4.3.3, the proposed Alii Highway would traverse an area containing numerous properties listed on or eligible for inclusion on the National and State Registers of Historic Places. The high density and wide geographic distribution of these historic properties makes it impossible to route the roadway in such a way as to avoid them entirely. Moreover, the sites are distributed so evenly that no one alignment is clearly superior to the others. The remainder of this section describes the kinds of effects that may be expected from the proposed project and briefly discusses these in relation to the criteria for adverse effect contained in 36 CFR 800.3. The extent to which adverse effects can be effectively mitigated is also discussed.

4.3.4.2 Types of Effects

Construction of the proposed highway would involve the physical destruction of numerous archaeological features as described in previous sub-sections. The precise number will depend upon the exact location of the right-of-way that is selected. However, it is clear that it would amount to less than half the number listed in Table IV-12. In addition to sites which would be physically destroyed (i.e., directly affected), construction and operation of the highway would also indirectly affect the sites by altering such things as noise levels, air quality, and the aesthetic environment.

It should be noted, as discussed in Section 2.2.1, development of a new highway to relieve traffic congestion on Alii Drive is expected to occur even if Federal funding for this specific project is not approved. State and County approvals have already been granted for extensive urban development within the area to be served by the proposed highway, and the County government has indicated that urbanization of the area will occur even if Federal Highway Aid funds are not made available. Land development will proceed on a piecemeal basis, with individual landowners implementing their plans as market conditions warrant.

The County has insufficient resources to construct Alii Highway in its entirety at this time. If Federal funds are not available, it will require developers to set aside a right-of-way for the highway as a condition of future subdivision approval. Once sufficient right-of-way has been acquired in this fashion, the additional land needed to complete a Kailua-Keauhou route will be secured and the missing links connected. In assembling this land, the County will almost certainly use the preferred alignment designated on the Hawaii County General Plan. Consequently, while the FHWA may decide not to fund the project, this will not prevent its eventual construction. For this reason, it is certain that historic sites in the area will be impacted by new highway development regardless of the outcome of this proposed project.

4.3.4.2.1 Criteria for Judging "Effect". Section 800.3, 36 CFR 800 states:

An undertaking shall be considered to have an effect whenever any condition of the undertaking causes or may cause any change, beneficial or adverse, in the quality of the historical, architectural, archaeological, or cultural characteristics that qualify the property to meet the criteria of the National Register. An effect occurs when an undertaking changes the integrity of location, design, setting, materials, workmanship, feeling or association of the property that contributes to its significance in accordance with National Register criteria.

4.3.4.2.2 Criteria for Judging "Adverse Effect". 36 CFR 800.3 cites the following examples of conditions under which effects may be judged to be adverse:

- o Destruction or isolation of all or part of a property;
- o Isolation from or alteration of the property's surrounding environment; and
- o Introduction of visual, audible, or atmospheric elements that are out of character with the property or its setting.

4.3.4.2.3 Determination of Potentially Adverse Effect. The proposed Alii Highway project would result in the destruction of archaeological properties on or eligible for inclusion on the National Register of Historic Places regardless of which alignment is selected. It would also cause changes in air quality, noise levels, views, and the relationship of sites to their surroundings that would indirectly affect properties which would not be destroyed but which lie in proximity to the road right-of-way. Hence, for the purposes of determining compliance with 36 CFR 800.3, the Alii Highway project must be judged to have a potentially adverse effect on National Register properties. The nature of these effects and the extent to which they can be effectively mitigated are discussed below.

4.3.4.3 Effect on Research Value of Properties

The importance of most of the sites that would be directly or indirectly affected by the proposed Alii Highway lies primarily in the scientific information which they can provide concerning the material and spiritual aspects of aboriginal Hawaiian culture, i.e., in their research value. While preservation in place is generally the preferred course of action with respect to significant historic properties, the National Advisory Council on Historic Preservation's regulations recognize that this is not always possible or even appropriate. Hence, 36 CFR 800 provides for mitigation of impacts on sites with research value through the development and implementation of an archaeological data recovery program involving intensive survey and appropriate salvage in lieu of preservation in place. So long as implementation of an approved program is completed prior to construction, no significant adverse impacts to the research value of sites are deemed to occur.

The data available from the reconnaissance surveys conducted for the Alii Highway project do not permit the preparation of a preliminary case report (as defined in 36 CFR 800.13) for such "research value" properties at this time. However, the procedures for dealing with properties important for their research value have been specified in the Memorandum of Agreement (MOA) between the National Advisory Council on Historic Preservation, the State Historic Preservation Officer, the Federal Highway Administration and the County of Hawaii (see Appendix D). The MOA's Data Recovery Plan follows the standards set forth in the National Advisory Council's handbook, Treatment of Archaeological Properties. The MOA establishes specific procedures for Intensive Survey, Data Recovery and In-Place Preservation. A report summarizing the results of the archaeological data recovery program will be submitted to the appropriate agencies, including the National Advisory Council on Historic Sites, the State Historic Preservation Officer, and the County of Hawaii.

4.3.4.4 Effect on Preservation Value of Properties

A few of the archaeological sites within the highway alignments have significant interpretive and cultural value. Unlike sites which are important for the information which they can provide concerning aboriginal Hawaiian culture, adverse effects on these "preservation" sites cannot be mitigated simply through intensive survey and data recovery. Instead, preservation in place is essential if major adverse effects on such sites are to be avoided.

Hommon & Rosendahl (September 1983) identified a total of five sites within the archaeological study corridors that they believed warranted preservation. Brief descriptions of these are presented below.

- o Site 37-2078: Heiau. This is a platform measuring 13 meters by 11 meters by as much as 2 meters high. The platform is divided into two parts of nearly equal size. Hommon & Rosendahl (September 1983) believed it was probably a type of small agricultural heiau. The center of the site lies about 140 feet mauka of the centerline of Segment C-2 and right on the centerline of Segment C-1. Its nearest edge is approximately 70 feet inland of the most likely roadway location.
- o Site 37-3822: Halelaau Heiau. This is a large platform measuring 36 by 24 meters. It includes at least 15 rectangular terraces and platforms at various levels, as well as mounds, low walls, and depressions. There are also smaller platforms (believed to be grave monuments) near and adjacent to the heiau.

Part of Halelaau Heiau lies about 125 feet above the centerline of Segment C-2; one mauka corner of the heiau is 50 feet makai of the centerline of Segment C-1.

- o Site 37-3823: Pa-o-Umi Heiau. This heiau is set atop a low bluff having a moderately dense cover of koa-haole, kiawe, and Manila tamarind. It is a rectangular structure approximately 40 meters by 30 meters. The long axis of the rectangle parallels the contours and the highway alignment. Its walls are up to 2.5 meters thick and 2.3 meters high. Abutting the exterior of the west (makai) wall is a low terrace approximately 15 meters by 7 meters by 0.5 meters. A long bulldozer cut passes close alongside the western edge of this terrace. The makai edge of the site abuts the centerline of Segment D. It is only 10-20 feet from the nearest edge of the most likely right-of-way location.
- o Site 37-6414: Heiau. This is a complex structure measuring about 26 by 16 meters overall and consisting of at least nine boulder-and cobble-paved terraces. The terraces range in area from 3.5 by 3 meters (115 square feet) to 8 by 6 meters (515 square feet). The terraces are up to one meter high and are arranged in two clusters. The northern-most cluster contains five of the terraces, the one on the south four. The two clusters are separated by a pile of rubble about 4 meters wide. A wall leads from Halelaau Heiau to this site, suggesting a close association between the two. This site is immediately adjacent to the edge of the most likely right-of-way within Segment C-2.
- o Site 37-7962: Ohia Cave. This feature is a lava tube that extends more than 2,000 feet downhill from an entrance near Kamehameha III Road. The cross-sectional dimensions of the cave are highly variable, but measurements taken recently suggest that the section crossed by the highway corridor is from 20 to 30 feet wide and 10 to 20 feet high. The roof of the cave lies approximately 10 to 15 feet below the surface. The section that would be crossed by the highway reportedly contains scattered midden material, charcoal concentrations, a few simple stone structures, and at least four human burials.

4.3.4.4.1 Direct Effects on Preservation Sites. Four of the five sites recommended for preservation lie very close to the junction of Segment C-1, Segment C-2, and Segment D. These are Pa-o-umi Heiau (Site 37-3823), Site 37-6414, Halela'au Heiau (Site 37-3822), and the unnamed heiau (Site 37-2078). However, by shifting the centerline of the 100-foot-wide road right-of-way away from the centerline of the 300-foot-wide corridor, both Segments D and C-2 could be used while preserving all of these sites. Hence, only Segment C-1, which crosses Halela'au Heiau and one of the unnamed heiau (Site 37-2078), would involve direct impacts to sites recommended for preservation.

All of the alternatives under consideration cross Ohia Cave, the fifth site recommended for preservation. However, preliminary engineering studies indicate that the cave can be spanned by the road without adverse effects to its contents. It should also be noted that both alternatives within Zone C would avoid the most important elements in a site complex north of the Kauhale Kahaluu housing project that was designated for preservation in the County's recent rezoning of land for the Keauhou Resort Project.

4.3.4.4.2 Indirect Effects on Preservation Sites. None of the alignments under consideration in the northern and central portions of the Alii Highway corridor (Segments A-1, A-2, B, and the northern halves of C-1 and C-2) would have an effect on sites recommended for preservation. In the southern part of the corridor, construction of Segment

C-1 would result in direct, rather than indirect, effects on the preservation sites, and these are covered above. This discussion focuses only on the preservation sites that would be indirectly affected by construction of Segments C-2 and D.

While routing Segments C-2 and D of the proposed highway within the makai portion of the 300-foot wide corridor and bridging Ohia Cave would make it possible to avoid direct effects on the sites recommended for preservation, the edge of the right-of-way would still approach within a few feet of the two closest preservation sites (37-6414 and 37-3823). The other two heiau recommended for preservation would be only 75 to 100 feet from the edge of the right-of-way. This proximity would lead to indirect effects that are discussed below. Please note that these indirectly affected sites are on private property outside the highway right-of-way.

Visual Effects. At present, the preservation sites lie far from major travelled ways. Moreover, they are obscured by the existing scrub vegetation. As a result few people see them on a regular basis or are even aware of their presence.

Construction of the proposed highway would entail vegetation clearance and grading. The roadway near the heiau would consist of four 12-foot wide through-lanes (two in each direction) and paved shoulders. This, together with the stabilized slopes necessary on cuts and fills, would extend the area physically affected by roadway construction beyond the full right-of-way width.

In view of this, it must be assumed that at least the two closest sites (37-6414 and 37-3823) would be highly visible from the roadway. As a corollary, persons atop them (if their presence is allowed) would be able to look directly down upon the highway. Halelaau Heiau and site 37-2078 are set farther back from the edge of the proposed right-of-way for Segment C-2 (about 75-100 feet) and would, therefore, be less prominent.

Persons in passing vehicles would see at least the two closest heiau in stark outline against the sky. Their natural prominence would be magnified by their location above highway cuts, so that the top of the highest structural walls will be as much as 25 to 30 feet above the elevation of the road pavement. Because the heiau would add interest in an area that can otherwise be visually monotonous, the visual effect of the change would probably be perceived as positive by most motorists.

While drivers might welcome the sight of the structures, not all persons visiting the heiau would appreciate the forced visual contact with a modern highway. Instead, they might find the relative isolation provided by the existing scrub vegetation preferable.

Preliminary analyses suggest that landscaping could be used to effectively screen the two sites farthest from the highway. However, this would have to be placed on private property between the edge of the highway and the site boundary. Because of the short distances that are involved, such a remedy is not feasible for the two closer sites.

Noise Effects. At present, noise levels on the four above-ground sites are relatively low. While no measurements have been taken on them, the State Department of Transportation (July 1983) has measured ambient noise levels at similar locations along the proposed highway right-of-way. Their measurements indicate background levels of approximately 40 to 50 dBA. Ambient noise levels at the four preservation sites would increase significantly as a result of vehicular traffic on the new highway. Estimates prepared by the State Department of Transportation suggest that they would probably be on the order of 65 to 70 dBA at the boundary of the two closer sites by the year 2005. Because they are situated farther from the roadway, the increase in sound levels at Halelaau Heiau and Site 37-2078, would be about 5 dBA less than this.

Tourists who view the sites simply as a representative piece of architecture would probably not mind the higher noise levels that would accompany the highway. On the other hand, local residents who still place a high value on the cultural and/or religious aspects of the heiau might view the highway noise as intrusive. In the event that active interpretive programs were to be established at one or more of the sites (a possibility, since some are within areas designated as preservation areas on the County zoning maps and landowners development plans for the Keauhou Resort), higher traffic noise would constitute a disturbance and make it more difficult to fully convey the area's ambience during pre-contact days.

Air Quality Effects. In addition to increasing noise levels and changing the visual environment, traffic on the proposed highway would also have a minor effect on air quality. However, concentrations of pollutants would remain well below State and Federal standards. For the most part, the occasional faint odor from gasoline and diesel engine exhausts would pass unnoticed. Changes in air quality would have no significant effect on the structural integrity of the sites.

Changes in Accessibility. Finally, construction of the highway could vastly improve access to the sites designated as worthy of preservation in place, as well as to other nearby sites. This has the potential for increasing the number of persons visiting them. The change has a beneficial aspect in that it would increase awareness of the area's rich cultural heritage and enhance the opportunity for interpretive activities. At the same time, however, it would increase the potential for vandalism and accidental disturbance and damage unless adequate protective measures are taken. Because the sites lie outside the area that would be acquired for the right-of-way, means of dealing with this potential problem will have to be coordinated with the owner of the land on which they are located.

Stabilization of the sites, combined with periodic maintenance, could insure their continued structural integrity. Together with removal and curation of any portable cultural remains that are present, it would also prevent losses to pothunters. Vandalism, i.e., the wanton destruction of property, is more difficult to prevent. In general, however, there have been few examples of this kind of behavior against heiau in Hawaii. Local residents tend to revere the remains, and visitors have generally been respectful of the historic sites.

4.3.5 Comparison of Alternatives

4.3.5.1 Alternatives That Would Avoid Adverse Effects on National Register Properties

4.3.5.1.1 No-Action/Delayed Action. At the present time, Alii Drive and Kuakini Highway provide adequate capacity through the Kailua-Kona to Keauhou corridor. Hence, if no further growth were expected in the region, "No Action" would be a viable alternative to the proposed project. Such a moratorium on further growth is considered highly unlikely, however. On the contrary, both State and County land use plans call for urbanization of the great majority of the land between Kuakini Highway and Alii Drive.

If the current Federal Aid project is not implemented, two fundamentally different development scenarios are possible:

Scenario 1 -- A roadway alignment is selected, but the County does not construct the project. Instead, it creates a roadway reserve and places conditions on future subdivision, zoning, and other land use approvals for private land traversed by the alignment. These conditions would require each developer to construct the highway improvements

within its parcel and to dedicate them to the County in return for development approval. Under this scenario, roadway segments are constructed only as rapidly as the adjacent properties are developed, and there is no guarantee that the segments will ultimately be linked to form a through-road. Until they are, each parcel continues to rely upon Alii Drive and/or Kuakini Highway for access.

Scenario 2 -- A roadway alignment is selected, and the County proceeds with the project without Federal assistance, i.e., using only local funds. Under this scenario, the cost of the proposed land acquisition and highway improvements are borne solely by local government. A variety of methods (e.g., improvement districts, reimbursement upon development approval, etc.) are used to help offset part or all of the costs.

It is important to note that both of these alternatives involve a high degree of urban development within the corridor served by the proposed Alii Highway. Given the large investments that property owners have in the land, the extent to which land use approvals have already progressed, and the strength of the market for residential and visitor-related land uses, it is not realistic to believe that withholding federal funds will lead to the abandonment of private development plans in the Alii Highway corridor.

Compared to the "with-project" alternatives, Scenario 1, the "No Project" alternative, would result in higher land development costs, greater congestion on Alii Drive and Kuakini Highway, and an overall decrease in transportation efficiency and the attractiveness of the area. Together, these will lower the overall quality of development within the corridor. They could even result in some landowners abandoning their development plans, but the absence of economically viable alternative uses for their property will lead most owners to choose to implement their plans even without the benefit of the proposed new highway.

In Scenario 2, the County would provide the improvements without the benefit of federal matching funds. Instead, local property owners and other taxpayers would be called upon to bear the full costs of the endeavor. Again, the higher taxes might prevent some development, but the marginal costs are relatively small compared to total development costs. Hence, the majority of the secondary growth expected if the proposed federal aid highway is constructed would still occur.

For the reasons outlined above, it is very unlikely that the "No Project" alternative would be accompanied by substantially less development of the area between Alii Drive and Kuakini Highway. Consequently, it would not substantially increase the protection afforded archaeological sites within the Kahalu'u Historic District or the Kona Field System Historic District. In fact, to the extent that the archaeological work carried out under the Memorandum of Agreement that has been signed by the FHWA, the Advisory Council on Historic Preservation, and the State Historic Preservation Officer provides a comprehensive framework for analyzing and interpreting the archaeological remains, the Alii Highway project may promote many of the historic values the Districts were created to protect. The important point here is not that urbanization does not constitute a threat to the Kona Field System and Kahalu'u Historic Districts; clearly it is. Rather, it is that the threat is largely independent of the Alii Highway project. In view of this, the FHWA believes it would be a grave mistake to believe that potential adverse impacts on the historic resources could be avoided or even significantly mitigated by withholding federal aid funds for the Alii Highway project.

4.3.5.1.2 Widening Alii Drive. From a traffic flow standpoint, widening Alii Drive is a viable means of accommodating projected traffic growth through the Kailua-Kona/Keauhou corridor. The advantages are that it would probably impact fewer historic sites than

within its parcel and to dedicate them to the County in return for development approval. Under this scenario, roadway segments are constructed only as rapidly as the adjacent properties are developed, and there is no guarantee that the segments will ultimately be linked to form a through-road. Until they are, each parcel continues to rely upon Alii Drive and/or Kuakini Highway for access.

Scenario 2 -- A roadway alignment is selected, and the County proceeds with the project without Federal assistance, i.e., using only local funds. Under this scenario, the cost of the proposed land acquisition and highway improvements are borne solely by local government. A variety of methods (e.g., improvement districts, reimbursement upon development approval, etc.) are used to help offset part or all of the costs.

It is important to note that both of these alternatives involve a high degree of urban development within the corridor served by the proposed Alii Highway. Given the large investments that property owners have in the land, the extent to which land use approvals have already progressed, and the strength of the market for residential and visitor-related land uses, it is not realistic to believe that withholding federal funds will lead to the abandonment of private development plans in the Alii Highway corridor.

Compared to the "with-project" alternatives, Scenario 1, the "No Project" alternative, would result in higher land development costs, greater congestion on Alii Drive and Kuakini Highway, and an overall decrease in transportation efficiency and the attractiveness of the area. Together, these will lower the overall quality of development within the corridor. They could even result in some landowners abandoning their development plans, but the absence of economically viable alternative uses for their property will lead most owners to choose to implement their plans even without the benefit of the proposed new highway.

In Scenario 2, the County would provide the improvements without the benefit of federal matching funds. Instead, local property owners and other taxpayers would be called upon to bear the full costs of the endeavor. Again, the higher taxes might prevent some development, but the marginal costs are relatively small compared to total development costs. Hence, the majority of the secondary growth expected if the proposed federal aid highway is constructed would still occur.

For the reasons outlined above, it is very unlikely that the "No Project" alternative would be accompanied by substantially less development of the area between Alii Drive and Kuakini Highway. Consequently, it would not substantially increase the protection afforded archaeological sites within the Kahalu'u Historic District or the Kona Field System Historic District. In fact, to the extent that the archaeological work carried out under the Memorandum of Agreement that has been signed by the FHWA, the Advisory Council on Historic Preservation, and the State Historic Preservation Officer provides a comprehensive framework for analyzing and interpreting the archaeological remains, the Alii Highway project may promote many of the historic values the Districts were created to protect. The important point here is not that urbanization does not constitute a threat to the Kona Field System and Kahalu'u Historic Districts; clearly it is. Rather, it is that the threat is largely independent of the Alii Highway project. In view of this, the FHWA believes it would be a grave mistake to believe that potential adverse impacts on the historic resources could be avoided or even significantly mitigated by withholding federal aid funds for the Alii Highway project.

4.3.5.1.2 Widening Alii Drive. From a traffic flow standpoint, widening Alii Drive is a viable means of accommodating projected traffic growth through the Kailua-Kona/Keauhou corridor. The advantages are that it would probably impact fewer historic sites than

the new alignment alternatives. However, Alii Drive is located within the boundaries of the Kona Field System and the Kahaluu Historic District and the widening alternative would not avoid all adverse effects on National Register properties. The total effect would be at least as great. This is because the widening of Alii Drive will only serve to delay the inevitable impact on historic sites. Due to continued growth and development in the area, historic sites will eventually be lost. An Alii Drive widening project will not be subjected to Federal 4(f) regulations and the result would be a significant loss of control by the Federal government and, correspondingly, a greater impact to the 4(f) resources. Without FHWA involvement, the research value of the historic sites will be lost because of the lack of a comprehensive analytical framework to guide data recovery. In addition, acquisition of properties along Alii Drive for a new right-of-way will be four to five times more expensive than the most costly alternative. Moreover, the adverse noise, air quality, and other environmental effects of high traffic volumes close to residential areas would be significant.

4.3.5.2 Alternatives That Would Mitigate Adverse Impacts on Historic Properties

As previously discussed, the Alii Highway corridor traverses an area that was densely settled by aboriginal Hawaiians. The widening alternative or any of the new alignment alternatives would occur within the boundaries of the Kona Field System Historic District and/or the Kahaluu Historic District. All of the new alignment alternatives would also require further breaching of the Kuakini Wall as well. Because of the information which they could provide regarding the aboriginal Hawaiian culture and early post-contact activities in the region, these have been determined to have scientific/research value which makes them eligible for the National Register of Historic Places.

In addition to the physical disturbance of sites with research potential, implementation of any of the new alignment alternatives also has the potential to indirectly affect several sites that have been recommended for preservation.

4.3.5.2.1 Mitigation of Impacts on Preservation Sites. The proposed Alii Highway would result in the destruction of sites recommended for preservation only if Segment C-1 is used. Sufficient space is available within the other segments to accommodate the roadway without directly impacting preservation sites.

Because the Ohia Cave (Site 37-7962) is 2,000 feet long and perpendicular to the corridor, it is impossible to avoid passing over the top of it. However, cross-sections of the cave prepared by a surveyor indicate that it can be safely crossed by the highway, possibly on grade, but more likely using a bridge-like structure which transfers structural loads to the solid ground beyond the limits of the lava tube. Hence, no adverse effect on the feature or its contents is to be expected.

While direct effects on preservation sites can be avoided if the adjusted alignments for Segments C-2 and D are used, the potential for indirect impacts on the heiau still exists. Discussions have been held between representatives of the FHWA, the County of Hawaii Department of Public Works, and the Historic Sites Section of the State of Hawaii Department of Land and Natural Resources aimed at identifying concerns and possible mitigation measures for these indirect effects.

The four heiau recommended for preservation lie on land owned by Kamehameha Investment Co./Bishop Estate outside the right-of-way that would normally be acquired for the highway. Most of the land in the parcels on which the heiau are situated are slated for eventual residential development. However, the archaeological

sites themselves are designated for preservation by the conditions attached to County Ordinance 820 which granted the zoning necessary for such development. Specific questions regarding preservation area boundaries, maintenance responsibilities, access to the sites, and their possible use in/for interpretive programs are the subject of a comprehensive Cultural Resources Management Plan being prepared at the developer's expense for submission to State and County agencies charged with historic preservation. Since further land development of the Keauhou Resort is contingent upon formal acceptance of the preservation plan by these agencies, it is believed that adequate protection of these valuable historic remains will be maintained without actually acquiring them.

4.3.5.2.2 Mitigation of Impacts on Sites With Research Value. In addition to the sites identified above which have been recommended for preservation, there are a very large number of archaeological sites within the highway corridor that have potential research value. Unlike the preservation sites, which can be preserved through judicious routing of the roadway, the density and distribution of these sites is such that they cannot be completely avoided. Moreover, results of the preliminary archaeological survey conducted for the project indicate that no alignment is clearly superior to the others with respect to avoidance of significant remains.

With two exceptions, all of the sites which would be destroyed during the course of highway construction along any of the alternatives under consideration are valuable primarily for the scientific information concerning aboriginal and early post-contact Hawaiian cultural patterns which they contain. Recovery of this data through intensive archaeological survey and salvage constitutes an accepted means of mitigating impacts on such sites. The two exceptions are Halelaau Heiau (Site 37-2822) and a smaller, unnamed heiau (Site 37-2078) that have been recommended for preservation. These heiau would be destroyed only if highway Segment C-1 is constructed.

4.3.5.2.3 Procedure for Finalizing Mitigation Measures. Preparation of a detailed preservation/data recovery plan which would mitigate the impact that construction of Aali Highway would have on archaeological sites with research value cannot be completed until further, more intensive, survey work has been completed. Because it is estimated that an intensive archaeological survey of even one alignment would cost approximately seven to ten percent of the entire construction cost (say \$300,000 to \$500,000 per alignment), it is considered inadvisable to fund this work until implementation of the project is assured.

Sufficient information is now available, however, to understand the general character of the sites that are present and to identify those believed to deserve preservation. Subsequently, a Memorandum of Agreement (MOA) between the State Historic Preservation Officer, the Advisory Council on Historic Preservation, the Federal Highway Administration, and the County of Hawaii has been concluded and is included in this document (see Appendix D). The MOA is consistent with the principles and guidelines contained in Parts I and III of the National Advisory Council on Historic Preservation handbook entitled Treatment of Archaeological Properties, and with other guidance provided by Federal and State regulations. The MOA establishes specific procedures for Intensive Survey, Data Recovery and In-Place Preservation, as well as a comprehensive mitigation program. The MOA provides detailed guidance to project planners and engineers as well as assurance to concerned citizens that the area's rich historic resources will be protected.

4.4 SECTION 4(F) IMPACTS

Section 4(f) of the Department of Transportation Act (80 Stat. 931, Public Law 89-670) states that it is national policy to preserve the natural beauty of the countryside and public park and recreation areas, wildlife and waterfowl refuges, and historic sites. Towards this end, it prohibits the use of Federal Highway funds for projects which have a significant adverse impact on these resources unless it can be demonstrated that:

- (1) there is no feasible and prudent alternative to the use of such land, and
- (2) such program includes measures designed to minimize these impacts.

The purpose of this 4(f) statement is to describe the 4(f) resources which would be impacted by the implementation of the proposed Alii Highway Project, to evaluate the alternatives studied, to discuss the mitigation measures to minimize harm to the 4(f) resources if the project is implemented, and to document the coordination which has occurred to date.

4.4.1 Description of the 4(f) Resource

The proposed Alii Highway project does not involve the use of any publicly owned land from a public park, recreation area, or wildlife or waterfowl refuge. The only aspect of the project which could subject it to the provisions of Section 4(f) is the effect which it could have on historical resources. With respect to the historic sites aspect of the statute, a site is deemed "significant" if it is on or eligible for inclusion on the National Register of Historic Places or the FHWA determines that the historic site should be protected under the 4(f) clause.

The historic and archaeological resources have been fully discussed in Section 4.3 of this Draft Environmental Impact Statement. As stated in Section 4.3.3, all sites within the highway corridor are eligible for inclusion on the National Register of Historic Places because of their location within the boundaries of the Kahaluu Historic District or the Kona Field System, or both. The boundaries of the Kahaluu Historic District, the Kona Field System, and the general alignment of the proposed Alii Highway are shown on Figure IV-8. In addition to these two districts, all of the alternative alignments breach the Kuakini Wall, a third site determined eligible for inclusion on the National Register. These sites are described below. For a complete discussion of impacts, please refer to Section 4.3.4.

Kona Field System (Site 37-6601)

The National Register nomination form for the Kona Field System describes it as the most extensive and monumental work of ancient Hawaii. It consists of an integrated complex of dryland agricultural fields measuring approximately 3 miles by 18 miles (refer to Figure IV-8). The fields form a patterned network of elongated rectangles lying in a band parallel to the coast. In discussing the significance of the Kona Field System, the nomination papers note that the system is the equal of any in the nation in terms of the extensiveness of the prehistoric modification of the land. It is offered as a physical demonstration of the highly developed farming economy of ancient Hawaii and illustrative of the complexity and advanced state of aboriginal Hawaiian culture. In addition to the fields themselves, the extensive habitation remains within the context of other physical features such as burial areas, religious structures, cave shelters, refuge caves, animal enclosures, and work platforms are cited as contributing to the research importance of this system.

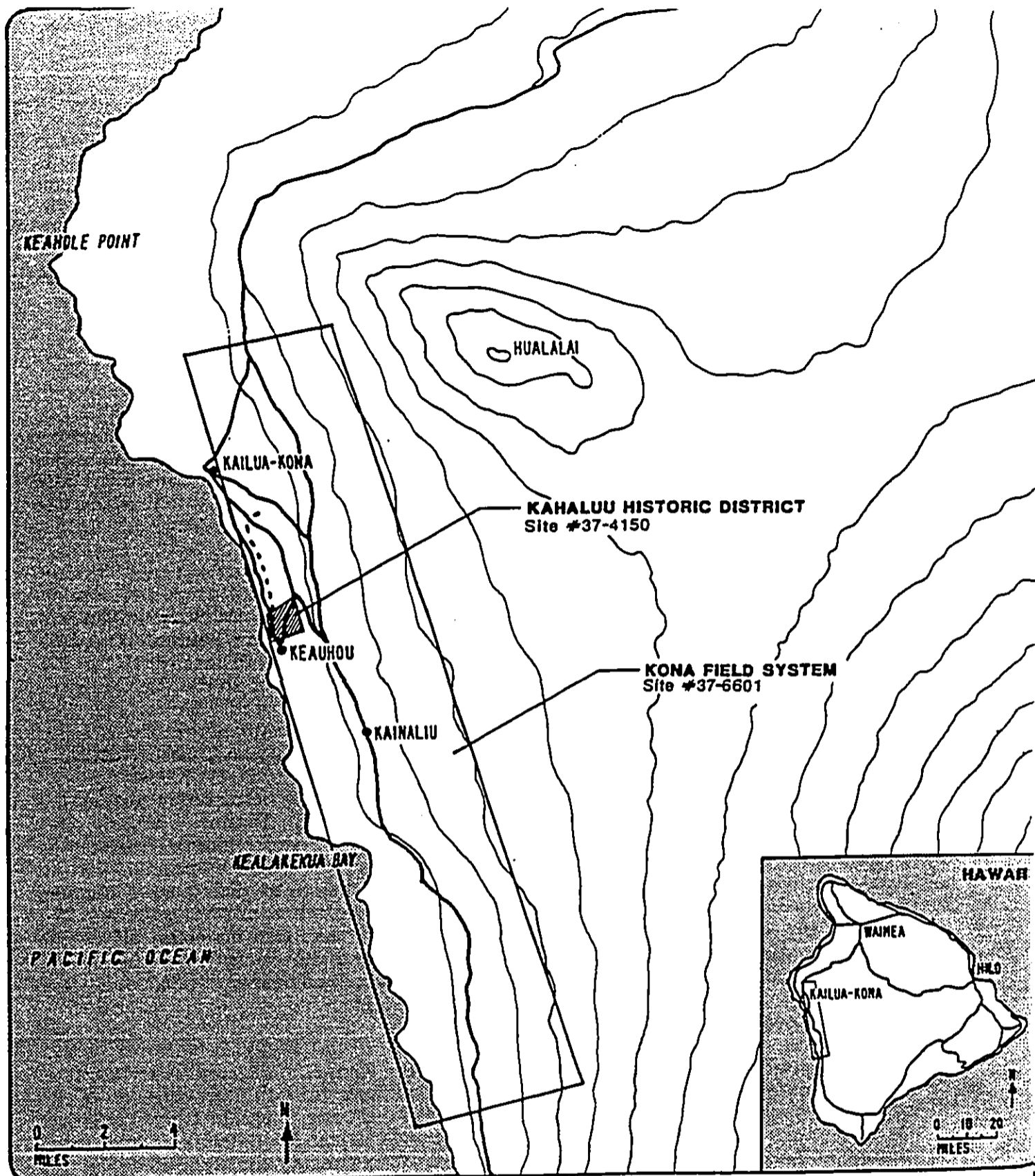


Figure IV-8 LOCATION OF KONA FIELD SYSTEM AND KAHALUU HISTORIC DISTRICT

There are no interpretative programs or facilities which are part of the Kona Field System and no research projects have been conducted specifically on the system. Roadways and subdivisions have been constructed within the system.

A similar, but smaller, agricultural field system, the Lapakahi Complex, exists on the Kohala Coast approximately 50 miles north of the Kona Field System. The Lapakahi Complex was placed on the National Register of Historic Places in 1973 and has been the subject of several research projects. Interpretative programs are available at that complex.

Most of the land within the Kona Field System is under private ownership.

Access to the Kona Field System is unlimited because of its size. The proposed Aali Highway is only about 4.5 miles of the total 18-mile length of the Kona Field System and the minimum right-of-way is only 100 feet of its 3-mile width. The proposed highway would remove approximately 55 acres from the 34,560 acres of the Kona Field System.

Kahaluu Historic District (Site 37-4150)

The Kahaluu Historic District was placed on the National Register of Historic Places in 1974. It encompasses the seaward half of the ahupuaa of Kahaluu, as well as a small portion of the ahupuaa of Keauhou. (An ahupuaa is a land division generally extending from the mountain to the sea.) The district is most noteworthy for the presence of at least 10 major heiau. These are massive structures of stacked stone dedicated to the worship of the Hawaiian gods.

The nomination form states that it is very unusual, and highly significant, that so many heiau are to be found in this rather small area. A number of these heiau have important associations with major events of traditional Hawaiian history and with occurrences in Hawaiian legend. Almost all are in good condition. The concentration of heiau indicates that the Kahaluu ahupuaa was one of major importance in Hawaiian culture and history during the times before European contact, for heiau are built only after careful consideration of all geographical, social, political, and supernatural factors. Other types of ancient Hawaiian sites, such as petroglyphs, walls, enclosures, habitation areas, and caves are associated with the many heiau.

The four heiau recommended for preservation lie on land owned by Kamehameha Investment Co./Bishop Estate outside the right-of-way that would normally be acquired for the highway. Most of the land in the parcels on which the heiau are situated are slated for eventual residential development. However, the archaeological sites themselves are designated for preservation by the conditions attached to County Ordinance 820 which granted the zoning necessary for such development. Specific questions regarding preservation area boundaries, maintenance responsibilities, access to the sites, and their possible use in/for interpretive programs are the subject of a comprehensive Cultural Resources Management Plan being prepared at the developer's expense for submission to State and County agencies charged with historic preservation. Since further land development of the Keauhou Resort is contingent upon formal acceptance of the preservation plan by these agencies, it is believed that adequate protection of these valuable historic remains will be maintained without actually acquiring them.

Great Wall of Kuakini (Site 28-6302 or 28-7276)

The Great Wall of Kuakini is the third National Register site within the Alii Highway corridor. It is a core-filled wall that extends through all of the ahupuaa which the proposed highway would traverse. Overall, the wall is about 5.6 miles long and varies in height from 4 to 6 feet and is 4 feet wide. According to Baker (1951:83), the wall was "built in Kuakini's time to keep pigs from the cultivated lands above". The wall derives its name from the fact that it was erected under the direction of Kuakini while he was governor of the Island of Hawaii (1821-1844). However, Kelly and Barrere (1980:30) indicate that the wall was referred to simply as the "Great Wall" until 1855, 11 years after Kuakini's death. Like the Kona Field System, it is an illustration of the high degree of organization typical of Hawaiian aboriginal society, and was determined eligible for the National Register of Historic Places in 1978.

No activities, programs, or interpretative facilities are available at the Great Wall of Kuakini. It is currently used as a boundary marker.

Portions of the wall can be viewed where existing roads have already breached it. Public access is restricted since most of the wall is built on what is now private property.

4.4.2 Alternatives Including Proposed Action and Avoidance Alternatives and Their Impacts

4.4.2.1 Alternatives That Would Avoid Adverse Effects on National Register Properties

No-Action/Delayed Action

At the present time, Alii Drive and Kuakini Highway provide adequate capacity through the Kailua-Kona to Keauhou corridor. Hence, if no further growth were expected in the region, "No Action" would be a viable alternative to the proposed project. Such a moratorium on further growth is considered highly unlikely, however. On the contrary, both State and County land use plans call for urbanization of the great majority of the land between Kuakini Highway and Alii Drive.

If the current Federal Aid project is not implemented, two fundamentally different development scenarios are possible:

Scenario 1 -- A roadway alignment is selected, but the County does not undertake construction of the project. Instead, it creates a roadway reserve and conditions future subdivision, zoning, and other land use approvals for private land traversed by the alignment. Subsequently, each developer would be required to construct the highway improvements within their parcel and dedicate the improvements and underlying land to the County. Under this scenario, roadway segments would be constructed only as rapidly as the adjacent properties are developed, and there is no guarantee that the segments will ultimately be linked to form a through-road. Until they are, each parcel would continue to rely upon Alii Drive and/or Kuakini Highway for access.

Scenario 2 -- A roadway alignment is selected, and the County proceeds with the project without Federal assistance, i.e., using only local funds. Under this scenario, the cost of the proposed land acquisition and highway improvements would be borne

solely by local government. In this instance, a variety of methods (e.g., improvement districts, reimbursement upon development approval, etc.) might be used to help offset part or all of the costs.

It is important to note that both of these alternatives involve a high degree of urban development within the corridor served by the proposed Alii Highway. Given the large investments that property owners have in the land, the extent to which land use approvals have already progressed, and the strength of the market for residential and visitor-related land uses, it is not realistic to believe that withholding federal funds will lead to the abandonment of private development plans in the Alii Highway corridor.

In Scenario 1, the "No Project" alternative would result in higher land development costs, greater congestion on Alii Drive and Kuakini Highway than in the "wind project" alternatives, and an overall decrease in transportation efficiency and the attractiveness of the area. Together, these will lower the overall quality of development within the corridor, and they may even result in some landowners abandoning their development plans. However, lacking viable alternative uses for their property, most owners will choose to implement their plans even without the benefit of the proposed new highway.

In Scenario 2, the County would provide the improvements without the benefit of federal matching funds. Instead, local property owners and other taxpayers would be called upon to bear the full costs of the endeavor. Again, the higher taxes might prevent some development, but the marginal costs are relatively small compared to total development costs. Hence, the majority of the secondary growth expected if the proposed federal aid highway is constructed would still be built.

For the reasons outlined it is very unlikely that the "No Project" alternative would be accompanied by substantially less development of the area between Alii Drive and Kuakini Highway. Consequently, it would not substantially increase the protection afforded archaeological sites within the Kahaluu Historic District of the Kona Field System Historic District. In fact, to the extent that the archaeological work carried out under the Memorandum of Agreement that has been signed by the FHWA, the Advisory Council on Historic Preservation, and the State Historic Preservation Officer provides a comprehensive framework for analyzing and interpreting the archaeological remains, the Alii Highway project may even promote many of the historic values the Districts were created to protect.

Widening Alii Drive

From a traffic flow standpoint, widening Alii Drive is a viable means of accommodating projected traffic growth through the Kailua-Kona/Keauhou corridor. However, widening the existing roadway will not avoid impacts on the area's historic resources. The existing Alii Drive is also located within the boundaries of the Kona Field System and the Kahaluu Historic District. Right-of-way acquisition costs for this alternative would be more than five times those of the most expensive alternative using a new alignment. The widening would involve the taking of land from approximately 130 parcels. Of these, 70 have structures on them and about 45 of these would have to be taken. Moreover, the adverse noise, air quality, and other environmental effects of high traffic volumes close to residential areas would be significant.

4.4.2.2 Alternatives That Would Mitigate Adverse Impacts on Historic Properties

The Alii Highway corridor traverses an area that was densely settled by aboriginal Hawaiians. The widening of Alii Drive or any of the new alignment alternatives would occur within the boundaries of the Kona Field System and/or the Kaha-luu Historic District. All of the new alignment alternatives would also require further breaching of the Kuakini Wall. Because of the information which they could provide regarding the aboriginal Hawaiian culture and early post-contact activities in the region, these have been determined to have scientific/research value which makes them eligible for the National Register of Historic Places.

In addition to the physical disturbance of sites with research potential, implementation of any new alignment alternatives also has the potential to indirectly affect several sites that have been recommended for preservation. A number of existing conditions and circumstances must be considered. The most important consideration is that none of the alternatives considered, including the "No-Action" alternative, existing State, County and private landowner plans all propose development of the entire area through which the proposed highway would pass. The cumulative effect of these plans will ensure the complete urbanization of the area. This planned development will occur regardless of FHWA financial involvement in the project. Non-involvement by the FHWA would only result in piecemeal development of the region, segmented roadways, and increased congestion on existing roads and streets.

Thus, while the impact of FHWA non-involvement may not be an immediate loss of particular historic sites, it would result in losses that ultimately would be as great or probably greater than a project with FHWA involvement. FHWA non-involvement would result in no comprehensive data recovery program. The involvement of the FHWA will ensure that a comprehensive framework for the analysis of the Kona Field system will be established, as evidenced by the Memorandum of Agreement contained in this document. The County Planning Department, in coordination with the State Historic Sites Office, is responsible for overseeing the protection of historic and archaeological sites. Without FHWA involvement, development of the area will occur on a fragmentary basis and individual site analysis will be conducted without the benefit of a comprehensive regional analysis and data recovery program. For these reasons, the No-Action/Delayed Action alternative is considered to be both imprudent and infeasible.

In addition, acquisition of properties along Alii Drive for a new right-of-way will be four to five times more expensive than the most costly alternative.

4.4.2.3 Transportation System Management Alternatives

The following Transportation System Management alternatives were considered as possible sources of relief for traffic congestion in the Kailua-Keauhou corridor.

Reconstruction and Rehabilitation: Alii Drive was last upgraded in the late 1970's. The existing pavement is in good condition, and further improvements would not significantly increase roadway capacity.

High Occupancy Vehicle (HOV) Lanes: Existing roadways within the study area are all two-lane facilities. As a result, it would not be possible to designate any as HOV lanes.

Signalization/Signal Timing Optimization: At present, there are no traffic signals outside of Kailua proper. However, signalization was assumed in estimating intersection capacity on Alii Drive. Installation of signals would not provide the needed increase in capacity.

Mass Transit/Fringe Parking/Ride-Sharing: There are no major destinations in the area that would benefit from fringe parking arrangements. Because of the relatively low density of development with the corridor and the presence of large numbers of visitors who place a premium on the independence provided by private automobiles, there is little likelihood that mass transit usage can be increased significantly.

The numerous driveways intersecting Alii Drive negate parking related solutions. In some areas of the roadway shoulder, parking is prohibited because of its impact on reducing the field of vision for drivers entering or leaving Alii Drive. Further regulation of parking would have a negligible impact.

The creation of a continuous left-turn lane along Alii Drive would necessitate widening the roadway. As discussed above, widening is not a prudent or feasible alternative to the proposed highway project. In addition, widening would not significantly alter the impacts of the proposed project.

4.4.3 Mitigation Measures

4.4.3.1 Mitigation of Impacts on Preservation Sites

The proposed Alii Highway would result in the destruction of sites recommended for preservation only if Segment C-1 is used. Sufficient space is available within the other segments to accommodate the roadway without directly impacting preservation sites.

4.4.3.2 Mitigation of Impacts on Sites with Research Value

In addition to the sites identified above which have been recommended for preservation, there are a very large number of archaeological sites within the highway corridor that have potential research value. Unlike the preservation sites, which can be preserved through judicious routing of the roadway, the density and distribution of these sites is such that they cannot be completely avoided. Moreover, results of the preliminary archaeological survey conducted for the project corridors indicate that no alignment is clearly superior to the others with respect to avoidance of significant remains. Recovery of this data through intensive archaeological survey and salvage constitutes an acceptable means of mitigating impacts on such sites. Preparation of a detailed preservation/data recovery plan which would mitigate the impact that construction of Alii Highway would have on archaeological sites with research value cannot be completed until further, more intensive, survey work has been completed. Because of the cost of an intensive archaeological survey, it is considered inadvisable to fund this work until implementation of the project is assured.

Sufficient information is now available, however, to understand the general character of the sites that are present and to identify those believed to deserve preservation. Subsequently, a Memorandum of Agreement (MOA) between the State Historic Preservation Officer, the Advisory Council on Historic Preservation, the Federal Highway Administration, and the County of Hawaii has been concluded and is included in this document (see Appendix D). The MOA is consistent with the principles and guidelines contained in Parts I and III of the National Advisory Council on Historic

Preservation handbook, Treatment of Archaeological Properties, and with other guidance provided by Federal and State regulations. The MOA establishes specific procedures for Intensive Survey, Data Recovery and In-Place Preservation, as well as a comprehensive mitigation program. The MOA provides detailed guidance to project planners and engineers as well as assurance to concerned citizens that measures needed to protect the area's rich historic resources are firmly established.

Based upon the above considerations, there is no feasible and prudent alternative to the use of land from the Kona Field System and the proposed action includes all possible planning to minimize harm to the Kona Field System resulting from such use.

4.4.4 Coordination

Below is the record of coordination to date with the responsible agencies.

- o Meeting on November 17, 1980 attended by County of Hawaii Department of Public Works staff and DLNR-HSS staff to apprise the SHPO staff of the project.
- o Letter dated January 15, 1982 from Belt, Collins & Associates (BCA) to DLNR-HSS, transmitting proposals for archaeological work for his informal review and comment.
- o Phone conversation on January 20, 1982 between BCA staff and DLNR-HSS discussing the proposed scope of work for archaeological studies.
- o Meeting on January 29, 1982 attended by staff of DLNR-HSS, State Department of Transportation (DOT), and County of Hawaii Department of Public Works (DPW). Minimum requirements for reconnaissance level surveys were discussed as well as the procedures for obtaining SHPO review and assistance.
- o Letter dated February 22, 1982 from County DPW to SHPO, requesting permission to submit a scope of work for DLNR-HSS review and concurrence.
- o Letter dated March 23, 1982 from County DPW to DLNR-HSS, soliciting guidance on review of the proposal for archaeological work.
- o Letter dated June 23, 1983 from BCA to SHPO, transmitting EIS Preparation Notice and requesting comments.
- o Letter received on July 21, 1983 by BCA from SHPO responding to EISPN comment request. He recommended two copies of the archaeological survey report be submitted to DLNR-HSS prior to EIS publication to allow coordination to be documented in the EIS.
- o July 29, 1982 meeting attended by BCA staff and DLNR-HSS staff. Appropriate review procedures for the archaeological reconnaissance survey were discussed.
- o Letter dated July 29, 1982 from BCA staff to DLNR-HSS staff summarizing meeting and discussing the type of Memorandum of Agreement (MOA) to be developed before the Final EIS.

- o Meeting on September 16, 1983 attended by BCA staff and DLNR-HSS Archaeologists. Archaeological survey report was presented.
- o Letter dated October 11, 1983 from DLNR to BCA, with comments on the archaeological survey report.
- o Letter dated November 8, 1983 from DLNR to BCA, regarding revised final version of archaeological study. The recommendations in his October 11, 1983 letter remain unchanged.
- o Meeting on November 9, 1983 attended by Science Management, Inc. (Project Archaeologists); and DLNR-HSS staff. Considerations that would be involved in complying with Federal historic preservation requirements were informally discussed.
- o Letter dated November 10, 1983 from County DPW to SHPO, requesting a meeting of DLNR-HSS staff, BCA as County DPW representative, State Highways Division staff, and Federal Highway Administration staff.
- o Meeting on November 18, 1983 attended by BCA staff, County DPW, and DLNR-HSS staff, to initiate discussions leading to a Memorandum of Agreement for the project.
- o Letter dated December 5, 1983 from SHPO to County DPW, regarding preliminary case report and memorandum of agreement. An on-site meeting was recommended.
- o On-site meeting on January 9, 1984 attended by Hawaii County Planning Department staff, DLNR-HSS staff, and BCA staff. Discussed mitigation measures for preservation sites.
- o On-site review on June 25, 1984 by Hawaii Division and Washington Division of FHWA with County DPW.
- o Meeting on August 3, 1984 attended by FHWA staff, State DOT staff and DLNR-HSS staff to discuss the MOA.

Coordination on Archaeological/Historical Preservation

Section 106 of the National Historic Preservation Act requires Federal agencies (FHWA) to consult and afford the State Historic Preservation Office (SHPO) and Advisory Council on Historic Preservation (ACHP) opportunity to comment on the undertaking on properties included in or eligible for the National Register of Historic Places. The Office of Hawaiian Affairs (OHA), Hawaii Department of Transportation (HDOT) and County of Hawaii also participated in consultation processes. The summary of major events are as follows:

- | | |
|---------------|---|
| Nov. 17, 1980 | Hawaii County Department of Public Works (DPW) briefed SHPO of the project. |
| Jan. 29, 1982 | SHPO, HDOT & DPW discussed requirements for reconnaissance level archaeological survey. |

Sept. 16, 1983	Belt Collins & Associates (BCA) submitted archaeological survey report to SHPO.
Nov. 18, 1983	BCA, DPW & SHPO discussed Section 106 processes.
Jan. 9, 1984	SHPO, DPW & BCA conducted site visit and discussed preliminary mitigation measures for preservation sites.
Jan. 25, 1984	DPW & FHWA (Hawaii & Washington) conducted on-site review.
Aug. 3, 1984	FHWA, HDOT & SHPO met and discussed Section 106 case study and MOA.
Feb. 19, 1986	FHWA, ACHP, HDOT & DPW met and discussed Preliminary Case Report and MOA.
Feb. 1986	Hawaii County contacted OHA office in Kona.
June 17, 1986	BCA forwarded archaeological report to OHA.
July 1, 1986	FHWA respond to ACHP comments made on 2/19/86 meeting.
Dec. 4, 1986	FHWA transmitted draft MOA to ACHP.
Dec. 5, 1986	ACHP respond to FHWA letter of 7/1/86.
Feb. 13, 1987	FHWA, HDOT & DPW met and discussed ACHP comments.
Mar. 3, 1987	FHWA, SHPO & HDOT met with ACHP, discussed and reviewed Section 106 MOA.
Mar. 4, 1987	FHWA, SHPO, HDOT & ACHP met with OHA, discussed and reviewed Section 106 MOA.
Aug. 6, 1987	FHWA executed MOA.
Aug. 13, 1987	SHPO executed MOA.
Aug. 16, 1987	HDOT executed MOA.
Sept. 4, 1987	County of Hawaii & OHA executed MOA.
Dec. 1, 1987	ACHP executed MOA.

CHAPTER V
LIST OF PREPARERS

CHAPTER V
LIST OF PREPARERS

This Environmental Impact Statement was prepared for the County of Hawaii by Belt Collins & Associates. The following individuals were involved:

County of Hawaii, Department of Public Works

Arthur T. Isemoto, Deputy Chief Engineer
B.S. in Civil Engineering
38 years experience in civil engineering
Responsible for reviewing EIS

David Murakami, Staff Engineer
M.S. in Civil Engineering
20 years experience in civil engineering
Responsible for reviewing EIS

Prime Consultant

Belt Collins & Associates*
680 Ala Moana Blvd., Suite 200
Honolulu, Hawaii 96813

* The firm will seek a contract for final project design of the Alii Highway project.

Perry J. White, Senior Environmental Planner
Masters in Regional Planning
12 years experience with environmental and planning studies
Author of EIS

Nancy E. Brown, Planner
Masters in Urban and Regional Planning
10 years experience with planning and environmental studies and cartographic projects
Editor of EIS

Lee William Sichter
Masters in Urban and Regional Planning
9 years experience in land use planning
Editor of FEIS

Edward H. Iida, Civil Engineer
M.S. in Civil Engineering
22 years of experience in civil engineering, specializing in transportation projects
Responsible for review of technical information in EIS

Prime Consultant (continued)

Royden I. Ishii, Civil Engineer
B.S. in Civil Engineering
11 years experience in civil engineering
Responsible for traffic analysis and drainage report

Clyde Kanehiro, Cartographer
B.A. in Geography (Cartography)
9 years experience in cartographic design and production
Responsible for figures in EIS

Karon Uyechi, Graphic Designer
B. of Fine Arts
1 year experience in graphic design
Responsible for figures in EIS and cover design

Lynn Fukuhara, Secretary
B. of Education
6 years experience as a secretary
Responsible for word processing

Subconsultants

Robert Hommon, Vice President of Science Management, Inc.
Ph.D. in Anthropology
14 years experience in archaeological investigations
Co-author of archaeological report for project

Paul H. Rosendahl, Consulting Archaeologist
Ph.D. in Anthropology
16 years experience in archaeological investigations
Co-author of archaeological report for project

Erin Marie Hall, Owner of Earthwatch, Environmental Resource Investigators
M.A. in Biogeography
10 years experience in flora and fauna surveys
Author of flora and fauna report for project

State of Hawaii, Department of Transportation

Gary Choy, Services and Development Engineer in Materials Testing and
Research Branch
B.S. in Civil Engineering
20 years experience in civil engineering, last 7 years specializing in environ-
mental engineering
Prepared air and noise studies for EIS

Fred Abeshima, Design Branch Project Manager
B.S. in Civil Engineering
Registered Professional Engineer
Responsible for reviewing in regard to State requirements

U.S. Department of Transportation, Federal Highway Administration

**Cannon Jones, Area Engineer
B.S. in Civil Engineering
Responsible for reviewing EIS in regard to Federal requirements**

**Alfonso Benet, Area Engineer
B.S. in Civil Engineering
Responsible for reviewing EIS in regard to Federal requirements**

CHAPTER VI

**LIST OF AGENCIES, ORGANIZATIONS AND
PERSONS TO WHOM COPIES OF THE DEIS WERE SENT**

CHAPTER VI

LIST OF AGENCIES, ORGANIZATIONS AND
PERSONS TO WHOM COPIES OF THE DEIS WERE SENT

The DEIS has been sent to the following agencies, organizations and individuals with a request for comments. One has been sent to each unless a higher number appears in parentheses after the name.

Federal Agencies*

Advisory Council on Historic Preservation
Council on Environmental Quality
Department of Agriculture
 Agricultural Stabilization and Conservation
 Forest Service
 Land Management Planning
 Office of the Secretary
 Soil Conservation Service
Department of the Air Force
Department of the Army
 Commanding General, Headquarters
 Field Engineers
Department of Commerce
 Economic Development Administration
 National Bureau of Standards
 National Marine Fisheries Service
 National Oceanic and Atmospheric Administration
 Office of Environmental Affairs
Department of Defense, U.S. Army Corps of Engineers
Department of Energy, Division of NEPA Affairs
Department of Health, Education, and Welfare
 Regional Office
 Washington Office
Department of Housing and Urban Development
 Honolulu Office
 Regional Office
Department of Interior (14)
 Fish and Wildlife Service
 Geological Survey, Water Resources Division
Department of the Navy, Commander, Pearl Harbor
Department of Transportation
 Federal Aviation Administration
 U.S. Coast Guard
Economic Development Administration
Environmental Protection Agency
 Regional Office (5)
 Washington Office (5)

*Distribution of copies handled by the Federal Highway Administration.

State Agencies

Department of Accounting and General Services
Department of Agriculture
Department of Defense
Department of Education
Department of Hawaiian Home Lands
Department of Health
Department of Land and Natural Resources (3)
Department of Planning and Economic Development
Department of Social Services and Housing
Department of Taxation
Department of Transportation (3)
Office of Environmental Quality Control
Office of the Governor
State Energy Office
State Historic Preservation Officer

Congressional Representatives

Senator Daniel K. Inouye
Senator Spark M. Matsunaga
Representative Daniel Akaka
Representative Cecil Heftel

University of Hawaii

Environmental Center (4)
Water Resources Research Center

County of Hawaii

Mayor, County of Hawaii (6)
Department of Parks and Recreation
Department of Public Works
Department of Research and Development
Department of Water Supply
Finance Department
Fire Department
Planning Department
Police Department

News Media

Hawaii Tribune
Honolulu Advertiser
Honolulu Star Bulletin
West Hawaii Today

Libraries

State Main Branch (2)
Hilo Regional Library
Kaimuki Regional Library
Kaneohe Regional Library
Pearl City Regional Library
Wailuku Regional Library
Lihue Regional Library
Kailua-Kona Library
Holualoa Library
Kealahou Library
U.H. Hamilton Library, Hawaiian Collection
U.H. Hilo Campus Library
State Archives
Legislative Reference Bureau Library
DPED Library

Public Interest Groups

American Lung Association
Life of the Land

Public Utilities

Hawaiian Telephone

Organizations

Hawaii Leeward Planning Conference
Kamehameha Schools/Bernice Pauahi Bishop Estate
Kona Outdoor Circle
Kona Traffic Safety Committee
West Hawaii Committee

Individuals

Peter S. Fithian
Rev. M. Reynolds

CHAPTER VII
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CHAPTER VII

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CHAPTER VIII

COMMENTS AND COORDINATION

CHAPTER VIII

COMMENTS AND COORDINATION

8.1 SCOPING PROCESS

The early coordination or scoping process involved five types of activities:

- o Publication of the intention to prepare an Environmental Impact Statement (EIS) in both the State of Hawaii's Environmental Quality Commission Bulletin and the Federal Register;
- o Distribution of the EIS Preparation Notice (EISPN) document and solicitation of comments from those agencies, organizations, and individuals believed to have an interest in the project or who requested consulted party status (see list in Section 8.2);
- o Responding to comment letters received (see Appendix A);
- o Conducting two public information meetings. The first was on March 25, 1982 and the second on September 29, 1983 (see Appendix B for a summary of these meetings); and
- o More detailed consultation with key agencies (see summary in Appendix C).

After the Draft EIS has been circulated for review and comment a public hearing will be scheduled. A summary of the public input from the hearing will be included in the Final EIS.

8.2 CONSULTED PARTIES

The notice of availability of the EIS Preparation Notice (EISPN) for the proposed project was published in the Environmental Quality Commission Bulletin on June 23, 1983. The notice of intent to prepare an EIS was published in the Federal Register on July 14, 1983. The agencies, organizations and individuals listed below were sent copies of the EISPN document and asked to comment on the project. Everyone who we believed might have an interest in the project or who requested consulted party status was included. Those who sent in comment letters are marked with an asterisk and these are included in Appendix A, along with responses to them.

Federal Agencies

- Federal Communications Commission
- *U.S. Air Force
- *U.S. Army Corps of Engineers, Pacific Ocean Division
- *U.S. Department of Agriculture, Soil Conservation Service
- U.S. Department of Commerce, National Marine Fisheries Service - Honolulu
- U.S. Department of Energy
- U.S. Department of Health, Education, and Welfare

Federal Agencies (continued)

U.S. Department of Housing and Urban Development
U.S. Department of the Interior
* Fish and Wildlife Service
* Geological Survey, Water Resources Division
U.S. Department of Labor, Occupational Safety & Health Administration
U.S. Department of Transportation
Federal Aviation Administration
* U.S. Coast Guard
U.S. Environmental Protection Agency, Region IX - San Francisco
*U.S. Navy, Headquarters, Naval Base Pearl Harbor

State Agencies

*Department of Accounting and General Services
*Department of Agriculture
Department of Budget and Finance
*Department of Defense
*Department of Education
*Department of Hawaiian Home Lands.
*Department of Health
Department of Labor and Industrial Relations
*Department of Land and Natural Resources
*Department of Planning and Economic Development
Department of Social Services and Housing
*Department of Taxation
Department of Transportation
Office of Environmental Quality Control
*Office of the Governor
Office of Hawaiian Affairs

Congressional Representatives

*The Honorable Daniel K. Inouye
*The Honorable Spark M. Matsunaga
The Honorable Daniel K. Akaka
The Honorable Cecil Heftel

State Legislators

Senator Dante K. Carpenter
Senator Richard Henderson
Senator Malama Solomon
Representative Virginia Isbell
Representative Andrew Levin
Representative Richard M. Matsuura
Representative Herbert A. Segawa
Representative Yoshito Takamine

University of Hawaii

Environmental Center
*Water Resources Research Center

Hawaii County

Mayor - Herbert T. Matayoshi
Department of Public Works
*Department of Parks and Recreation
*Department of Water Supply
Department of Research and Development
*Fire Department
*Office of Housing and Community Development
Safety Coordinator
Transit Agency
Civil Defense Agency
*Finance Department
Hawaii Redevelopment Agency
*Planning Department
*Police Department

Hawaii County Council

Chairman, Stephen K. Yamashiro
James L.K. Dahlberg
Frank De Luz, III
Takashi Domingo
Tomio Fujii
Helene H. Hale
William S. Kawahara
Merle K. Lai
Spencer Kalani Schutte

Public Utilities

Hawaii Electric Light Company
*Hawaiian Telephone
Gasco Inc., Hawaii Division

Public Interest Groups

League of Women Voters
American Lung Association
Life of the Land

Organizations

AAWU-Kona
American Cancer Society
American Legion Post 20
American Legion Post 21
Big Island Cycling Club
Big Island Model A Club
Cooperative Extension
Daughters of Hawaii
Exchange Club of Hawaii
Exchange Club of Kona
4-H Federation - Kona
Hawaii Cattlemen Association
Hawaii Hotel Association
Hawaii International Billfish Association
*Hawaii Leeward Planning Conference
Hawaiian Civic Club of Kona
Kai O Pua Canoe Club
Kailua-Kona Lions Club
Kailua-Kona Senior Citizens Club
Kainaliu Business & Professional Association
*Kamehameha Schools/Bernice Pauahi Bishop Estate
Keauhou Kona Yacht Club
Kona Arts Center Little Gallery
Kona B P W
Kona Board of Realtors
Kona Charter Skippers Association
Kona Coast Chamber of Commerce
Kona Coast Players
Kona Community Arts Council
Kona Community Forum
Kona Elks Lodge
Kona Farmers Cooperative
Kona Filipino Community Association
Kona Japanese Civic Association
Kona Jaycees
Kona Mauka Trollers
*Kona Outdoor Circle
Kona Prevention Committee
Kona Shrine Club
Kona Soil & Water Conservation District
*Kona Traffic Safety Committee
Liliuokalani Canoe Club
Lima Hawa Club
Lions Club of Kona
Merchants Association of the Kona Coast
National Secretaries Association (West)
Professional Secretaries International, West Hawaii Chapter
Protection & Advocacy Agency (Kona)
Rotary Club of Kona (Makai)
Rotary Club of Kona (Mauka)

Organizations (continued)

Salvation Army
Sariling Gawa
Soroptimist International of Kona
Toastmasters International
*West Hawaii Committee
*West Hawaii Humane Society
West Hawaii Today
Youth With A Mission

Individuals

*Rev. M. Reynolds

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SELECTED BIBLIOGRAPHY

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APPENDICES

NOTE:

A number of special studies were conducted during the preparation of this environmental impact statement. Copies of reports dealing with air quality, noise, drainage, water quality, flora and fauna are available to the general public for review at the locations listed below.

The report entitled Archaeological Investigation of the Ali'i Drive Realignment Corridors, North Kona, Island of Hawaii is also on file at these locations. However, in order to protect the archaeological resources it describes from possible removal, vandalism, and/or destruction, that report is available only to those individuals having a legitimate research interest in the area. Requests for permission to review the report should be submitted to the County of Hawaii Department of Public Works. The request should include an explanation of the purpose to which the information contained in the report will be put.

County of Hawaii, Department of Public Works
25 Aupuni Street
Hilo, Hawaii 96720

County of Hawaii, Department of Public Works
Satellite Office
Captain Cook, Hawaii 96740
Telephone: (808)323-2661

U.S. Department of Transportation
Federal Highway Administration
Prince Kuhio Federal Building, Room 4119
Honolulu, Hawaii 96850

Office of Environmental Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

Air Quality:

Hawaii, State of, Department of Transportation Highways Division Materials Testing and Research Branch, October 1983. "Air Quality Study, Proposed Alii Drive Improvements, Island of Hawaii." Author: Honolulu, 5 pp.

Noise:

Hawaii, State of, Department of Transportation Highways Division Materials Testing and Research Branch, October 1983. "Noise Study, Proposed Alii Drive Improvements, Island of Hawaii." Author: Honolulu, 10 pp.

Drainage:

Belt, Collins & Associates, 1983. Drainage Report. Author: Honolulu, 26 pp. and Appendices.

Water Quality:

Dollar, Steven, February 25, 1984. Letter Report to Perry White, Belt, Collins & Associates, 3 pp.

Flora and Fauna:

EARTHWATCH, ENVIRONMENTAL RESOURCE INVESTIGATORS, August 1983. "Survey of Flora and Fauna for the Proposed Alii Drive Realignment, Island of Hawaii." Author: Honolulu, 24 pp.

Archaeology:

Hommon, Robert J. and Paul H. Rosendahl, September 1983. Archaeological Investigation of the Alii Drive Realignment Corridors, North Kona, Island of Hawaii. Author: Honolulu, 262 pp. plus maps.

APPENDIX A

SCOPING PROCESS CORRESPONDENCE

APPENDIX A

SCOPING PROCESS CORRESPONDENCE

The agencies, organizations and individuals listed in Section 8.2 were all sent copies of the Environmental Impact Statement Preparation Notice (EISPN) with a transmittal letter requesting comments. Those listed below responded to the request for comments. A copy of the standard transmittal letter and the EISPN are reproduced first, then following are copies of comment letters received from consulted parties paired with copies of our responses to them.

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West Hawaii Humane Society	A-59
 <u>Individuals</u>	
Peter S. Fithian	A-60
Rev. M. Reynolds	A-61

LELT, COLLINS
& ASSOCIATES

Engineering • Planning
Landscape Architecture

1953 — 1983

June 23, 1983
83-

Dear Sirs:

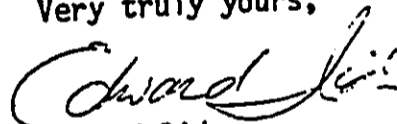
Environmental Impact Statement Preparation Notice for
Alii Drive Realignment RS-0187(004)

We are in the consultation phase of preparing an Environmental Impact Statement (EIS) for the subject project. On behalf of the County of Hawaii, we request your assistance in the preparation of the EIS by providing comments on the proposed project as it relates to your jurisdiction and responsibility, special expertise, knowledge or special interest with respect to any environmental impact, study or survey involved with the subject project.

The enclosed EIS Preparation Notice will provide information on the general description of the project's technical, economic, social and environmental characteristics as well as a summary of the major impacts, and alternatives considered. As provided in Section 1:41b of the Environmental Quality Commission's EIS Regulation, consulted agencies, groups or individuals shall have a period of thirty (30) days in which to make written comments on the environmental effects of the proposed project. The period may be extended upon good cause for a period not to exceed thirty (30) days by written request to the Department of Public Works, County of Hawaii, the accepting authority authorized by the Mayor.

Written comments received shall be responded to in writing prior to the filing of the EIS. If further information is required, you may call the Department of Public Works, County of Hawaii at 961-8321 or 961-8327.

Very truly yours,


Edward Iida

NB: If
Attach.

A-3

Honolulu: 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore: 1024, Telephone 235-6870, Telex RS 50464 BCISIN

ENVIRONMENTAL IMPACT STATEMENT
PREPARATION NOTICE FOR THE
PROPOSED REALIGNMENT OF ALII DRIVE

PROJECT LOCATION: Kailua, North Kona District
County of Hawaii

PROPOSING AGENCY: Federal Highway Administration (FHWA), DOT
Department of Public Works
County of Hawaii

ACCEPTING AUTHORITY: U. S. Environmental Protection Agency (EPA)
Mayor
County of Hawaii

Prepared By: Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

This environmental document is prepared pursuant to Chapter 343, HRS.

CHAPTER 343, HAWAII REVISED STATUTES
 ENVIRONMENTAL IMPACT STATEMENT
 PREPARATION NOTICE FOR THE
 PROPOSED REALIGNMENT OF ALII DRIVE

PROPOSING AGENCY: Federal Highway Administration (FHWA), DOT
 Department of Public Works, County of Hawaii

APPROVING AGENCY: U.S. Environmental Protection Agency
 Mayor, County of Hawaii

PROJECT LOCATION: Kailua-Kona-Keauhou
 North Kona District
 County of Hawaii

PROPOSED ACTION: Realignment of Alii Drive between
 Kailua-Kona and Keauhou

DETERMINATION: EIS Required

A-5

1. DESCRIPTION OF THE PROPOSED PROJECT

EXISTING HIGHWAY NETWORK

Alii Drive is a two-lane, County roadway which links the village of Kailua with shoreline residential and resort developments, Keauhou boat harbor, and the resort destination area being developed by the Kamehameha Development Corporation at Keauhou Bay, five miles to the south. Most of the visitor facilities that have grown up along the North Kona coast are served by it. As shown by Figure 1, Alii Drive is one of five major highways in the region. The others are Hamalahoa Highway, Kuakini Highway, Queen Kaahumanu Highway and Kamehameha III Road. Numerous other roadways lace the area and provide local service.

Hamalahoa Highway is the oldest of the facilities. It runs completely around the island and provides access to the many upland communities located in North and South Kona.

Kuakini Highway was constructed in the late 1940's as a replacement for earlier roads which connected Hamalahoa Highway with the village of Kailua.

-1-

Queen Kaahumanu Highway was opened in 1970 as far as the airport at Keahole Point and extended to Kawaihae Harbor a few years later. In addition to providing access to the airport, it carries motorists to the major resort projects now being developed along the South Kohala coastline.

Kamehameha III Road runs between Kuakini Highway and Keauhou. It allows traffic to and from Keauhou and the southern end of Alii Drive to bypass Kailua Village if desired.

PURPOSE AND NEED

The existing Alii Drive was completed by the County of Hawaii in the late 1930's. It was intended to provide a more direct route between Kailua and Keauhou than had previously existed and to increase the accessibility of the coastal lands that lay between these two termini.

Until the 1970's, the resident population of the entire North Kona District remained below 5,000. In 1965, the first year for which accurate hotel room figures are available for the Kailua area alone, the average visitor census was about 1,000, the vast majority of whom stayed in Kailua proper. The de facto population in that year (i.e., residents plus visitors) was about 5,000, and Alii Drive was more than adequate for the approximately 2,000 vehicle-trips per day it carried in that year. However, with pavement widths of only 16 feet over most of its length and a right-of-way of only 50 feet, it was already becoming evident that highway improvements were desirable as a means of maintaining service levels and environmental quality in the face of rapid population growth.

Current estimates suggest that growth will continue for the foreseeable future. As a result, continued reliance on the existing roadway network is considered undesirable. Three types of deficiencies are apparent:

Those having to do with the ability of the roadway to adequately serve existing and projected traffic volumes;

-2-

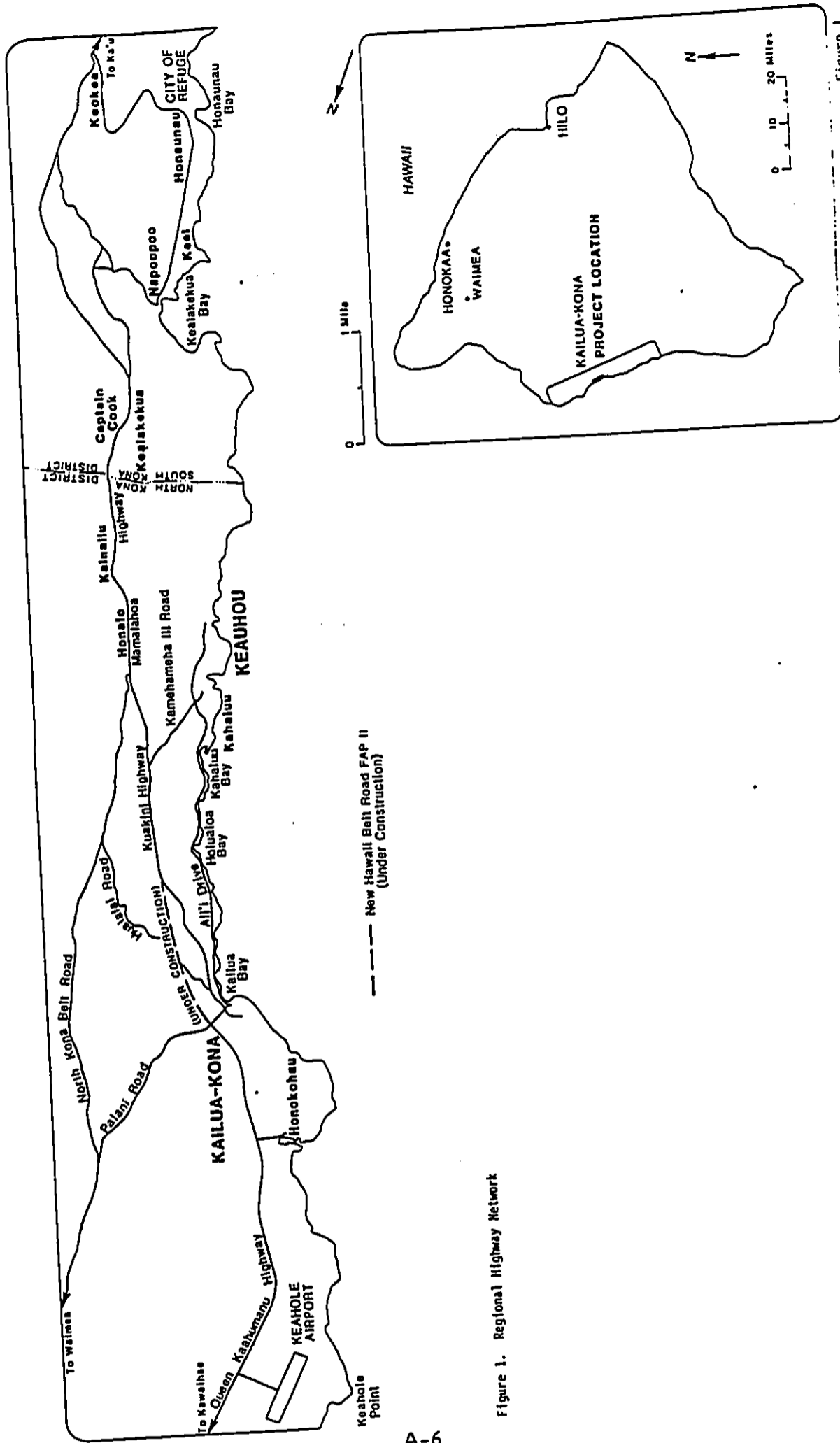


Figure 1.

Figure 1. Regional Highway Network

Deficiencies related to the safety of the roadway; and

Environmental problems that result from large numbers of vehicles using a narrow roadway bordered by substantial urban development.

Adequate Capacity/Level of Service

Traffic volumes on the three main roadways serving the Kailua-Keaouhou corridor (Aiihi Drive, Kuakini Highway and Kamehameha III Road) have risen sharply over the past fifteen years. They are still below the estimated capacities, but the level of service provided on the portions of Aiihi Drive north of the Aiihi Kai Subdivision is deteriorating. A review of County plans and the development proposals that have been put forth by private landowners indicates that traffic volumes are likely to continue to rise at approximately the same rate as has been experienced during the past ten years.

Accidents/Highway Safety

Between January 1979 and June 1981, approximately 175 accidents were reported on Aiihi Drive between Palani Road and Kamehameha III Road. This is an average of about one accident every five days or 12 accidents per mile per year on the 5.85 mile long roadway.

Many of the accidents that occurred on Aiihi Drive during the time period studied involved a single vehicle traveling at modest speeds which simply ran off the road.

Failure to yield right-of-way was cited as a contributing factor in 35 percent of the accidents on Aiihi Drive. Forty percent of the accidents in this category occurred on the one-mile stretch of road in Kailua Village proper.

As traffic volumes on Aiihi Drive increase in response to continued development, it is likely that the number of accidents will rise as well. In particular, the accidents associated with turning movements into and out of driveways will probably grow by a disproportionately large amount as delays

mount and drivers take more chances in order to pass through the stream of oncoming vehicles.

When the proposed realigned Aiihi Drive is constructed, a substantial amount of through traffic that now uses Aiihi Drive will choose the new facility instead. It would also cause some vehicles which now use Kamehameha III Road and Kuakini Highway to travel between Kailua and Keaouhou to use realigned Aiihi Drive instead. This separation of local and through traffic would probably lead to a decrease in the accident rate as compared with the "no-project" scenario.

Environmental Considerations

Without the project, increased traffic volumes would cause higher noise levels and a deterioration of air quality for those who now reside in residential units and visitor accommodations adjacent to Aiihi Drive. If no improvements are made, Federal and State Ambient Air Quality Standards may be exceeded.

PREVIOUS PLANS AND STUDIES

In 1968, the Hawaii County Planning Commission published a working document entitled Feasibility Study--Kailua-Kona. It reviewed various traffic and parking problems in Kailua proper and recommended actions designed to solve them. In that report, as in an earlier study entitled Plan for Kona conducted for the County by Harland Bartholomew and Associates (1960), it was suggested that Aiihi Drive be relocated mauka of its present alignment. The Hawaii County General Plan, adopted in 1970, and the State Department of Transportation's Highway Functional Classifications and Needs Study (Belt, Collins and Associates/Wilbur Smith and Associates, 1971:19) identified a corridor for a new Aiihi Drive that extended from Kamehameha III Road to a proposed realignment of Kuakini Highway mauka of the existing route.

Acting on these recommendations, the County of Hawaii commissioned Belt, Collins and Associates to examine possible routes for a new highway between Kailua and Keaouhou. The result was a report entitled Alignment Report for New

Allii Highway: Kailua Village to Keauhou (August 1973). An environmental impact statement (EIS) for the preferred alternative was prepared by the County and accepted by the Governor of Hawaii on August 7, 1973. The County planned to undertake the project using its own funds, therefore a Federal EIS was not prepared.

Funds for construction of the new roadway were not immediately available, and implementation of the project was delayed. However, the recommended alignment was given semi-official status on the County of Hawaii's planning maps, and no development which would obstruct it has been allowed. Recently, the County decided to proceed with the project and to seek financial assistance from the U.S. Department of Transportation through the Federal-Aid Highway Program. Because of joint funding, the proposed project is now subject to both the National and State environmental laws.

DESCRIPTION OF THE PROPOSED PROJECT

The proposed project is located on the Kona Coast of the island of Hawaii, North Kona District. When constructed, the proposed realigned Allii Drive would initially be two lanes with a pavement width of 24 feet, shoulder width of 12 to 14 feet and partial access control along the 100 foot right-of-way. Proposed are four alternative alignments, all inland of and parallel to Allii Drive (Figure 2). At least two connector roads between Allii Drive and the proposed realignment are being considered. One would be Royal Poinciana Drive in Allii Kai Subdivision. The second would be Makolea Street in Kahaolu. A connector road from Kuakini Highway to the proposed realignment is being considered in the vicinity of Kona Sea View Lots. Construction of the proposed project would allow traffic to and from Keauhou to bypass Kailua town. Allii Drive would remain and serve primarily local traffic.

When the project is constructed, the length of roadway will depend on which alignment is selected. The length ranges from about 4.0 to 4.5 miles. The proposed 100-foot right-of-way will be adequate for a four-lane road. Design characteristics and costs for each of the alternative alignments will be presented in the EIS.

Figure 2
of EISPH

- Same as Figure II-5 in EIS -

II. SUMMARY DESCRIPTION OF THE AFFECTED ENVIRONMENT

Kailua Village at the northern end of Alii Drive and Keauhou at its southern terminus are the anchor points of the Kailua-Kona resort area on Hawaii's Kona coast. The area consists of geologically recent, unweathered lava. Outside of the developed coastal strip, the landscape is rugged lava and dry vegetative growth, primarily kiawe and koa haole. The average monthly temperatures range from 72° to 78°F and the average annual rainfall is approximately 25 inches. Situated in the lee of Mauna Kea and Mauna Loa, wind and rainfall patterns are a result of local topography and heating and cooling of the land rather than tradewinds. Unlike the rest of the State, seasonally the winter months in Kona are dry and the summer months are wet.

The western slopes of Mount Hualalai consists of geologically recent, unweathered lava. Drainage patterns are not well defined; no perennial streams are located in the project area. Three drainageways intersect the proposed highway alignment. These are the Waiaha Stream, Horseshoe Bend-Holualoa Gulch and the Kaunamalu Gulch. All have intermittent flow, with little or no flow most of the year. Normally, rainfall infiltrates the permeable lava but during periods of intense rainfall at higher elevations, the area is susceptible to flooding and overland flows.

Soils in the Kailua-Keauhou area are of the Puu-Pakini-Waiaha Association, a soil association consisting of coarse to fine textured soils that have formed in volcanic ash. Punaluu extremely rocky peat is the predominant soil type. Waiaha extremely stony silt loam and Kaimu extremely stony peat occur in shorter segments of the proposed alternative alignments. The Punaluu and Waiaha soils are underlain by pahoehoe lava and the Kaimu soil is underlain by aa lava. Permeability is moderate to rapid, runoff is slow and the erosion hazard is slight. The soils are not suited for cultivation. Portions of the proposed alignments pass through land in the State Agricultural District. These areas are classified as Other Important Agricultural Lands by the State Department of Agriculture. These are lands other than Prime or Unique Agricultural Lands that are also considered to be of Statewide importance for agricultural use.

Until the 1970's the resident population of the entire North Kona District remained below 5,000. From 1970 to 1980 North Kona experienced an average annual population growth rate of 11 percent due primarily to growth of the visitor industry. In 1980, resident population was 13,748. In the same period, the visitor industry, as measured by the number of occupied rooms, grew from 978 occupied units to 2,324 (Kona Regional Plan, 1982:78). In 1980, existing and approved units along Alii Drive between Kailua and Keauhou totaled 1,678. This rapid growth in resident and visitor population has placed heavy demands on existing infrastructure within Kona.

III. SUMMARY OF ENVIRONMENTAL IMPACTS

Highway construction has the potential to create adverse social, economic and environmental impacts. Agency and public input during the EIS process for the project when it was proposed in 1973 identified a variety of concerns. The intent of this environmental impact statement preparation notice is to identify the types of effects that the proposed project may have. A full discussion of these impacts plus any additional issues raised during this EIS process and public meetings will be presented in the Draft EIS.

SOCIAL AND ECONOMIC IMPACTS

The proposed project would improve access in the Keauhou-Kailua corridor by increasing the capacity and decreasing the travel time. It would also make properties more accessible. It is possible that it will stimulate or permit a greater amount of development than would occur without the project or if Alii Drive was widened. The EIS will:

Provide estimates of urban development with and without the proposed project;

Determine how this growth might affect the amount and location of business activity;

Identify social groups that would be affected differently by the proposed project;

Analyze possible changes in travel patterns generated by the project; and

Identify households that would be displaced and describe the measures that would be undertaken to insure their satisfactory relocation.

VISUAL IMPACT

Most of the land adjacent to the alternate alignments is undeveloped, however two segments pass nearby or through residential land. Line A2 passes along the south side of Kona Hillcrest subdivision and Line B passes through Alii Kai Subdivision along an existing reserved right-of-way (Figure 2).

Construction of a highway where none now exists would alter views from distant properties mauka and makai of the route as well as alter views from properties immediately adjacent to the new highway. The EIS will analyze the alternatives' effect on the views of nearby residents.

AIR QUALITY IMPACTS

The State Department of Health does not maintain an air quality monitoring station in Kailua-Kona, however, air quality data collected periodically indicates both National and State Ambient and Air Quality Standards are being met. Land uses in the vicinity include resort, residential, pasture and open or undeveloped lands. There are no major stationary sources of air pollutants.

The proposed project is not expected to have adverse impacts on the local ambient air quality. Construction of the highway would reduce motor vehicle emissions along existing Alii Drive. A slight deterioration of ambient air quality would occur adjacent to the new highway, but all ambient air quality standards would be met. Clearing and grubbing of the area prior to construction would have short term impacts on ambient air quality. The "no-project" alternative may result in National and State Ambient Air Quality Standards being exceeded due primarily to the over-capacity conditions and resultant traffic jams and pollutant buildup.

Present and future traffic conditions for all of the proposed alternatives will be studied by the State Department of Transportation, Materials Testing and Research Laboratory. These results will be reviewed by the State Department of Health and the U.S. Environmental Protection Agency to assure compliance with State and Federal Ambient Air Quality Standards.

The EIS will discuss the existing air quality, the effect of the alternatives on ambient air quality and, where necessary, mitigation measures that would lessen adverse air quality impacts.

NOISE IMPACTS

Sources of noise resulting from the proposed project are short-term highway construction noise and long-term vehicular traffic. The construction noise would be unavoidable, but temporary. Construction noise from widening Alii Drive would impact the most people. After widening, the increased capacity of Alii Drive would result in higher noise levels. Ambient noise levels adjacent to existing Alii Drive would decrease once the proposed highway is constructed. Traffic noise from the proposed new roadway would increase noise levels in areas adjacent to the new alignment. However, the wider right-of-way and the routing through presently largely undeveloped areas would allow a buffer zone. The "no-project" alternative would result in an increase in noise levels for occupants of residences and visitor units adjacent to Alii Drive due to increased volume and more stop-and-go traffic.

The EIS will include a detailed description and analysis of the noise emissions related to the proposed highway alignments, the no-project alternative and the widening of Alii Drive. Traffic projections developed for the preliminary engineering study will be the basis for highway noise estimates. The Materials Testing and Research Laboratory of the State Department of Transportation will conduct highway noise estimates for the alternative proposed highway alignments and for the roads the proposed highway would relieve (Alii Drive and Kuakini Highway). Future noise level estimates will be compared with Federal Highway Administration design noise levels and existing noise levels to determine the extent of the impact associated with each alternative.

DRAINAGE

The proposed highway realignment will cut across the surface drainage flow direction creating a barrier to the upland runoff not collected in major drainageways. Swales mauka of the proposed highway would intercept overland runoff and direct it along the proposed highway to sump areas. Culverts at the various sumps would be sized appropriately from hydrologic and hydraulic analyses. Because the discharging of the runoff through the culverts results in a more concentrated flow, studies will be conducted to study the impacts both to upstream and downstream properties. Some drainageways may necessitate channelization to the ocean as a flood control measure.

The flood problems in the area have been recognized in numerous studies and the recommendations have been adopted as a course of action by Hawaii County in the General Plan.

Coordination of the proposed highway project with the U.S. Army Corps of Engineers, the Soil Conservation Service and the County of Hawaii will assure the proposed highway does not conflict with flood control plans for the area.

FLORA/FAUNA IMPACTS

The proposed highway realignment will pass through rugged terrain of aa and pahoehoe lava. The area is characterized by dry vegetative growth. Koa haole (*Leucaena glauca*) and kiawe (*Prosopis pallida*) are the predominant vegetation.

A survey of existing flora and fauna was conducted within the proposed highway alignments. Preliminary results indicate no rare or endangered species are located within the alignments. Results of the biological survey and a full discussion of the impacts of the proposed highway construction on the flora and fauna will be presented in the EIS.

HISTORICAL/ARCHAEOLOGICAL IMPACTS

The general coastal area through which the two alternate alignments pass was the site of relatively intense use both prior to contact with the Western World and subsequent thereto. Numerous archaeological surveys associated with development in the general area have revealed a wide variety of archaeological sites evidencing such indigenous Hawaiian activities as dryland agriculture (fields and boundaries), habitation, exploitation of marine resources and construction and use of religious structures (heiau). An archaeological survey conducted in 1973 along the original corridor route and an ongoing survey designed to augment the earlier work have shown that such sites are relatively numerous within the corridor. In addition, remnants of historic period activities, particularly ranching, are also present. The Kona Field System and the Kahaluu Historic District have both been determined eligible for inclusion on the National Register of Historic Places. The proposed realignment does pass through the described boundary of the Kona Field System, but apparently would not disturb any defined features. The southern end of the alignment does cross the Kahaluu Historic District.

The scale of ground disturbance associated with highway construction will probably directly and adversely impact some of the archaeological remains within the corridor. Preliminary results of the ongoing survey indicate that most of these impacts can be mitigated through data recovery efforts. Such measures are currently being evaluated and will be discussed in detail in the EIS.

SOILS AND GEOLOGIC IMPACTS

All of the proposed alternative alignments pass through the same three soil series in addition to aa and pahoehoe lava. These soils are the same as those underlying the existing A111 Drive and Kuakini Highway. None pose any major problems to highway construction. Moderate erosion may be associated with the Waiaha soil type. During design of the proposed highway, consultation with the Soil Conservation Service will take place to assure that swales and culverts designed for drainage do not encourage erosion. No significant impacts or constraints related to soils or geology are expected.

PRIME AGRICULTURAL LAND IMPACTS

Alignment A1 and A2 mauka of existing Kuakini Highway and alternative alignment C1 and C2 are located in the State Agricultural District. A1 and A2 mauka of Kuakini Highway, alignment segment B and D are located in the State Urban District. Only two segments of alternatives C1 and C2 pass through agricultural land classified by the State Department of Agriculture on the Agricultural Lands of Importance to the State of Hawaii (ALISH) maps. They are classified as Other Important Agricultural Land. These are lands other than Prime or Unique Agricultural Land that are also considered to be of statewide importance for agricultural use. The area is presently in pasture. Selection of the route for the proposed realignment will be coordinated with the State Department of Agriculture to assure minimal conflict with agricultural land use.

IV. ALTERNATIVES

NO ACTION

The realignment of A111 Drive was first proposed by Hawaii County in 1968. An alignment study and an environmental impact statement were prepared in 1973 but construction funds were not available and the project was postponed. Recently, Hawaii County obtained financial assistance from the U.S. Department of Transportation through the Federal-Aid Highway Program to proceed with the project. No-action alternative would mean cancellation of funding and indefinite delay of the project. Without improvements, it is expected that the level of service will deteriorate as traffic volume increases.

The EIS will project traffic volume for A111 Drive without improvements and discuss the impacts on level of service, ambient air quality and noise levels adjacent to A111 Drive.

WIDEN A111 DRIVE

The objective of the project is to correct deficiencies in the level of service of A111 Drive including travel time, convenience and safety and to reduce air pollutant emissions and noise levels for properties adjacent to the road. This could be accomplished by keeping the location of A111 Drive but widening it from an average of two 8-foot lanes to two 12-foot lanes and straightening out the tight curves. The major disadvantage is the impact this alternative would have on existing development along A111 Drive. Disruption of normal activities along A111 Drive during construction, temporary increases in dust and noise related to construction, interrupted circulation patterns (both vehicular and pedestrian), as well as the taking of property for an additional right of way, would cause inconvenience to those residences and visitor accommodations along A111 Drive. The Draft EIS will discuss the social and economic impacts of the taking of property for widening A111 Drive.

ALTERNATIVE ALIGNMENTS

The alternative alignments which will be discussed in the EIS were selected based primarily on the initial alignment report prepared in 1973. Extending the proposed highway mauka of Kuakini Highway to intersect the New Hawaii Belt Road south of Kona Hillcrest Subdivision and extending it to near Kamehameha III Road intersection on the south end are the only major revisions made to the 1973 proposed alignment alternatives. Design criteria for the proposed road is the same for all alignments. Proposed is a two-lane highway with a pavement width of 24 feet. A 100-foot minimum right-of-way, with future provision for four lanes.

Line A1: This route intersects New Hawaii Belt Road approximately 1600 feet south of Kona Hillcrest Subdivision. Oriented mauka-makai, this alignment is about 3900 feet in length. About 1800 feet from its origin, Line A1 intersects Kuakini Highway and continues mauka, crossing Kuakini Wall. The route turns south at about the 80-foot elevation to join proposed alignment B. Line A1 passes through presently undeveloped land. The segment between New Hawaii Belt Road and Kuakini Highway is in the State Agricultural District; mauka of Kuakini Highway the route passes through lands in the State Urban

District. The County Land Use Pattern Allocation Guide Maps (LUPAG) designates the general area of the route as flood plain.

Line A2: An alternative to the A1 route, A2 intersects New Hawaii Belt Road about 1000 feet north of the A1 alignment and approximately 600 feet south of the Kona Hillcrest Subdivision. Oriented mauka-makai from New Hawaii Belt Road to Kuakini Highway, and turning south just after intersecting Kuakini Highway, to join Line B, Line A2 is about 5,300 feet long. Line A2 would also cross Kuakini Wall. Mauka of Kuakini Highway, Line A2 is in the State Agricultural District; makai the route is in the State Urban District. The County of Hawaii LUPAG designation is flood plain. The route would pass through presently undeveloped lands but the mauka portion would pass very close to the Kona Hillcrest Subdivision.

Line B: This segment runs north-south for a little over a mile at about the 40-foot elevation. It is routed through a reserved right-of-way in A111 Kai Subdivision. All but the southern end of Line B is in the State Urban District. Line B parallels existing A111 Drive about 800 feet inland.

Line C1: Segment C1 is approximately 1.8 miles long. It continues from Line B at the 40-foot elevation, gradually climbs to 160 feet and then gradually descends to 80 feet where it joins Line D. Line C1 parallels A111 Drive about 2000 feet inland. It passes through presently undeveloped land in the State Agricultural District and also crosses Kuakini Wall.

Line C2: C2 is an alternative to C1. Varying from 1000 to 2000 feet inland of A111 Drive, the alignment has been routed mauka of the White Sands Beach Estates Subdivision. Line C2 joins line B at the 40 foot elevation, reaches 120 foot elevation and terminates at the 80 foot elevation at the beginning of Line D. The 1.8 mile long route passes through presently undeveloped land in the State Agriculture District. The south end terminates in the State Urban District. Line C2 also crosses Kuakini Wall.

Line D: This segment is about 3000 feet in length and is the southern terminus of the proposed realignment. It connects A111 Drive to Kamehameha III Road just before Keauhou. Line D is fixed because of the preference to utilize an existing road right-of-way.

The EIS will discuss the alignment alternatives and expected impacts in detail.

V. DETERMINATION AND SUPPORTING REASONS

In conformance with subsection 1:31 of the State Environmental Impact Statement Regulations (Significance Criteria and Procedures), the National Environmental Policy Act (NEPA) and the U.S. Department of Transportation Federal Aid Highway Program Manual 7-7-2, the County of Hawaii has determined that an environmental impact statement will be prepared. The proposed realignment will involve the expenditure of both Federal and County funds. Realignment of A111 Drive has been proposed for more than fifteen years. Information gathered for the initial alternative alignments study (1973) and comments received during the preparation of the first environmental impact statement, suggests potential impacts of concern are:

- o Disturbance of historical and archaeological resources
- o Noise and air pollution along the proposed alignment
- o Changes in traffic and circulation patterns
- o Relocation of existing residences and businesses along the proposed alignments
- o Disturbance of flora and fauna
- o Alteration of drainage patterns
- o Increased erosion and sedimentation

ASSESSMENT PROCESS

The potential impacts of highway construction are well known. These include impacts on air and noise quality, socio-economics, traffic patterns and water quality. In the Kailua-Kona-Keauhou area the potential impact on historical and archaeological remains and the potential of a new highway to stimulate or permit land development are additional factors leading to the determination to prepare an EIS. All of the potential impacts mentioned in this preparation notice as well as any topics raised during the consultation process will be addressed in the EIS. A public information meeting and a public hearing will be held.

VI. PARTIES TO BE CONSULTED FOR THE PREPARATION OF THE EIS

During the EIS preparation, comments will be solicited from the following agencies, individuals and organizations, as well as all other parties formally requesting consulted party status.

Federal Agencies

U.S. Air Force
U.S. Army Corps of Engineers, Pacific Ocean Division
U.S. Department of Agriculture, Soil Conservation Service
U.S. Department of Commerce, National Marine Fisheries Service - Honolulu
U.S. Department of Health, Education, and Welfare
U.S. Department of Housing and Urban Development
U.S. Department of the Interior
Fish and Wildlife Service
Geological Survey, Water Resources Division
U.S. Department of Labor, Occupational Safety & Health Administration
U.S. Department of Transportation
Federal Highway Administration
Federal Aviation Administration
U.S. Coast Guard
U.S. Environmental Protection Agency, Region IX - San Francisco
U.S. Department of Energy
Federal Communications Commission
U.S. Navy, Headquarters, Naval Base Pearl Harbor

State Agencies

Office of the Governor
Office of Environmental Quality Control
Department of Accounting and General Service
Department of Agriculture
Department of Budget and Finance
Department of Defense
Department of Education
Department of Hawaiian Home Lands
Department of Health
Department of Labor and Industrial Relations
Department of Land and Natural Resources
Department of Planning and Economic Development
Department of Social Services and Housing
Department of Taxation
Department of Transportation

Office of Hawaiian Affairs

Congressional Representatives

The Honorable Daniel K. Inouye
The Honorable Spark H. Matsunaga
The Honorable Daniel K. Akaka
The Honorable Cecil Heftel

State Legislators

Senator Dante K. Carpenter
Senator Richard Henderson
Senator Malama Solomon
Representative Virginia Isbell
Representative Andrew Levin
Representative Richard M. Matsuura
Representative Herbert A. Segawa
Representative Yoshito Takamine

University of Hawaii

Environmental Center
Water Resources Research Center

Hawaii County

Mayor - Herbert T. Matayoshi
Department of Planning
Department of Public Works
Department of Parks and Recreation
Department of Water Supply
Department of Research and Development
Fire Department
Office of Housing and Community Development
Office of Research and Development
Safety Coordinator
Transit Agency
Civil Defense Agency
Finance Department
Hawaii Redevelopment Agency

Hawaii County Council

Chairman, Stephen K. Yamashiro
James L.K. Dahlberg
Frank De Luz, III
Takashi Domingo
Tomio Fujii
Helene H. Hale
William S. Kawahara
Merle K. Lai
Spencer Kalani Schutte

Kona Community Arts Council
 Big Island Cycling Club
 Keauhou Kona Yacht Club
 American Legion Post 20
 Liliuokalani Canoe Club
 Youth With a Mission
 West Hawaii Humane Society
 Toastmasters International
 Kona Coast Chamber of Commerce
 West Hawaii Today
 Kailua-Kona Senior Citizens Club
 Kona Coast Players
 Big Island Model A Club
 Kona Hauka Trollers
 American Legion Post 21
 Kai O Pua Canoe Club
 Cooperative Extension
 Salvation Army
 4-H Federation - Kona
 Rotary Club of Kona (Makai)

Public Utilities
 Hawaii Electric Company
 Hawaiian Telephone Company
 Gasco Inc., Hawaii Division

Public Interest Groups
 League of Women Voters
 American Lung Association
 Life of the Land

Organizations
 Hawaii Cattlemen Association
 Hawaii International Billfish Association
 Kailua Business & Professional Association
 Kona Board of Realtors
 Kona Charter Skippers Association
 Hawaii Hotel Association
 Hawaii Leeward Planning Conference
 National Secretaries Association (West)
 Kona B P W
 Kona Coast Chamber of Commerce
 Kona Farmers Cooperative
 AAUW-Kona
 American Cancer Society
 Kona Filipino Community Association
 Kona Traffic Safety Committee
 Kona Outdoor Circle
 Kona Arts Center Little Gallery
 Kona Ilocano Organization
 Sariling Gawa
 Exchange Club of Kona
 Kona Jaycees
 Soroptimist International of Kona
 Protection & Advocacy Agency (Kona)
 Merchants Association of the Kona Coast
 Kona Soil & Water Conservation District
 Kona Shrine Club
 West Hawaii Committee
 Kona Prevention Committee
 Daughters of Hawaii
 Hawaiian Civic Club of Kona
 Kona Judo Club
 Kona Japanese Civic Association
 Exchange Club of Hawaii
 Kailua-Kona Lions Club
 Lions Club of Kona
 Rotary Club of Kona Mauka
 Kona Elks Lodge
 Lima Hawa Club

HERBERT MATAYOS*
EDWARD K. HARADA
ARTHUR I. GEMOIO

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALUPUA STREET - HONOOLULU, HAWAII 96820 - TELEPHONE (808) 961-3321



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING (PACAF)
HICKAM AIR FORCE BASE, HAWAII 96813



8 JUL 1983

DEEV (Mr Yamada, 449-1831)

REPLY TO
ATTN OF

SUBJECT: Environmental Impact Statement for the Proposed Realignment of Alii Drive

TO:
Belt, Collins & Associates
606 Coral Street
Honolulu, HI 96813

1. This office has reviewed the subject EIS Preparation Notice and has no comment relative to the proposed project.
2. We greatly appreciate your cooperative efforts in keeping the Air Force apprised of your project and thank you for the opportunity to review the document.

David L. Grossman
DAVID L. GROSSMAN
Actg Ch, Engrg & Envtl Plng Div
Directorate of Civil Engineering

August 17, 1983

Mr. David L. Grossman
Engineering & Planning Division
Directorate of Civil Engineering
Headquarters 15th Air Base Wing (PACAF)
U.S. Air Force
Hickam Air Force Base, Hawaii 96853

Attention: DEEV (Mr. Yamada)
Dear Mr. Grossman:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 8, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. We understand you have no comments to offer at this time.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Mursakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 ALPINE STREET - HONOULULU, HAWAII 96813 - TELEPHONE NUMBER 521-3221



United States
Department of
Agriculture

Soil
Conservation
Service

P.O. Box 50004
Honolulu, Hawaii
96850

July 11, 1983

Mr. Edward Iida
Belt Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

Subject: Environmental Impact Statement Preparation Notice for
Aili Drive Realignment RS-0187(004), Kailua, North Kona

We have reviewed the subject document as you requested.

As is brought out in the notice, there are several areas with flooding problems along the proposed realignment. Please feel free to contact our district conservationist in Kealahou, Mr. Gary K.H. Kam, for further information. Mr. Kam's office is located in the Kealahou Post Office Building (telephone: 322-2484).

Sincerely,

Francis C. H. Lum
FRANCIS C. H. LUM
State Conservationist

cc:
Department of Public Works
County of Hawaii

A-17

August 17, 1983

Mr. Francis C.H. Lum
Soil Conservation Service
U.S. Department of Agriculture
P.O. Box 50004
Honolulu, Hawaii 96850

Dear Mr. Lum:

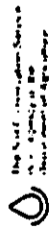
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 11, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Aili Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. A copy of the Environmental Impact Statement Preparation Notice was sent to the Kona Soil and Water Conservation District, and further input from Mr. Kam will be sought during the course of the study.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Hurekani of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates





DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
FT. SHAFTER, HAWAII 96832

July 12, 1983

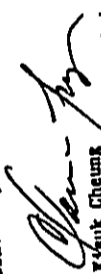
Mr. Edward Iida
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

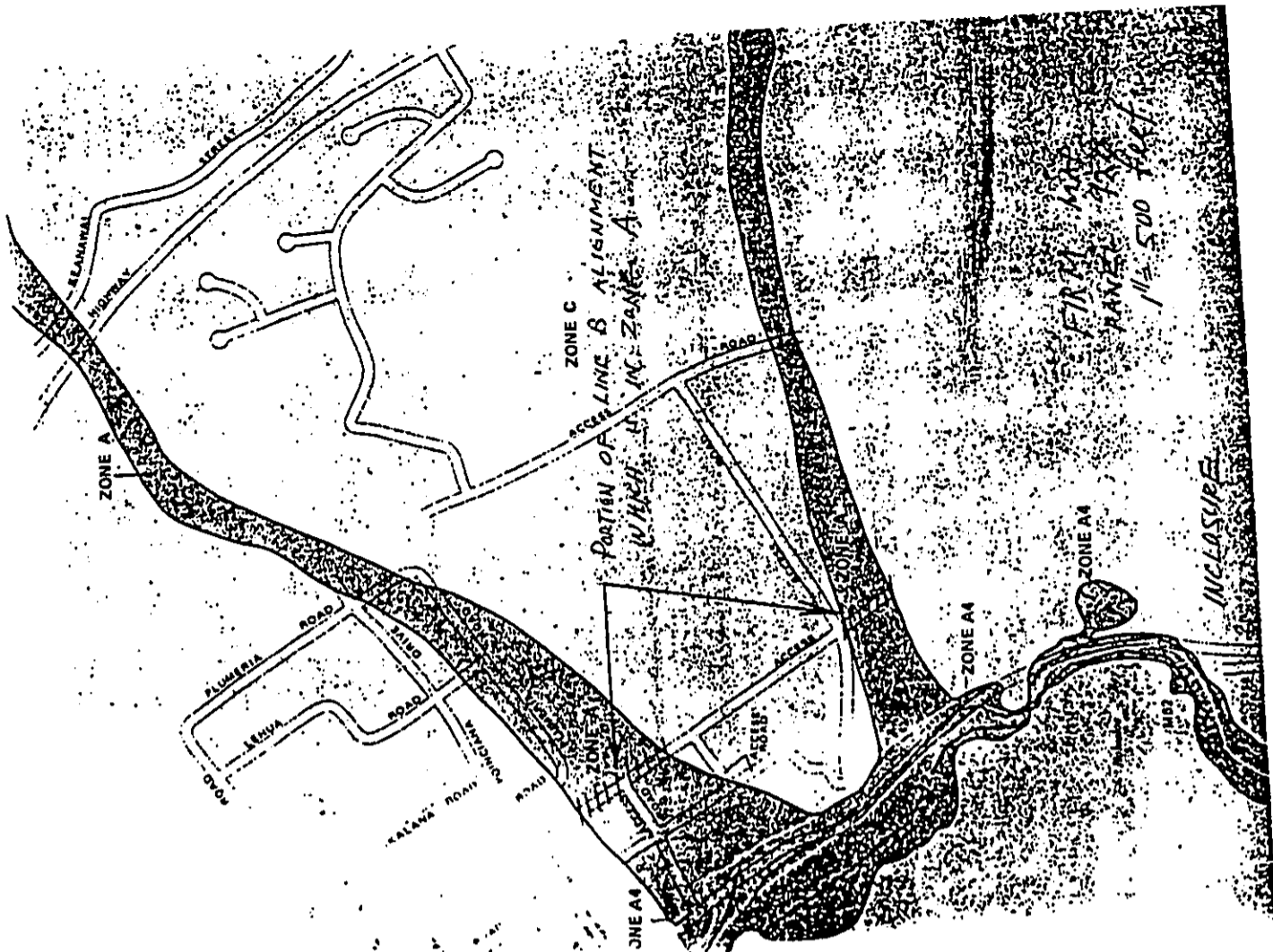
Thank you for the opportunity to review the EIS Preparation Notice for Alii Drive Realignment. The following comments are offered for your consideration:

- a. A Department of the Army permit is not required.
- b. According to the Flood Insurance Rate Map, a small portion of Line B is in Zone A (see enclosure) which is an area within the 100-year flood in which the basic flood elevation and flood hazard factors were not determined. The rest is in Zone C which is an area of minimal flooding.

Sincerely,


Kyeuk Cheung
Chief, Engineering Division

Enclosure



HERBERT H. MALINOSKI
Name
EDWARD K. HAMADA
Chief Engineer
ARTHUR T. GEMMOTO
Project Engineer



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 ALPINE STREET - HONOLULU, HAWAII 96820 - TELEPHONE (808) 561-8321

August 17, 1983

Mr. Kisuk Cheung
Department of the Army
Pacific Ocean Division
Corps of Engineers
Fort Shafter, Hawaii 96858

Dear Mr. Cheung:

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)**

Thank you for your letter of July 12, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. The information you provided will be useful in the preparation of the EIS.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Hamada
EDWARD HAMADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

HERBERT I. MATYOSKI
Name
EDWARD K. HARADA
Chief Engineer
ARTHUR ISENHOTO
Project / Job / Location



HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALUPUN STREET - HONO, HAWAII 96720 - TELEPHONE 808-961-8321

RE REPLY REFER TO:
UNOZA:OJLB:jm
SEP 1983
7 JUL 1983

Mr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

Environmental Impact Statement Preparation Notice
for Alii Drive Realignment RS-0187(004)

The EIS Preparation Notice for the Alii Drive Realignment Project has
been reviewed and the Navy has no comments to offer.

Thank you for the opportunity to review the EIS.

Sincerely,

M. M. DALLAM
CAPTAIN, CEC, U. S. NAVY
FACILITIES ENGINEER
BY DIRECTION OF THE COMMANDER

August 17, 1983

Captain M.M. Dallam
Facilities Engineer
U.S. Navy, Fourteenth Naval District
Headquarters, Naval Base Pearl Harbor
Box 110
Pearl Harbor, Hawaii 96860

Dear Captain Dallam:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 7, 1983 regarding the Environmental Impact
Statement Preparation Notice for the proposed Alii Drive Realignment. We
appreciate the time spent by you and your staff reviewing the document. We
understand you have no comments to offer at this time.

You will be sent a copy of the EIS for review and comment as soon as it is
completed. In the meantime, if you have any questions regarding the project,
please contact Mr. David Murakami of the Hawaii County Department of Public
Works at 961-8321 or Mr. Edward Iida of Belt, Collins & Associates
in Honolulu at 521-5361.

EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates



United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P.O. BOX 50167
HONOLULU HAWAII 96850

ES
Room 6307

JUN 27 1983

Mr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Re: Environmental Impact Statement
Preparation Notice for Aali
Drive Realignment, Kailua,
North Kona District, County of
Hawaii

Dear Mr. Iida:

Due to current manpower and budget restrictions, the Office of Environmental Services cannot devote the time necessary to conduct a thorough review of fish and wildlife concerns associated with the referenced action at this time. We strongly recommend that you consult directly with the State of Hawaii, Department of Land and Natural Resources, Division of Aquatic Resources and consider their recommendations in your project planning.

Please be advised that this notification does not abrogate your responsibilities to comply with the requirements of the Fish and Wildlife Coordination Act, nor does it represent Service approval of, or support for, the proposed activity. The Service may review future actions related to this proposal should administrative constraints be alleviated or if adverse impacts to significant fish and wildlife resources are identified. Please continue to keep this office apprised of the project's status.

Sincerely yours,

Derral Herbat
Acting Project Leader
Office of Environmental Services

cc: RNFS-UPPU
HDF&W
HDAK
EPA, San Francisco



Save Energy and You Serve America!



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 ALUPUA STREET - HOLEI, HAWAII 96720 - TELEPHONE (808) 961-8321

August 17, 1983

Mr. Derral Herbat
Fish and Wildlife Service
U.S. Department of the Interior
300 Ala Moana Boulevard
P.O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Herbat:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR AALI DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of June 27, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Aali Drive Realignment. The Hawaii State Department of Land and Natural Resources was sent a copy of the Environmental Impact Statement Preparation Notice, and their recommendations will be considered in planning for the project.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates



EARTHWATCH

126-3 Noke Street, Kailua, Hawaii 96734

(808) 254-1137

May 1, 1984

RECEIVED

MAY 8 - 1984

BEIT, COLLINS & ASSOCIATES

TO: Perry White
Belt Collins & Associates
600 Coral Street
Honolulu, Hawaii 96813

FROM: Erin M. Hall
Earthwatch, Environmental
Resource Investigators

SUBJECT: Alii Drive Realignment EIS

In preparation for the Alii Drive Realignment flora and fauna surveys, the following persons were contacted in February 1983, prior to the field surveys conducted, concerning possible known endangered species in the area of the proposed highway.

Dr. J. Michael Scott (Island of Hawaii) and Dr. Cameron B. Kepler (Island of Maui) were both contacted in February 1983 by Timothy Burr concerning endangered bird or mammal species known for the area. They were both with the USFWS Patuxin Wildlife Research Center branch and were considered authorities on the Hawaiian bat which had been observed nearby the study area as indicated in the report. Other than the bat, no endangered species of birds or mammals had been reported to them in the area of the proposed Alii Drive realignment.

Dr. Derral Herbst of the Endangered Species branch of USFWS in Honolulu was contacted in February 1983 by Erin Hall concerning whether any endangered plant species were recorded or known to USFWS in the area of the proposed highway. He suggested some Hawaiian native species to be on the look-out for in the general area, as mentioned in the survey report, but at that time no proposed, candidate or listed endangered plant species were known for that particular vicinity.

Sincerely,

Erin Marie Hall
Owner/Manager
Earthwatch



United States Department of the Interior

GENERAL SURVEY
Water Resources Division
P.O. Box 50166
Honolulu, Hawaii 96850

June 29, 1983

Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Gentlemen:

SUBJECT: Environmental Impact Statement
Preparation Notice for Alii Drive
Realignment KS-0187(004)

Thank you for the opportunity to review the subject EIS
preparation notice. Our comments follow:

PAGE	PARAGRAPH	LINES	COMMENTS
6	2	4,5	Drains Waiaha Stream, Horseshoe Bend-Holuaia Gulch and Kaulumalu Gulch need to be shown in fig. 2.
6	3	All	MC
10	1	All	Culverts, drainage wells, etc. in existing parallel highways upgradient from the proposed realignment also should be examined and addressed.
11	1,2,3	All	MC
15	1		Because of existing highways parallel and upgradient from the proposed realignment, alteration of drainage pattern will not be severe. Largest flow in last 22 years at 250' altitude was 3000 cfs. within a 8.7 square mile drainage area or about 350 cfs./sq. mi. We think it's still pretty small.

A-22

PAGE	PARAGRAPH	LINES	COMMENTS
15	1		Soils are thin so erosion and sedimentation should be small!

If you have any questions, or wish to discuss any of our comments, please do not hesitate to call. Our office number is 546-8331.

Very Truly Yours,

Stanley F. Kapfetzke
Stanley F. Kapfetzke
District Chief



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 ALPINE STREET - HONO, HAWAII 96720 - TELEPHONE (808) 961-8321

HERBERT MATATOGA
EDWARD K. HARADA
ARTHUR I. ISENHOLD

August 17, 1983

Mr. Stanley F. Kaputka
District Chief
U.S. Geological Survey
Water Resources Division
P.O. Box 50165
Honolulu, Hawaii 96850

Dear Mr. Kaputka:

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(00N)**

Thank you for your letter of June 29, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. Your comments will be helpful in the preparation of the EIS.

The location of Waiaha Stream, Horseshoe Bend-Hoialoa Gulch, and Kamaulama Gulch will be shown on a map depicting the alternative alignments. Drainage problems related to construction of the proposed project will be addressed in the EIS. Culverts will be sized for the design flow which can be transmitted by the Kuukini Highway culverts plus runoff from the area between Kuukini Highway and the proposed realignment. We understand it is your belief that alteration of the drainage pattern will not be severe and that erosion and sedimentation should be small.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates



Commander (dpl)
Fourteenth Coast Guard District

Prince Kaleruae
Federal Building
300 Ala Moana Blvd.
Honolulu, Hawaii 96850
Phone: 546-2861

11000
Serial 559
28 June 1983

Mr. Edward Lida
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Lida:

The Fourteenth Coast Guard District has reviewed the Environmental Impact Statement Preparation Notice for Alii Drive Realignment and has no objection or constructive comments to offer at the present time.

Sincerely,

J. E. SCHWARTZ
Commander, U. S. Coast Guard
District Planning Officer

By direction of
Commander, Fourteenth Coast Guard District



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALPINE STREET - HONOLULU, HAWAII 96820 - TELEPHONE 808-961-8321

ROBERT I. MATANOS*
EDWARD H. HARADA
ARTHUR I. SENOIO
*Present Part Time

August 17, 1983

Commander J.E. Schwartz
District Planning Officer
Fourteenth Coast Guard District
U.S. Coast Guard
Prince Kuhio Federal Building
300 Ala Moana Boulevard
Box 50229
Honolulu, Hawaii 96850

Dear Commander Schwartz:

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT NS-0187(004)**

Thank you for your letter of June 28, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. We understand you have no comments to offer at this time.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Lida of Belt, Collins & Associates in Honolulu at 521-5361.

EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

DANIEL K. INOUE
HAWAII

United States Senate

June 27, 1983

DAVID M. PETERS
EXECUTIVE ASSISTANT



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALUANA STREET - HONOLOULU, HAWAII 96813 - TELEPHONE NUMBER 961-3321

HERBERT I. MATAYOS
Vice
EDWARD K. HARADA
Chief Engineer
ARTHUR I. DEMOTO
Inspector

August 17, 1983

Mr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

Re: Environmental Impact Statement Preparation Notice
for Alii Drive Realignment RS-0187(004)

Thank you for your letter of 23 June 1983 sharing with Senator Inouye the Environmental Impact Statement Preparation Notice for realignment of Alii Drive, Island of Hawaii.

Senator Inouye, who is presently in Washington, D.C., will appreciate your thoughtfulness in keeping him informed of progress on this important County project.

Aloha,

DAVID M. PETERS
Executive Assistant
Honolulu Office

DMP:cko

Mr. David M. Peters
Room 6104
Prince Kuhio Federal Building
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

Dear Mr. Peters:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of June 23, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time you spent reviewing the document.

Senator Inouye will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

RECEIVED
AUG 31 1983

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COPY

October 27, 1983

CHIEF DEPUTY
DEMOCRATIC WHIP

COMMITTEE ON FINANCE
COMMITTEE ON ENERGY AND
NATURAL RESOURCES
COMMITTEE ON LABOR AND
HUMAN RESOURCES
COMMITTEE ON
VETERANS' AFFAIRS

United States Senate
WASHINGTON, D.C. 20510

August 26, 1983

SPARK M. MATSUNAGA
HAWAII

WASHINGTON OFFICE
100 HART BUILDING
WASHINGTON, D.C. 20510
HONOLULU OFFICE
3104 PRINCE KUHIO BUILDING
HONOLULU, HAWAII 96850

Mr. Edward Iida
c/o Belt, Collins, & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

Thank you for your June 23, 1983 letter and enclosed Environmental Impact Statement Preparation Notice for the Alii Drive Realignment, and for offering me an opportunity to provide comments on the proposed action.

I do not have any comments on the environmental effects of the proposed realignment of Alii Drive.

Aloha and best wishes.

Sincerely,

Spark Matsunaga
Spark Matsunaga
U. S. Senator

Honorable Spark M. Matsunaga
United States Senate
3104 Prince Kuhio Building
Honolulu, HI 96850

Honorable Senator Matsunaga:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR THE PROPOSED ALII DRIVE REALIGNMENT IS-0187(004)

Thank you for your letter of August 26, 1983, regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. We understand you have no comments to offer at this time.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murekai of the Hawaii County Department of Public Works at 961-8121 or 961-8327 or Mr. Edward Iida of Belt, Collins, and Associates in Honolulu at 521-5361.

Edward Iida
EDWARD IIDA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

HERBERT I. MATAYOSHI
EDWARD K. HARADA
ARTHUR T. SEMOTO

DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 ALPINE STREET - HONOOLULU, HAWAII 96813 - TELEPHONE 808-531-3321



HERBERT I. MATAYOSHI
EDWARD K. HARADA
ARTHUR T. SEMOTO

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P. O. BOX 115, HONOLULU, HAWAII 96813

LETTER NO. (P) 1575.3

August 17, 1983

JUL 1 1983

Mr. Edward Iida
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

Subject: Environmental Impact Statement
Preparation Notice for
Alii Drive Realignment

Thank you for forwarding us a copy of the subject
preparation notice for our review. We have no comments
to offer.

Very truly yours,
Hideo Murakami
HIDEO MURAKAMI
State Comptroller

Mr. Hideo Murakami, Comptroller
Dept. of Accounting & General Services
State of Hawaii
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Murakami:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 1, 1983 regarding the Environmental Impact
Statement Preparation Notice for the proposed Alii Drive Realignment. We
appreciate the time spent by you and your staff reviewing the document. We
understand you have no comments to offer at this time.

You will be sent a copy of the EIS for review and comment as soon as it is
completed. In the meantime, if you have any questions regarding the project,
please contact Mr. David Murakami of the Hawaii County Department of Public
Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates
in Honolulu at 521-5361.

Edward Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

GEORGE E. ABIYOSHI
GOVERNOR



State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814

JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE
SUZANNE D. PETERSUN
DEPUTY TO THE CHAIRMAN

Mailing Address:
P. O. Box 22139
Honolulu, Hawaii 96822



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALPINE STREET - HONO, HAWAII 96720 - TELEPHONE HONO 961-8321

HERBERT I. MATAYOSHI
Name
EDUARDO K. HIRADA
Chief Engineer
ARTHUR T. SEMOTO
Project & Staff Engineer

August 17, 1983

Mr. Jack K. Suwa, Chairman
Department of Agriculture
State of Hawaii
1428 South King Street
Honolulu, Hawaii 96814

Dear Mr. Suwa:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 7, 1983 regarding the Environmental Impact Statement Preparation Notice for Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document.

As you know, most of the land which the proposed highway would cross is rocky and otherwise poorly suited for cultivation. However, some areas are used for cattle grazing. The number of head utilizing the right-of-way is small, and the new alignment is sufficiently makai to allow efficient ranching on the remaining land between Kuakini Highway and until such time as planned urban development actually occurs. Because of this, the EIS will mention potential small reductions in grazing capacity, but will not attempt to quantify the change.

The EIS will contain estimates of urban development within the corridor served by the proposed project. It will also provide a general assessment of the impacts of highway-related secondary growth.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Hirada
EDUARDO HIRADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

July 7, 1983

Mr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

Environmental Impact Statement
Preparation Notice for Alii Drive Realignment RS-0187 (004)

The Department of Agriculture has reviewed the subject notice and offers the following comments.

We believe that the Environmental Impact Statement should address any impacts the proposal may have on the areas currently being used for grazing. We are also interested in the secondary impacts on agriculture in the area which may result from increased urbanization due to the improvement in infrastructure. Therefore, we will be interested in the estimates of urban development with and without the proposed project as mentioned on page 7 of the Preparation Notice.

Thank you for the opportunity to comment.

Sincerely,

Jack K. Suwa
JACK K. SUWA
Chairman, Board of Agriculture

"Support Hawaiian Agricultural Products"

HERBERT MATYOSH
Major
EDWARD K. HARADA
Chief Engineer
ARTHUR ISENKOTO
Engineer in Charge



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 75 ALUPUA STREET - HONOLOULU, HAWAII 96813 - TELEPHONE 808-951-8321

August 17, 1983

ALLEN T. LUM
Major, HAWAII
Chief Engineer
DANIEL K. C. NG
Major, HAWAII
Chief Engineer



STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
318 DIAMOND HEAD ROAD, HONOLOULU, HAWAII 96813

15 JUL 1983

HIENG

Mr. Edward Iida
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

Environmental Impact Statement Preparation Notice for
Alii Drive Realignment RS-0187(004)

Thank you for providing us the opportunity to review your proposed project,
for the above subject.

We have completed our review and have no comments to offer at this time.

Yours truly,

Jerry M. Matsuda
JERRY M. MATSUDA
Major, HAWAII
Contr & Engr Officer

Major Jerry M. Matsuda
Office of the Adjutant General
Department of Defense
State of Hawaii
3189 Diamond Head Road
Honolulu, Hawaii 96816

Dear Major Matsuda:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 15, 1983 regarding the Environmental Impact
Statement Preparation Notice for the proposed Alii Drive Realignment. We
appreciate the time spent by you and your staff reviewing the document. We
understand you have no comments to offer at this time.

You will be sent a copy of the EIS for review and comment as soon as it is
completed. In the meantime, if you have any questions regarding the project,
please contact Mr. David Murakami of the Hawaii County Department of Public
Works at 951-8321 or Mr. Edward Iida of Belt, Collins & Associates
in Honolulu at 521-5361.

Edward Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

GEORGE B. JANTOSA
GOVERNOR

DR. DONNIS H. THOMPSON
SUPERINTENDENT



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 23 ALPINE STREET - HONO. HAWAII 96813 - TELEPHONE (808) 961-3221

ROBERT T. MATATOS
Name
EDUARDO K. HARADA
Chief Engineer
ARTHUR T. SENOYO
Project Lead Engineer

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2346
HONOLULU, HAWAII 96813

AUGUST 17, 1983

OFFICE OF THE SUPERINTENDENT

July 22, 1983

Belt, Collins & Associates
606 Coral Street
Honolulu, HI 96813

Attn: Mr. Edward Iida
Gentlemen:

SUBJECT: EIS Preparation Notice for Alii Drive Realignment
The Department of Education supports the development of the Alii Drive Realignment as described in the EIS Preparation Notice.

Thank you for the opportunity to review the project.

Sincerely,
Donnis H. Thompson
Donnis H. Thompson
Superintendent of Education

DHT:HL:J1
cc: Mr. James Edington
Hawaii District

Dr. Donnis H. Thompson
Superintendent
Department of Education
State of Hawaii
P.O. Box 2360
Honolulu, Hawaii 96804

Dear Dr. Thompson:

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT NS-0187(004)**

Thank you for your letter of July 22, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time you and your staff spent reviewing the document. We understand the Department of Education supports the development of the proposed Alii Drive Realignment.

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Muraikai of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward K. Harada
EDUARDO HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

HERBERT T. MATATOSHI
Name
EDUARDO K. HIRADA
Chief Engineer
ARTHUR I. KEMOTO
Inspector



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALUPUNI STREET - HONO, HAWAII 96720 - TELEPHONE (808) 961-8321

PROJECT OFFICES
HONOLULU OFFICE
P. O. BOX 27
HONOLULU, HAWAII 96722
MOLOKAI OFFICE
P. O. BOX 116
MOLOKAI, HAWAII 96728
KAHUI OFFICE
P. O. BOX 328
HONO, HAWAII 96726



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1579
HONOLULU, HAWAII 96840

PROJECT OFFICES
HONOLULU OFFICE
P. O. BOX 175
HONOLULU, HAWAII 96722
MOLOKAI OFFICE
P. O. BOX 633
HONO, HAWAII 96726

Department of Public Works
County of Hawaii
25 Alupuni Street
Hilo, Hawaii 96720

Gentlemen:

SUBJECT: A111 Drive Realignment (RS-0187(004))
Between Kailua-Kona and Keauhou, Island of Hawaii
Environmental Impact Statement Preparation Notice

The Department of Hawaiian Home Lands (DHHL) has reviewed the Environmental Impact Statement Preparation Notice for the A111 Drive Realignment and have no comments to offer.

The DHHL does not own any property in Kailua-Kona and Keauhou, Island of Hawaii, and is not affected by the proposed project.

Thank you for the opportunity to comment on this Environmental Impact Statement Preparation Notice.

Sincerely yours,
Georgiana K. Padeken
Georgiana K. Padeken
Chairman

GKP:RF:SM:jm

August 17, 1983

Ms. Georgiana K. Padeken
Department of Hawaiian Home Lands
State of Hawaii
P.O. Box 1879
Honolulu, Hawaii 96805

Dear Ms. Padeken:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

We are responding on behalf of the County of Hawaii Department of Public Works to your letter regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time you and your staff spent reviewing the document. We understand you have no comments to offer at this time.

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Hirada
EDUARDO HIRADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

HERBERT MATAYOS
EDWARD K. HARADA
ARTHUR F. SEMOTO
Deputy Chief Engineer

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 23 ALPINE STREET - HONO. HAWAII 96720 - TELEPHONE 808-961-8321



August 17, 1983

Mr. Melvin K. Koizumi
Deputy Director for Environmental Health
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Koizumi:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR AIIII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 29, 1983 (Ref. EPHS-SS) regarding the Environmental Impact Statement Preparation Notice for the proposed AIIII Drive Realignment. We appreciate the time you and your staff spent reviewing the document.

The requirements of Administrative Rules, Title 11, Chapter 60, Air Pollution Control and Chapter 58, Solid Waste Management Control will be met. Preventive measures will be taken to reduce dust and erosion during construction.

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Hukakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward K. Koizumi
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates



STATE OF HAWAII
DEPARTMENT OF HEALTH

P. O. BOX 3378
HONOLULU, HAWAII 96801
July 29, 1983

IN REPLY, REFER TO
FILE # EPHS-SS

Mr. Edward Iida
Belt, Collins & Associates
606 Coral St.
Honolulu, Hawaii 96813

Dear Mr. Iida:

Subject: Request for Comments on Proposed Environmental Impact Statement
(EIS) for AIIII Drive Realignment RS-0187(004)

Thank you for allowing us to review and comment on the subject proposed EIS.

Fugitive dust and solid waste disposal during grubbing and grading activities need to meet the requirements of Administrative Rules, Title 11, Chapter 60, Air Pollution Control and Chapter 58, Solid Waste Management Control. The incorporation of a dust and erosion control plan in the construction plans is recommended.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

Sincerely,

Melvin K. Koizumi
MELVIN K. KOIZUMI
Deputy Director for
Environmental Health

HERBERT MATYUSKA
EDWARD HAYADA
ARTHUR S. COLLINS
ARTHUR S. COLLINS

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALPINE STREET - HALE, HAWAII 96720 - TELEPHONE (808) 961-8321



August 17, 1983

Mr. Susumu Ono, Chairman
Board of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)**

Thank you for your letter regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document.

Historic Sites

It is recognized that the proposed project passes through an area which contains rich cultural remains. An archaeological reconnaissance survey of all the alignments has nearly been completed. Copies of the resulting survey report will be submitted to you for review prior to the publication of the EIS. Submission of necessary applications for State and Federal archaeological clearance will be coordinated with you.

Drainage

The drainage study will be provided for review with the EIS.

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Hirakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

EDWARD HAYADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
P.O. BOX 621
HONOLULU, HAWAII 96809

EDWARD HAYADA
CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU HAWAII 96809

Your: 83-857

Mr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

Thank you for notifying us that an environmental impact statement (EIS) will be prepared for the proposed realignment of Alii Drive. We can suggest a number of concerns which the statement should address:

Historic Sites

Our records indicate that the proposed project will occur within the Kona Field System (site no. 6601) and the Kahaluu Historic District (site no. 4150). The Kona Field System has been declared Eligible for Inclusion to the National Register of Historic Places. The Kahaluu Historic District is listed on the National Register of Historic Places (December 27, 1974), contrary to the notice which relegates its status to Eligible for Inclusion.

The proposed project will impact these archaeological and historic districts. Until we are able to review the survey results specified in the notice (1983:11), we believe our comments may be premature. We therefore recommend that two copies of the survey be submitted for review prior to the EIS publication. This is to allow coordination between our historic sites office and the developer to be documented in the EIS.

Drainage

The proposed realignment cuts across the surface drainage flow. Swales, sumps, and culverts, as well as some channelization, are proposed to accommodate the more concentrated flows, thereby controlling flooding. The preparation notice indicates a study will be done on impacts to both upstream and downstream properties. The study, as well as the results, should be provided with the EIS for review.

Sincerely,

Susumu Ono
SUSUMU ONO, Chairman
Board of Land and Natural Resources
and
State Historic Preservation Officer



DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

GEORGE R. ANTONIO
KENT M. KEITH
1500 KALANANOLU DRIVE
HONOLULU, HAWAII 96813

August 10, 1983

Ref. No. 7913

Mr. Edward Iida
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

Subject: EIS Preparation Notice for Alii Drive
Realignment, North Kona District,
County of Hawaii

We have reviewed the preparation notice for the environmental impact statement (EIS) on the Alii Drive realignment and have the following comments to make.

The notice indicates that surface runoff mauka of the proposed project will be collected occasionally by swales and diverted into appropriately sized culverts at various sump sites. Since some channelization to the ocean may be necessary as a flood control measure, the associate coastal ecosystem impacts should be assessed and included in the EIS.

The proposed road realignment will have significant impacts with respect to the future direction of growth in the North Kona region. Without strong planning controls, the proposed realignment will stimulate further growth in the mauka region towards the agricultural lands. The EIS should fully address this concern.

The EIS should also indicate the extent to which each of the alternatives would eliminate or alleviate current Alii Drive deficiencies.

We further recommend that the EIS address applicable goals, objectives, policies and priority directions embodied in the Hawaii State Plan.

Thank you for this opportunity to comment.

Very truly yours,

Kent M. Keith

Kent M. Keith

cc: Office of Environmental Quality Control



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 ALPINE STREET - HONOLOULU, HAWAII 96813 - TELEPHONE (808) 581-6221

September 16, 1983

Mr. Kent M. Keith, Director
Department of Planning and
Economic Development
P.O. Box 2359
Honolulu, HI 96804

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0817(004)

Thank you for your letter of August 10, 1983 (Ref. No. 7913) regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time you and your staff spent reviewing the document. Your comments will be addressed further in the EIS.

Drainage

The need for channelization to the ocean is being studied. If found necessary, the impacts of channelization on the coastal ecosystem will be assessed in accordance with the procedures for achieving consistency with the Hawaii Coastal Zone Management Program.

Land Use

The Hawaii County General Plan, the Land Use Pattern Allocation Guide (LUPAG) maps, the proposed Kona Regional Plan, and zoning and subdivision controls direct future growth. The proposed realignment of Alii Drive will make some properties more accessible; however, other development controls will regulate the location and timing of actual development. The south end of the alignment does pass over land in the State Agricultural District. Three small areas in the State Agricultural District between Kuahini Highway and the proposed realignment are classified by the State Department of Agriculture as "other important agricultural lands." This is the lowest rating in the Agricultural Lands of Importance to the State of Hawaii (ALISH) classification system. Soils in the vicinity of the proposed alignment are shallow and generally not suited for cultivation.

Mr. Kent M. Keith
September 16, 1983
Page 2

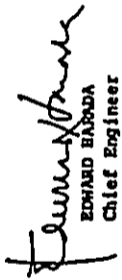
Evaluation of Alternatives

Each alternative will be evaluated with respect to how it would alleviate current Alii Drive deficiencies.

Consistency with Other Plans, Programs

Consistency of the proposed project with Federal, State, and County policies and programs, including the Hawaii State Plan, will be discussed in the EIS.

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.


EDWARD BAMBDA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates
Plans and Surveys

GEORGE B. ANTONIO
DIRECTOR



STATE OF HAWAII
DEPARTMENT OF TAXATION
P.O. BOX 289
HONOLULU, HAWAII 96809

June 30, 1983

GEORGE FREITAS
DIRECTOR OF TAXATION
WALLACE JORD
DEPUTY DIRECTOR



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALPINE STREET - HOLEI, HAWAII 96720 - TELEPHONE 935-1122

HERBERT I. MATAYOS
WARDEN
EDWARD K. HARADA
CHIEF ENGINEER
ARTHUR I. SAKATO
DEPUTY CHIEF ENGINEER

August 17, 1983

Mr. George Freitas, Director
Department of Taxation
State of Hawaii
P.O. Box 259
Honolulu, Hawaii 96809
Dear Mr. Freitas:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT NS-0187(OGR)

Thank you for your letter of June 30, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. We understand you have no comments to offer at this time.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

Mr. Edward Iida
Belt, Collins & Associates
506 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

We have received your invitation to comment on the proposed Alii Drive realignment project.

We have no comments at this time regarding environmental impact or related matters.

Thank you for the opportunity to review your EIS Preparation Notice.

Sincerely yours,
George Freitas
GEORGE FREITAS
Director of Taxation

HERBERT MATAYOSKI
EDWARD K. HARADA
ARTHUR I. SEMOTO

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALPINE STREET - HONOOLULU, HAWAII 96813 - TELEPHONE (808) 961-8321



EXECUTIVE CHAMBERS
HONOLULU

August 17, 1983

GEORGE R. ARIYOSHI

July 18, 1983

Governor George Ariyoshi
Office of the Governor
State Capitol
Honolulu, Hawaii 96813

Mr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Dear Mr. Iida:

Thank you for the opportunity to review the environmental impact statement preparation notice for the realignment of Alii Drive.

My concerns will be incorporated in those submitted by the Office of Environmental Quality Control. Comments will also be submitted, under separate cover, by the individual state agencies involved in this project.

With warm personal regards, I remain,

Yours very truly,

George R. Ariyoshi
George R. Ariyoshi

Thank you for your letter of July 18, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. We understand your comments will be incorporated in those submitted by the Office of Environmental Quality Control.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward K. Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates



University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 283 - 2540 Dole Street
Honolulu, Hawaii 96822

12 July 1983

Mr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

SUBJECT: Environmental Impact Statement Preparation Notice
for Alii Drive Realignment BS-0187(006),
Kailua-Kona, Hawaii, June 1983

We have reviewed the subject EISPN and offer the following comment. Regarding "Drainage", p. 10, it would be highly desirable to intercept all storm runoff before it reaches the ocean. There are two reasons for this: (1) it would reduce possible flooding damage to downstream facilities, and (2) it would help to maintain the near-shore water quality.

Sincerely,

Edwin T. Murabayashi

Edwin T. Murabayashi
EIS Coordinator

ETH:jm



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 ALUPUA STREET - HONO, HAWAII 96720 - TELEPHONE 808-541-8321

August 17, 1983

Mr. Edwin T. Murabayashi
Water Resources Research Center
Holmes Hall, Room 283
University of Hawaii
2540 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Murabayashi:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT BS-0187(004)

Thank you for your letter of July 12, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time you and your staff spent reviewing the document.

In response to your comment, we believe that prevention of storm runoff from reaching the ocean is a desirable goal. However, this is a regional problem that cannot be fully addressed by a single highway project such as this. As mentioned in the EISPN, the impact of storm runoff through culverts across Alii Drive Realignment to upstream and downstream properties will be evaluated. The proposed project will comply with State Department of Health Water Quality Standards.

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Harada

EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

HERBERT Y. MATAYOSHI
Surveyor
EDWARD K. HARADA
Chief Engineer
ARTHUR T. SHIMOTO
District Chief Engineer



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALUAKI STREET - HONO, HAWAII 96720 - TELEPHONE 808-591-8331

August 17, 1983

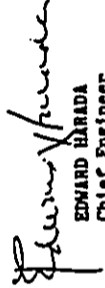
Mr. Stanley A. Nakamae, Director
Real Property Tax Division
Department of Finance
County of Hawaii
865 Piilani Street
Hilo, Hawaii 96720

Dear Mr. Nakamae:

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(00A)**

Thank you for your letter of July 8, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time you and your staff spent reviewing the document. The EIS will discuss the effect of the proposed project on real property assessments.

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.


EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates



DEPARTMENT OF PARKS & RECREATION

COUNTY OF HAWAII

Herbert Matayoshi, Mayor

Milton Hakoda, Director

June 30, 1983

Mr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, HI 96813

Subject: Alii Drive Realignment - EIS Preparation Notice

The EIS Preparation Notice has been reviewed, and it does not appear that any of the proposed alignments would have any direct impact on any of the County's recreational facilities within the study area.

May I, however, call to your attention the Kahakai Elementary School complex which should be reflected in the report. The County Planning Department's Kahului-Pupua Development Study should also be reviewed for possible impact of the realignment on the proposed urban developments.

Thank you for the opportunity to review the report.

Milton T. Hakoda
Director

MTH:GM:al

HERBERT I. MATAYOSHI
Mayor
EDUARDO K. HARADA
Commissioner
ARTHUR I. USAMOTO
Deputy Commissioner



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 AUPUNI STREET - HILO, HAWAII 96720 - TELEPHONE 961-8321

August 17, 1983

Mr. Milton T. Hakoda, Director
Department of Parks and Recreation
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Hakoda:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of June 30, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. We understand that the proposed realignment does not appear to directly affect County recreational facilities.

We appreciate your calling our attention to the potential impact of the realignment on the Kahakai Elementary School complex. We will review the Kahului-Pupuaa Development Study for possible impact of the alignment on proposed urban developments.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward K. Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

HERBERT I. MATAYOS
EDWARD K. HARADA
ARTHUR I. GEMOTO



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 AUPUNANI STREET - HILO, HAWAII 96720 - TELEPHONE 961-8321

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
25 AUPUNANI STREET • HILO, HAWAII 96720



August 17, 1983

Mr. H. William Sewake, Manager
Department of Water Supply
County of Hawaii
25 Aupunani Street
Hilo, Hawaii 96720

Dear Mr. Sewake:

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)**

Thank you for your letter of August 1, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time you and your staff spent reviewing the document. We understand you have no comments to offer at this time.

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

August 1, 1983

Belt, Collins & Associates
606 Coral Street
Honolulu, HI 96813

**ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)**

Thank you for giving us the opportunity to comment on the Environmental Impact Statement Preparation Notice. However, at this time, we have no comments to offer.

Should there be any questions, please do not hesitate to contact us.

H. William Sewake
Manager
CS

Edward Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

... Water brings progress...

HERBERT I MATAYOSH
EDWARD K HARADA
ARTHUR T SENMOTO

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 23 ALPINE STREET - HILO, HAWAII 96720 - TELEPHONE (808) 961-8321



SHOZO NAGAO
FIRE CHIEF
FRANCIS E SMITH
DEPUTY FIRE CHIEF

HAWAII COUNTY FIRE DEPARTMENT
466 KINOOLE STREET, HILO, HAWAII 96720
PHONE: 935-2978

HERBERT I MATAYOSH
MAYOR

July 12, 1983

Mr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

Subject: Environmental Impact Statement Preparation Notice
for Allii Drive Realignment RS-0187(004)

Your letter dated June 23, 1983, regarding the Allii Drive realignment is acknowledged.

The successful conclusion of most Fire Department response is usually measured in elapsed time for a unit to reach the scene of an emergency. No doubt this proposed project will improve our vehicular access and travel time to emergencies in the Kailua-Keauhou areas and do so with increased safety to the public and responding units.

Coordination with the Department of Public Works and Water Board for their requirements would suffice.

Thank you for the opportunity to comment on this project.

Sincerely,

Shozo Nagao
SHOZO NAGAO
FIRE CHIEF
SN/mo

A-43

August 17, 1983

Mr. Shozo Nagao
Fire Chief
Hawaii County Fire Department
466 Kinoole Street
Hilo, Hawaii 96720

Dear Mr. Nagao:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALLII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 12, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Allii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. The improvement in the Fire Department's ability to respond to emergencies that would be afforded by the proposed project will be noted in the EIS. The Department of Public Works is coordinating its plans with the Department of Water Supply as you suggested.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

HERBERT I. MARATOCOS
EDUARDO K. MARUOLA
ARTHUR I. SEMOTIO

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALPINE STREET - HILO, HAWAII 96720 - TELEPHONE ROOM 961-8321



August 17, 1983

Mr. A. Scott Leithhead
Office of Housing & Community Development
County of Hawaii
50 Wailuku Drive
Hilo, Hawaii 96720

Dear Mr. Leithhead:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 15, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. The EIS will address the proposed highway's effect on the timing of developments.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Hanada
EDWARD HANADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

OFFICE OF HOUSING & COMMUNITY DEVELOPMENT
50 WAILUKU DRIVE - HILO, HAWAII 96720 - (HILO ARMORY)
PHONES 835-5581 - 961-4379

July 15, 1983

Mr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, HI 96813

Dear Mr. Iida:

Thank you for the opportunity to review the Environmental Impact Statement Preparation Notice for the proposed Alii Drive realignment.

Our only comment is with respect to the Social and Economic Impacts which the proposed EIS will address. According to the Preparation Notice, the EIS will review the amount and location of urban development, including residential and business activities with and without the proposed project. The draft EIS should also assess how the timing of these development activities will be affected by the highway.

We look forward to reviewing the final EIS.

In the meantime, should you have any questions, please feel free to call us.

Sincerely,

A. Scott Leithhead
A. Scott Leithhead
Housing Administrator

ASL/lb

cc: DPM





PLANNING DEPARTMENT

38 ALUPUNI STREET • HILO, HAWAII 96720

HERBERT T. MATAYOSIII
Mayor
SIDNEY M. FINE
Deputy Mayor
DUANE KANANI
Deputy Director

COUNTY OF
HAWAII

Mr. Edward Iida
Page 2
July 14, 1983

impacted by the proposed project. Finally, because of the partial Federal funding for the proposed project, the EIS should also include a discussion of the Federal Review process relating to archaeological sites.

Thank you for the commenting opportunity. Please do not hesitate to contact our office should you have any questions. We look forward to receiving the EIS document.

Mr. Edward Iida
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

In response to your Environmental Impact Statement (EIS) Preparation Notice for the Alii Drive Realignment, we offer the following comments.

In the granting of certain zone changes to Pacific Basin Resorts (Ordinance No. 870), the Kamehameha Investment Corporation (Ordinance No. 820) and Kanai, et al (Ordinance No. 869), the Hawaii County Planning Commission and County Council imposed several conditions of approval on each of these parties. Among these conditions are the requirements that they each dedicate the Alii Highway right-of-way and associated easements within their subject properties, and that they construct the portion of Alii Highway from the Kuakini Highway to the southern end of their respective properties. Because these and other conditions imposed in these instances relate directly to the proposed project, they should be discussed in the EIS. For further discussions on Alii Highway improvements, please refer to the Hawaii County Planning Department's Kahului-Puuapua Development Study of October, 1982, and the on-going Kona Regional Plan, 1983.

Regarding the Historic/Archaeological impacts of the proposed project, the Kahaluu Historic District has already been included on the National Register of Historic Places (with reference to page 11 of the Preparation Notice). Further, although the Kuakini Wall is not mentioned in this section of the Notice, it should be discussed in the full EIS as it too is included on the National Register of Historic Places and will be

Sincerely,

SIDNEY FINE
Planning Director

GU:9K

HERBERT MATAYOSHI
EDWARD K. HARADA
ARTHUR T. SENOTO

DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 73 ALUPUA STREET - HONOOLULU, HAWAII 96720 - TELEPHONE 808-531-4321



August 17, 1983

Mr. Sidney Fuke, Director
Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Fuke:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 14, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document.

We have obtained copies of the ordinances you mentioned and will discuss the conditions of approval imposed on the petitioners in the EIS. We have also obtained a copy of the Kahului-Puapua Development Study and will use it in preparing the EIS.

The Kahului Historic District is listed on the National Register of Historic Places and will be discussed in the EIS. The impact of the highway construction on Kuakini Wall and the Federal Review process relating to archaeological sites will also be discussed.

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Kurakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

E. Iida
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

HERBERT MATATOSHI
Name
EDWARD K. HARADA
Chairman
ARTHUR ISIMOTO
Deputy Chairman



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALUPA STREET - HILO, HAWAII 96720 - TELEPHONE NUMBER 961-8321

August 17, 1983

Mr. Guy A. Paul, Chief
Police Department
County of Hawaii
349 Kapiolani Street
Hilo, Hawaii 96720

Dear Mr. Paul:

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)**

Thank you for your letter of July 15, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document.

We understand your department recommends alignment A2, B, C2, D because the A2 intersection with Kuakini Highway maximizes sight distance. All alternatives will be addressed in the Draft EIS. Based on the findings of the EIS, agency comments, and public input, an alignment will be selected prior to filing the Final EIS.

The Kuakini By-Pass now under construction will be completed before the proposed Alii Drive realignment. This will reduce traffic on the existing Kuakini Highway in the vicinity of its intersection with realigned Alii Drive well below its current level. As a result, construction of an overpass across Kuakini Highway is not warranted. This intersection will be properly designed to insure safe movement of traffic.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates



POLICE DEPARTMENT

COUNTY OF HAWAII
349 KAPIOLANI STREET
HILO, HAWAII 96720

GUY A. PAUL
CHIEF OF POLICE
WAYNE G. UHAIKALO
DEPUTY CHIEF

OUR REFERENCE
YOUR REFERENCE

July 15, 1983

Mr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Re: Environmental Impact Statement Preparation Notice
for Alii Drive Realignment RS-0187(004)

Thank you for the opportunity to comment on the proposed Alii Drive realignment.

After review of the alternatives, we favor the use of lines A-2, B, C-2 and D. The primary reason for this recommendation is that A-2 crosses Kuakini Highway at a location where sight distance is maximized.

For further safety, we also recommend that Alii Drive cross Kuakini Highway via an elevated overpass.

If we can be of further assistance in this matter, please let me know.

Guy A. Paul
GUY A. PAUL
CHIEF OF POLICE
GAP/sf

cc: Kona Police

HAWAIIAN TELEPHONE
BTE

July 5, 1983

Belt, Collins & Associates
606 Coral Street
Honolulu, HI 96813

Attention: Mr. Edward Iida

Gentlemen:

Subject: EIS Preparation Notice for Alii Drive Realignment RS-0187(004)
Your Ref. No. 83-857

This is to acknowledge receipt of the subject notice and to inform you that the proposed realignment's probable impact on existing telephone facilities will be minimal.

Accessing the developments that will front on the realigned Alii Drive segments will probably be our only major concern.

Yours truly,

Hisashi Enomoto
Senior Engineer



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALIIPUAH STREET - HONO. HAWAII 96720 - TELEPHONE (808) 961-8321

August 17, 1983

Mr. Hisashi Enomoto
Hawaiian Telephone
P.O. Box 4289
Hilo, Hawaii 96720

Dear Mr. Enomoto:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 5, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. We understand from your comment that the proposed alignments' probable impact on existing telephone facilities will be minimal. We will contact you during the preparation of the EIS for more information regarding your concern that developments fronting the proposed realignment be accessible.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

HERBERT I. MATAYOS
EDWARD K. HARADA
ARIMURU ISIMOTO



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALUPUA STREET - HONOOLULU, HAWAII 96820 - TELEPHONE 808-961-8331

KAWAUNAHOU, HI
567 South King Street
Suite 200
PO Box 7106
Honolulu, HI 96811
Telephone: 23 6270

KAMEHAMEHA SCHOOLS / BERNICE PAUAI BISHOP ESTATE

July 22, 1983

Mr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, HI 96813

Dear Mr. Iida:

Environmental Impact Statement Preparation Notice for Alii Drive
Realignment, Keaunohu, North Kona, Hawaii

Thank you for allowing our staff to comment on the Environmental Impact Statement (EIS) preparation notice. The trustees felt it was important for us to review the proposal for this project. First, the Kamehameha Schools/Bishop Estate is the land owner at the southern terminus of the realignment. Second, the action can have a very significant impact on our development plans for the Keaunohu resort destination area. At this time, we have no comments to provide on any specific item in the preparation notice.

However, we would like to point out that the trustees have identified the Ohia Cave complex, located in the area of the roadway's southern terminus as having historical and archaeological significance. As such, our staff will be taking steps to protect the cave complex from further desecration. We would request that any impact this project might have on the caves be coordinated with Mr. Guido Giacometti of Kamehameha Investment Corporation, who is managing the development of the Keaunohu resort area.

While we have no further substantive comments to make, we request to be consulted as the project progresses through the final corridor selection, land/right-of-way acquisition, and design phases.

Very truly yours,

Wallace K. Tirrell
Wallace K. Tirrell
Area Development Manager

SK:dkl

cc: Guido Giacometti

August 17, 1983

Mr. Wallace K. Tirrell
Kamehameha Schools/Bernice Pauahi Bishop Estate
567 South King Street, Suite 200
P.O. Box 3466
Honolulu, Hawaii 96801

Dear Mr. Tirrell:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 22, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and your staff reviewing the document. We understand you have no specific comments to offer at this time.

We are aware of the historical and archaeological significance of the Ohia cave complex located near the southern terminus of the proposed project. Based on information currently available, it appears that the new highway alignment would avoid the cave complex, but this is being confirmed as part of the archaeological reconnaissance survey commissioned for the EIS.

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 23 ALPINE STREET - HONO KONA 96720 - TELEPHONE (808) 861-8321

KONA OUTDOOR CIRCLE

Post Office Box 98
Kailua-Kona, Hawaii 96740

September 16, 1983

Ms. Diane C. Walker
Kona Outdoor Circle
P.O. Box 98
Kailua-Kona, HI 96740

August 2, 1983

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
ALII DRIVE REALIGNMENT RS-0187(004)

Hr. Edward Iida
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. Iida:

Thank you for requesting comments from the Kona Outdoor Circle regarding the Alii Drive Realignment (RS-0187 (004)) in connection with the EIS your firm is preparing.

The Kona Outdoor Circle feels it is essential that provisions for underground utilities and attractive landscaping with adequate sprinkler systems be made an integral part of any plans for roadway construction in our community. The absence of these elements to provide at least minimal attractiveness would certainly have a negative impact on this tourist destination.

In addition to this major consideration, several other concerns were raised by the KOC Executive Board. One of the stated purposes of the realignment is to separate local and through traffic between Kailua and Keauhou. The Queen Kaahumanu extension when complete should adequately serve this purpose with the added benefit of direct routing to and from the airport. The proposed realignment brings the faster through traffic extremely close to established residential areas and we saw no provisions to substantially improve tsunami evacuation routes.

Impact on the existing Alii Drive should also be carefully considered and plans made in conjunction with realignment to improve and maintain the road so it will not deteriorate further and become a beachfront parking lot.

Thank you for your attention to our comments and recommendations.

Sincerely,

Diane C. Walker
Diane C. Walker
Corresponding Secretary

KONA OUTDOOR CIRCLE

Thank you for your letter of August 2, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and other members of the Kona Outdoor Circle reviewing the document. Responses to your comments are presented below.

Landscaping will be kept to a minimum in order to blend in with the natural vegetation, minimize water requirements and keep down County maintenance costs. Lighting will be provided only at intersections so wiring will be off existing lines.

As you mentioned, the Queen Kaahumanu extension will serve to separate local and through traffic in the Kailua-Keauhou corridor by allowing traffic from or to Keauhou to by-pass Kailua Village if desired. Drivers most likely to use that route are those whose departure point or destination is Keauhou. The further north a driver is along Alii Drive, the less likelihood he will backtrack south to Kasehameha III Road. Connector roads between Alii Drive and the proposed realignment will allow and encourage through traffic away from Alii Drive. These connector roads also substantially improve emergency evacuation routes. Two connector roads were mentioned in the text of the EIS Preparation Notice. In addition, recent rezonings in the area have imposed certain conditions of approval on the petitioner. One condition is the construction of connector roads between Alii Drive and the proposed realignment. The number and location of connector roads will be discussed further in the draft EIS.

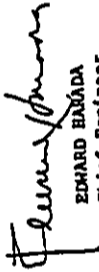
Line B of the proposed realignment goes through a reserved right-of-way in Alii Kai Subdivision and Line A2 curves along the south side of Kona Hillcrest Subdivision. These are the only two areas where the highway would be close to established residential areas. Adequate precautions will be taken to insure safety. The proposed highway will be safer than Alii Drive because of the wider lanes and shoulders, better sight

Ms. Diane C. Walker
September 16, 1983
Page 2

distance, fewer driveways, and less pedestrian traffic. Selecting the alignment prior to development of the area allows future developers the opportunity to incorporate adequate buffers between residential areas and the highway in their initial design plans.

Alli Drive is intended to remain to serve local traffic.

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.



EDWARD ENXADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates
Plans and Surveys

HERBERT MATIAS
EDWARD F. HARRIS
ARTHUR I. ISHIGURO

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALPINE STREET - HONOOLULU HAWAII 96813



- North Iiwa Traffic Safety Committee
- South Iiwa Traffic Safety Committee
- Honohou Traffic Safety Committee
- North Kohala Traffic Safety Committee
- South Kohala Traffic Safety Committee
- Kona Traffic Safety Committee
- Kau Traffic Safety Committee
- Puna Traffic Safety Committee

Kona Traffic Safety Committee
P.O. Box 4369
Kailua-Kona, HI 96740

July 15, 1983

Mr. Edward Iida
Belt, Collins and Associates
606 Coral Street
Honolulu, HI 96813

SUBJECT: Environmental Impact Statement
Ahihi Drive Realignment RS-0187(004)

Dear Mr. Iida,

The Kona Traffic Safety Committee has no objections to either of the submitted plans for the above mentioned. We are in favor of any further connecting roads to Kuakini Highway since there presently is a great lack of such.
At this time, this committee does not have any further comments on the matter, except that we sincerely hope that this project will be a reality in the near future.

Sincerely yours,
THE KONA TRAFFIC SAFETY COMMITTEE
Tsuyoki Nakashima, Chairman

A-53

Traffic accidents depend on you... don't support them

August 17, 1983

Mr. Tsuyoki Nakashima, Chairman
Kona Traffic Safety Committee
Big Island Traffic Safety Council
P.O. Box 4369
Kailua-Kona, Hawaii 96740

Dear Mr. Nakashima:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR AHIHI DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 15, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Ahihi Drive Realignment. We appreciate the time spent by you and the other members of the Kona Traffic Safety Committee reviewing the document. We understand you have no comments to offer at this time.

You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Habada
EDWARD HABADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates



WEST HAWAII COMMITTEE

POST OFFICE BOX 1741 KAILUA-KONA, HAWAII 96740

July 12, 1983

BELT COLLINS & ASSOCIATES
606 Coral Street
Honolulu, HI 96813

ATTN: EDWARD IIDA

A L O H A,

Re: E I S Preparation Notice
R S - 0187 (004)

Your asking for our Committee's input, and the expressions of other "dedicated to the best interest of the community" groups in Kona emphasizes your genuine concern, for which we are indeed appreciative and most grateful. It is wonderful to know that, at long last, the people of Kona are being asked, "what do you want and what do you think?" What a glorious improvement!

Your request regarding the E I S Preparation Notice are all affirmative It appears there are no adverse affects, environmentally, socially or otherwise from an overall point of view. One of our concerns, which your E I S Preparation Notice refers to under the heading of "DRAINAGE", top of page 10, is that of water run-off and flood water directing and/or controls. There are, however, a number of constructive suggestions from a "planning point of view" if this is the right time to submit them:-

1) First, we strongly recommend substituting a more appropriate and logical name for this distinctively new and far better major arterial way than the confusing and misleading name of the Alii Drive Realignment suggestions such as:
KONA PARKWAY

2) Considering Kailua to Keauhou as being the most traffic burdened six (6) mile area in Kona and, actually, the greatest impacted six mile strip in the entire County, with an ever-increasing traffic count, which the new arterial highway is being designed to accommodate, we recommend that the project embrace a four-lane divided roadway system with a wide beautification median strip, at the inception. Otherwise, the brand new arterial facility will already be out-of-date by the time it is completed.

Wiser and more prudent planning and traffic

BELT COLLINS & ASSOCIATES
July 12, 1983 Page 2

improvement projection for years in the future, which is really what we are talking about at this juncture, is the divided 4-lane arterial way instead of just a single ribbon 2-lane roadway in 100 foot right-of-way indicated in the section entitled "DESCRIPTION of the PROPOSED PROJECT" on page 5 of your E I S Preparation Notice.

The arterial connecting link between Kailua and Keauhou could BEST fulfill its stated purpose of facilitating traffic movement all along the area between the two villages by heading Line A-2 northerly toward Kailua, as shown in red on the enclosed photocopy of your Kailua to Keauhou drawing, with the terminus point at a newly and well designed intersection of Kuakini Highway, One One Street, Lunapule Road and Wailua Road correcting existing dangerous traffic situations which only continue to get worse.

4) With respect to a choice between Line A-1 and Line A-2, the suggestion that the best of both be utilized by using and extending Line A-1 mauka to connect with Line A-2 before reaching Queen's Highway, as indicated in red on the enclosed photocopy of your Kailua to Keauhou drawing.

5) The suggestion that at least three (3) wide and well planned secondary arteries from the major arterial way mauka to Alii Drive be included in the roadway system project, in addition to existing or proposed streets through existing residential subdivisions, with possibly the secondary traffic arteries situated at locations indicated in red on the enclosed photocopies, to provide expedient ingress and egress to various neighborhoods along Alii Dr. and to create the long overdue and desperately needed mauka outlets from Alii Drive in the event of catastrophes such as a tsunami.

6) Provide either limited access or restricted access by utilization of frontage or parallel access roadway system for better traffic flow, improved roadway beautification and deeper building setbacks. An excellent opportunity for creating a distinctive and magnificently colorful bougainvillea corridor by starting the planting and nurturing early.

7) Provide a pedestrian walkway on one side and a wide bikeway on the other side for bicycles, motor bikes,

NOTE: The red lines³⁾ are indicated on the following map by lines of numbers that correspond to the suggestions in paragraphs 3), 4), and 5).


BELT COLLINS & ASSOCIATES
July 12, 1983 Page 3

and mopeds, one or more pull-off scenic view areas along the way, if possible, and quite emphatically a prohibition from environmentally impacted aerial wiring electrical, telephone lines and street lighting NO overhead street lighting, instead low garden-type lighting if the roadway is to be illuminated, and an absolute minimum number of traffic signal intersections.

We hope our constructive comments have been helpful and we ask that you please keep us informed and abreast of planning progress.

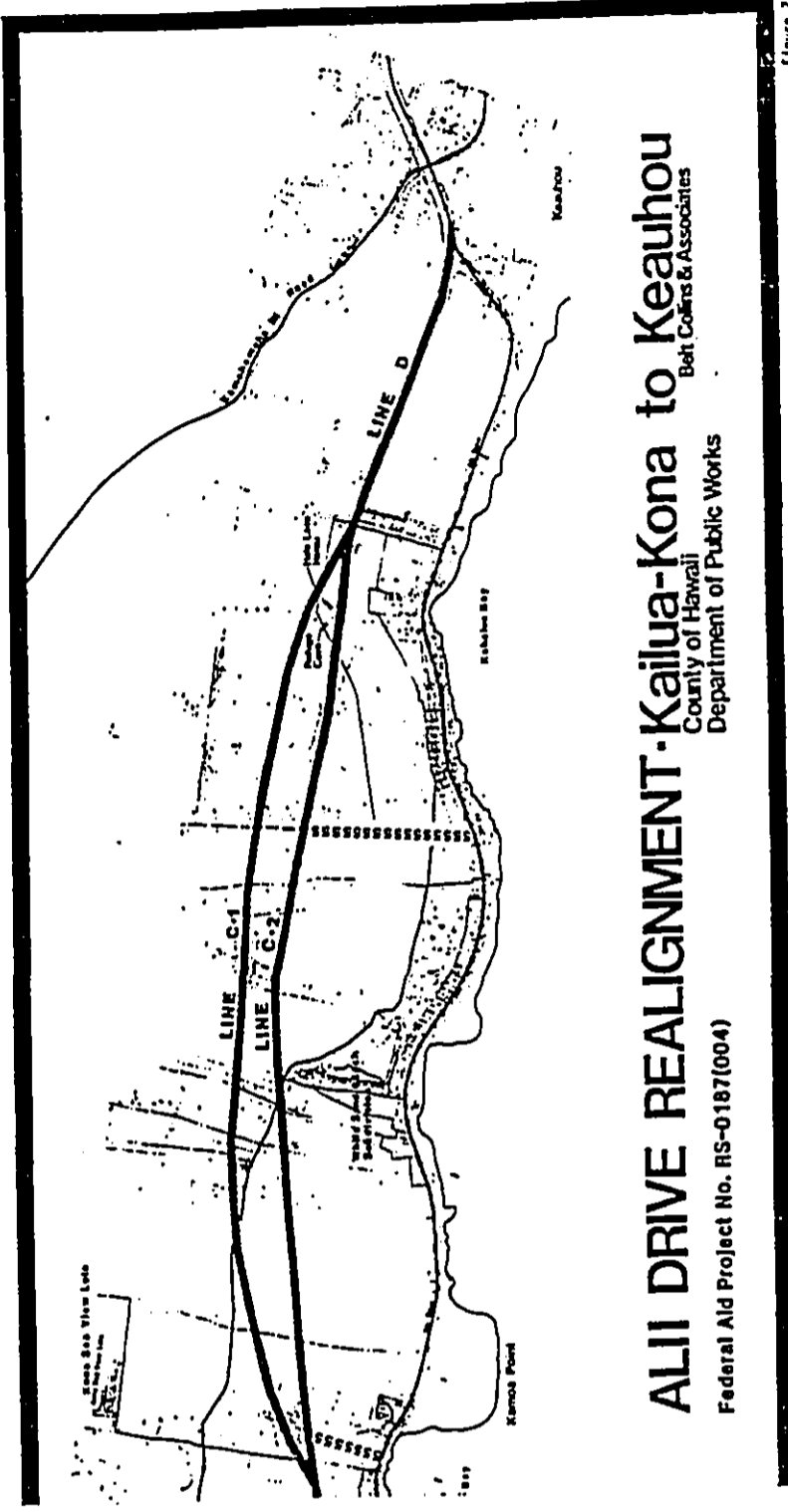
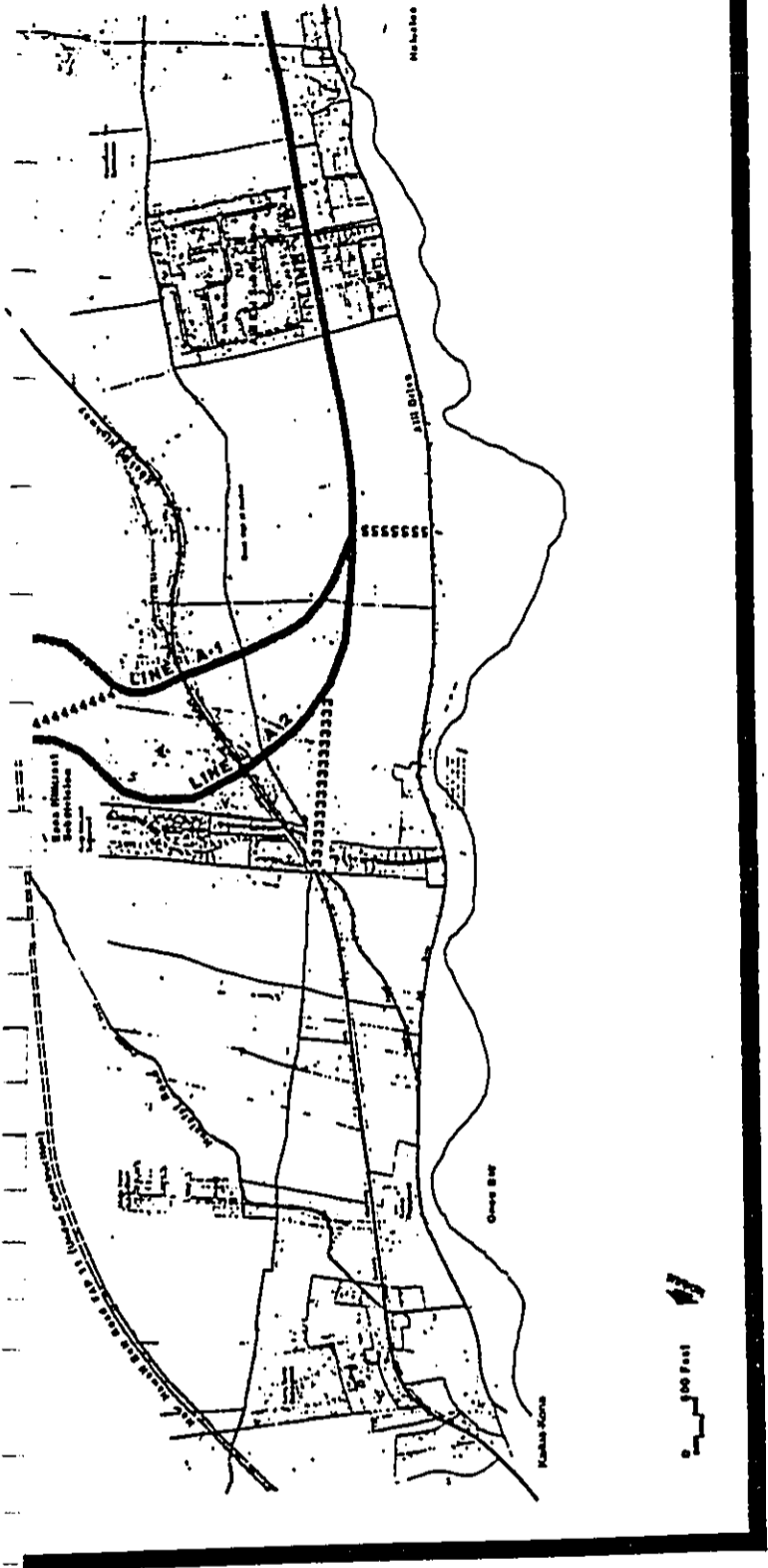
Cordially yours,

WEST HAWAII COMMITTEE


HARVEY WEYS
Chairman

Enclosure

CC: COUNTY DEPARTMENT OF PUBLIC WORKS
COUNTY DEPARTMENT OF PLANNING



ALII DRIVE REALIGNMENT - Kailua-Kona to Keauhou
 County of Hawaii
 Department of Public Works

Federal Aid Project No. RS-0187(004)

Figure 2.



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 ALPINE STREET - HONOOLULU, HAWAII 96813-3221

ROBERT I. MATASOCH
EDWARD A. HARADA
ARIMUR T. SCHMIDT

August 17, 1983

Hr. Harvey Weeks, Chairman
West Hawaii Committee
P.O. Box 1761
Kailua-Kona, Hawaii 96740

Dear Mr. Weeks:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT MS-0187(00R)

Thank you for your letter of July 12, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time spent by you and other members of the West Hawaii Committee reviewing the document.

We understand your general concern about flood water runoff. The EIS will address drainage in the area as it relates to the construction of the proposed new roadway.

The EIS is an integral part of the overall highway planning process. Hence, the constructive comments offered by the West Hawaii Committee regarding design considerations were most appropriate. Responses to them are presented below.

(1) Name. The name "Alii Drive Realignment" was given to the proposed project many years ago when it was in the concept phase. The Department of Public Works has indicated that it will eventually be given a more appropriate name.

(2) Number of Lanes. Traffic projections through the year 2005 indicate that construction of four lanes is not warranted at this time. However, sufficient right-of-way would be obtained to permit eventual expansion to that size. In judging the adequacy of the roadway, it should be remembered that a significant proportion of the total traffic through the corridor will utilize the realigned Kuakini Highway and existing Alii Drive. Hence, the new highway will be called upon to handle only a fraction of the total traffic.

(3) Intersection With Existing Kuakini Highway. We agree that the existing traffic situation at the intersection of Kuakini Highway, Waiolu Road, Oni Oni Street, and Lunapule Road is undesirable. One purpose of the proposed realignment is to separate local and through traffic, thereby

Hr. Harvey Weeks, Chairman
August 17, 1983
Page two

reducing traffic congestion in this area. The alignment you have suggested would concentrate on it. Moreover, the sight distance available at the location you suggested is limited, a wide swing on the approach would be required to provide a 90-degree intersection, it would be impossible to provide a through connection to the realigned Kuakini Highway above, and taking of a number of existing residences would be required. In short, we believe this routing would increase, rather than diminish, the problem.

(4) Intersection With Hawaii Belt Road Extension (FAP 11). The alignment you suggested has a number of desirable attributes and was considered early in the design phase of the project. Unfortunately, upon closer examination it was found that the route would entail a grade of approximately 12 percent, well above the 8 percent maximum stipulated in the State Department of Transportation's design standards. Because of this, it was dropped from further consideration.

(5) Connector Roads. The Hawaii County Department of Public Works is aware of the need for additional mauka-makai connector roads. In addition to the planned connector roads mentioned on page five of the EIS Preparation Notice, at least three other connections would be constructed. Recent zone changes on parcels on the northern end of the alignment mauka of Kuakini Highway have been granted. The Hawaii County Planning Commission and the County Council imposed several conditions of approval on each of the petitioners. One condition requires them to construct and complete a connecting road between Alii Drive and the proposed Alii Highway. Another access will probably be Queen Kalama Avenue.

(6) Access Control. Access to the proposed new highway will be limited. Your observations regarding the opportunity to create a distinctive landscape character for the proposed project are well taken. This and other landscape alternatives will be addressed in the design phase of the project.

(7) Design Features. The proposed new roadway will be an arterial highway intended primarily for fast-moving through-traffic. It is possible that the road will be a designated bike route, but it is the County's belief that pedestrian walkways and bicycle paths along existing Alii Drive would provide safer travel. At this time, there are no plans to create such a pedestrian/bikeway system on the old road, however. Low, garden-type lighting such as you suggested does not provide sufficient illumination to insure highway safety, and conventional lighting fixtures would be used for the proposed project. However, lighting would be installed only in the vicinity of intersections.

Mr. Harvey Weeks, Chairman
August 17, 1983
Page three

Thank you again for your helpful comments. You will be sent a copy of the EIS for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Hurakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Harada

EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

RECEIVED

JUL 28 1983

BELT, COLLINS & ASSOCIATES



West Hawaii Humane Society

P.O. Box 2695 • Kailua-Kona, Hawaii 96740 • (808) 329-1175

July 26, 1983

Belt, Collins, & Associates
606 Coral Street
Honolulu, HI. 96813

Relet: 6-23-83 Realignment of Alii Drive between Kailua-Kona and
Keauhou.

Attention: Edward Lida

Dear Sir:

The proposed realignment of Alii Drive will have no environmental
impact on the West Hawaii Humane Society. We are located several
miles beyond (north) Kailua-Kona off the Queen Kahuamau Highway
adjacent to the Kailua Land Fill.

Very truly yours,
WEST HAWAII HUMANE SOCIETY

Ginger Towle
Ginger Towle
President

GT/ktb

A-59



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII, 25 ALUPUA STREET, 4th FLOOR, HAWAII 96720 (TELEPHONE 961-8121)

August 17, 1983

Ms. Ginger Towle, President
West Hawaii Humane Society
P.O. Box 2695
Kailua-Kona, Hawaii 96740

Dear Ms. Towle:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 26, 1983 regarding the Environmental Impact
Statement Preparation Notice for the proposed Alii Drive Realignment. We
appreciate the time you and other members of the Society spent reviewing the
document. We understand you believe the proposed project will have no
environmental impact on the West Hawaii Humane Society.

You will be sent a copy of the Environmental Impact Statement for review and
comment as soon as it is completed. In the meantime, if you have any
questions regarding the project, please contact Mr. David Murakami of the
Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward
Lida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

HERBERT MATAYOS
EDWARD K. HARADA
ARTHUR I. ISIMOID



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII, 23 ALIPIKA STREET, HONO HAWAII 96813. TELEPHONE (808) 961-8321

Peter S. Fithian
Hacienda Hauoli
2923 Makalei Place
Honolulu, Hawaii 96815

August 3, 1983

Mr. Edward Iida
BELT, COLLINS & ASSOCIATES
606 Coral Street
Honolulu, HI 96813

Dear Mr. Iida:

I am responding to your letter dated June 23rd and addressed to the Hawaiian International Billfish Association. We do not have any official comments on the EIS, since really our presence in Kona is limited.

Nonetheless, as one who makes his official residence at the corner of Kam II Road and Kuaikini Highway, I have read the information with considerable interest.

My repeated trips in both directions on both roads convince me that anything that can be done to lessen the pressure on Kuaikini or Kam II road would better the quality of life for the entire area.

Kuaikini is the daily site of the Kona 500, and is about as dangerous with mixed traffic and driveways entering as well as barely marked roads.

The intersection of the two roads sounds daily like a Grand Prix event.

Aesthetically, the conglomeration of wires at that intersection assault the eyes.

Anything that your realignment might possibly do to lessen these concerns would be important to all of us in the area.

Very truly yours,

Peter S. Fithian
Peter S. Fithian
PSF:kf

August 17, 1983

Mr. Peter S. Fithian
Hacienda Hauoli
2923 Makalei Place
Honolulu, Hawaii 96815

Dear Mr. Fithian:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of August 3, 1983 regarding the Environmental Impact Statement Preparation Notice for the proposed Alii Drive Realignment. We appreciate the time you spent reviewing the document. Your comments will be considered during the preparation of the Environmental Impact Statement (EIS).

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. In the meantime, if you have any questions regarding the project, please contact Mr. David Murskani of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Belt, Collins & Associates in Honolulu at 521-5361.

Edward K. Harada
EDWARD HARADA
Chief Engineer

cc: Environmental Quality Commission
Belt, Collins & Associates

HERBERT T. MATATOSHI
Name
EDUARDO K. HARADA
Chief Engineer
ARTHUR T. OSEWALD
Reports & Survey



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 ALIPIA STREET - HONOOLULU, HAWAII 96820 - TELEPHONE (808) 561-8321

76-6182 Lehua Rd. H-16740
Kailua-Kona HI
July 1, 1983

Belt Collins and Associates
745 Fort St. 5th Floor
Honolulu HI 96813

RE: proposed realignment of Alii Dr.

perhaps you have already noted that from Lunalu to the King
Kalihi Rd. there is no escape route. The entire length of
the 5.2 miles is in jeopardy. Anyone on Alii Dr. or off of
it such as Alii Kai Sub. Kahakai School, White Sands etc.
has no choice but to use the very narrow, totally inadequate
drive. In case of disaster, this would be catastrophic.
What we need and HOV, separately, is short makai - mauka
roads connecting to Kuakini Highway. Alii Kai subdivisions
is two short blocks from joining up with Kamae Komohana
subdivision that has entrance to Kuakini. The Makai-Mauka
short feeder roads couldn't cost what the projected re-align-
ment would cost and would be of far more practical value.

According to the map published in today's West Hawaii Today
the proposed realignment would have no practical value, as
according to the map, there is no provisions for feeder roads
into the various subdivisions.

We did contact Herleial, Co. Comm. Co of Hawaii and she did
take notes and said she realized what was needed. However,
we never heard anything from any of the commissioners.

We would like to receive a communication from you, so that
we can tell others EXACTLY how the re-alignment would be of
any constructive aid to this heavily populated area.

5.2 miles of feeder roads is incredible!

Yours truly

M. Reynolds
Rev. H. Reynolds

August 17, 1983

Rev. H. Reynolds
76-6182 Lehua Road
Kailua-Kona, Hawaii 96740

Dear Rev. Reynolds:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR ALII DRIVE REALIGNMENT RS-0187(004)

Thank you for your letter of July 1, 1983 regarding the proposed realignment
of Alii Drive. We are sending you a copy of the Environmental Impact State-
ment Preparation Notice for the project. It contains substantially more
information than was presented in West Hawaii Today.

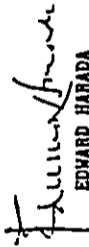
The purpose of the Environmental Impact Statement Preparation Notice is: (1)
to notify all interested parties that an Environmental Impact Statement will
be prepared for the proposed project; (2) to provide a general description of
the project's technical, economic, social, and environmental characteristics
as well as a summary of the major impacts and alternatives considered; and (3)
to provide an opportunity for all interested parties to assist in the prepara-
tion of the EIS by providing comments on the proposed project.

We hope the enclosed document will answer your questions regarding connector
roads. Although they were not identified on the alignment map (Figure 2), at
least two connector roads from Alii Drive to the proposed Alii Drive Realign-
ment are planned. Page 5 of the text identifies Royal Poinciana Drive in Alii
Kai subdivision as one of the connector roads and Makolea Street in Kahaolu as
the second. A connector road from Kuakini Highway to the proposed realignment
is also being considered in the vicinity of Kona Sea View Lots. The location
of other connector roads between Alii Drive and the proposed realignment will
be discussed in the EIS.

As you have noted, it is necessary to provide an adequate number of mauka-
makai connector roads. At the same time, the County is also concerned that
traffic flow evenly and safely. One purpose of the proposed realignment is to
carry through traffic between Kailua-Kona and Kahaolu and to alleviate the
congestion and unsafe conditions on Alii Drive. On a through arterial such as
the proposed realignment, it is necessary to have partial control of access to
maintain an even flow of traffic. Hence, the number of mauka-makai links must
always remain limited.

Rev. M. Reynolds
August 17, 1983
Page two

You will be sent a copy of the Environmental Impact Statement for review and comment as soon as it is completed. We appreciate your interest in the project and your concern for the adequacy of connector roads. After reading the enclosed material, if you have questions or would like additional information on the proposed project, please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8321 or 961-8327 or Mr. Edward Iida of Beit, Collins & Associates in Honolulu at 521-5361.


EDWARD HARADA
Chief Engineer

Encl.
cc: Environmental Quality Commission
Beit, Collins & Associates

APPENDIX B
SUMMARY OF PUBLIC INFORMATIONAL MEETINGS

APPENDIX B

SUMMARY OF PUBLIC INFORMATIONAL MEETINGS AND PUBLIC HEARINGS

Two Public Informational Meetings were held prior to the publication of the Draft EIS, on March 25, 1982 and on September 29, 1983. The distribution lists for the notices of the meetings, the materials handed out at the meetings, and a summary of comments at each meeting are presented below.

MARCH 25, 1982 PUBLIC INFORMATIONAL MEETING

The meeting was held in Yano Memorial Hall in Captain Cook, south Kona at 7:00 p.m. The following parties were mailed notices of the meeting; in addition notices were published in the Hawaii Tribune Herald on March 21 and 24, 1982.

State Agencies

Department of Accounting and General Services
Department of Land and Natural Resources
Department of Social Services and Housing
Department of Transportation

Hawaii County Agencies and Officers

County Transit Agency
Department of Research and Development
Department of Water Supply
Fire Department, Kona Station and Hilo Office
Kona Road Overseer
Mayor Herbert T. Matayoshi
Planning Department
Police Department, Captain Cook Station

State Legislators

Virginia Isbell

Organizations

American Lutheran Church
Civitan Club of Kona
Daughters of Hawaii
Dillingham Investment Corporation

Organizations (continued)

General Contractors Association
Hawaii Leeward Planning Conference
Hawaii Island Pacific Properties Investment Enterprises
Kailua Special Design District and Urban Design Review Committee
Kalekona Corporation
Kona Coast Chamber of Commerce
Kona Jaycees
Kona Mauka Trollers
Kona Outdoor Circle
Lanihau Corporation
Lions Club of Kailua-Kona
Lions Club of Kona
L.S. Dillingham Trust
Lyman Perry-Fiske Estate
Taiyo Fudosan Kogyo Co., Ltd.
Trustees of B.P. Bishop Estate
West Hawaii Committee

Individuals

Mr. Forrest W. Brehm
Mr. Donn W. Carlsmith
Mr. Keola Childs
Mr. Joseph D. Coher
Mr. John K.K. Collins
Mr. Joseph Gomes
Mr. Kazuo A. Haida
Ms. Lucilia P. Kingman
Mr. August V. Klaue
Mr. & Mrs. Jack Kobayashi
Mr. Walter S.L. Loo
Ms. Catherine T. Moranha
Mr. Chiaki Matsuo
Mr. & Mrs. Clayton D. Palmer
Mr. F. Smothers
Mr. & Mrs. Howard Streich
Mr. & Mrs. Harry Waahila
Mr. Nat Wolozin
Mr. & Mrs. Tyrone Young

ALII DRIVE REALIGNMENT
PUBLIC INFORMATIONAL MEETING
March 25, 1982

BACKGROUND AND PURPOSE OF THIS MEETING

Based on several earlier studies, the Hawaii County General Plan in 1970 proposed to realign Alii Drive mauka of its present location from Alii Highway in Keauhou to the existing Kuakini Highway in vicinity of Kona Hillcrest Subdivision. This realignment was to relieve traffic congestion in Kailua-Kona and provide better access to the area between Kailua and Keauhou. The County selected an alignment after looking at various alternatives, but as funding was not available, construction was delayed.

Recently, the County decided to proceed with the Alii Drive realignment project with financial assistance through the Federal-Aid Highway Program. Alternative alignments for Alii Drive are to be studied and a Federal environmental impact statement (EIS) will be prepared.

This meeting is to orient you with the various alternatives being studied and explain the selection and refinement process that will be followed. Also, you will be given an opportunity to ask questions at the end of the meeting. To facilitate the questions and answer period, it would be helpful if you could write down any questions you have on the last page of this handout. These sheets will then be collected after the initial talk, and the questions read and answered from the podium.

SELECTION AND REFINEMENT PROCESS

The selection and refinement process includes the following major steps:

1. Initial public informational meeting.
2. Preliminary studies of each of the alternative alignments. These studies are traffic, engineering, drainage, air quality, noise, and cost/benefit analyses; and archaeological, flora, fauna, and relocation surveys.

3. Public informational meeting to present the results of the preliminary studies.
4. Preparation and publication of draft EIS.
5. Public hearing to determine which of the alternative alignment is preferred.
6. Selection of one alternative alignment based on public hearing comments and interdisciplinary review.
7. Preparation and publication of final EIS.
8. Approval of final EIS and start of construction documents.

ALTERNATIVE ALIGNMENTS BEING STUDIED

Several different alignments are being studied for Alii Drive.

They are:

- o Do nothing. Keep the existing Alii Drive and existing road network as is.
- o Widen existing Alii Drive. Keep the existing location of Alii Drive, but widen the roadway and straighten out the tight curves.
- o Realign Alii Drive mauka of its present location, as shown on the attached map. For ease of study, the roadway is broken into 4 segments -- A, B, C, and D. There are two alternative locations for Segment A; these are labelled A-1 and A-2. There are also two alternative locations for Segment C, labelled C-1 and C-2. Because the impacts and design of each segment are being studied independent of the others, any combination of the segments can be made.

Summary of Public Input

At least twenty people attended the meeting. Their written and oral comments are summarized below.

A number of the concerns and questions raised involved design details which have not yet been finalized. The following topics were discussed in the question and answer period:

- o The number and locations of connections between Alii Drive and the new realignment and between Alii Drive and Kuakini Highway. (Some specific locations were discussed.)
- o Why Sections B and D were fixed.
- o The question of trade-offs between A-1 and A-2, and C-1 and C-2.
- o Intersection location and design possibilities where Alii Drive Realignment would cross Kuakini Highway and at its terminus with the Queen Kaahumanu Highway extension.
- o How to make existing Alii Drive more of a recreational asset for tourists and local people (as a bikeway and jogging route) by reducing through traffic.
- o Whether trucks would be prohibited from using existing Alii Drive.
- o The possibility of reducing speed limits at the Kuakini Highway/Alii Drive Realignment intersection, and of downgrading a portion of Kuakini Highway to a local roadway.
- o The probable date of the next hearing.
- o The time frame for the project.
- o The right-of-way width and roadway width.

- o The proposed speed limit.
- o The likely choice of drivers between the existing (shorter route) Alii Drive and the new (faster route) Alii Drive Realignment.
- o Funding for the new road.
- o Priority of the Alii Drive Realignment compared to other highway improvement projects in the area.

SEPTEMBER 29, 1983 PUBLIC INFORMATIONAL MEETING

The meeting was held at the Kona Surf Hotel, in Keauhou, North Kona at 7:00 p.m. The following organizations and individuals were mailed notices of the meeting; in addition notices were published in the Hawaii Tribune Herald on September 22 and 27, 1983 and in West Hawaii Today on September 23 and 28, 1983.

State Agencies

Department of Accounting and General Services
 Department of Land and Natural Resources
 Department of Social Services and Housing
 Department of Transportation

Hawaii County Agencies and Officers

County Transit Agency
 Department of Research and Development
 Department of Water Supply
 Fire Department, Kona Station and Hilo Office
 Kona Road Overseer
 Mayor Herbert T. Matayoshi
 Planning Department
 Police Department, Captain Cook Station

State Legislators

Virginia Isbell

Organizations

Alii Drive Venturers
American Lutheran Church
Brehm Communities, Hawaii, Ltd.
Civitan Club of Kona
Daughters of Hawaii
Dillingham Investment Corporation
Edison L. Testerman Estate
General Contractors Association
Hawaii Leeward Planning Conference
Hawaii Island Pacific Properties Investment Enterprises
Hoawalu Partnership
Kailua Special Design District and Urban Design Review Committee
Kaimani Tree Joint Venture
Kalekona Corporation
Kamehameha Development Corporation
Kona Coast Chamber of Commerce
Kona Coast Properties, Ltd.
Kona Community Forum
Kona Jaycees
Kona Mauka Trollers
Kona Outdoor Circle
Lane & Reynolds Investments
Lanihau Corporation
Lions Club of Kailua-Kona
Lions Club of Kona
L.S. Dillingham Trust
Lyman Perry-Fiske Estate
Mauna Loa Cattle Corporation
Molnar Developments, Inc.
Taiyo Fudosan Kogyo Co., Ltd.
Trustees of B.P. Bishop Estate
West Hawaii Committee

Individuals

Mr. & Mrs. James P. Akiona
Mr. & Mrs. John Lani Asagra, Jr.
Mr. & Mrs. Howard Brackman
Mr. Forrest W. Brehm
Mr. Donn W. Carlsmith
Mr. Raymond W.K. Chang
Mr. Keola Childs
Mr. Edward S.T. Ching
Mr. Joseph D. Coher
Mr. John K.K. Collins
Ms. Inez Louise Corenevsky
Mr. & Mrs. Eldredge U. Foronda
Mr. & Mrs. Frank Gomes, Jr.
Mr. Joseph Gomes
Mr. Kazuo A. Haida
Mr. & Mrs. Gilbert H. Henrique

Individuals (continued)

Ms. Mary Kaiama
Mr. & Mrs. Herbert M. Kaku
Mr. & Mrs. Dell Kaneta
Mr. & Mrs. Wallace T. Kawamura
Mr. William J. Kimi, Jr.
Ms. Lucilia P. Kingman
Mr. August V. Klaue
Mr. & Mrs. Jack Kobayashi
Mr. Gordon Leslie
Ms. Rowena B. Loo
Mr. Walter S.L. Loo
Ms. Catherine T. Moranha
Mr. Chiaki Matsuo
Mr. James S. Mayer
Mr. & Mrs. Richard A. Melnick
Mr. & Mrs. Terry K. Muraki
Mr. & Mrs. Clayton D. Palmer
Mr. & Mrs. Joseph M. Rinc
Mr. Yasuo Saiki
Mr. & Mrs. Henry T. Santiago
Mr. F. Smothers
Mr. & Mrs. Howard Streich
Ms. Jane Tsugino Suganuma
Ms. Betty Takano
Mr. Charles M. Uchimura
Mr. & Mrs. Amante Viernes
Mr. & Mrs. Harry Waahila
Mr. Nat Wolozin
Mr. Masashi Yamada
Mr. & Mrs. Yonehachi Yonemura
Mr. & Mrs. Francis A.H. Young
Mr. & Mrs. Tyrone Young
Ms. Thelma Yuan
Mr. Walter S.S. Zane

PROPOSED ALII DRIVE REALIGNMENT
PUBLIC INFORMATION MEETING
SEPTEMBER 29, 1983 - 7:00 PM
KONA SURF HOTEL, KAHANAWIHA BALLROOM

PURPOSE OF MEETING

Tonight's meeting is the second of two public information meetings held on the proposed realignment of Alii Drive. The first meeting was held March 25, 1982. In June 1983 the Environmental Impact Statement Preparation Notice (EISP/N) was prepared and submitted to the State Office of Environmental Quality Control (OEQC) and distributed to approximately 135 Federal, State and County agencies, community organizations and interested individuals. Thirty-five comment letters were received and responded to.

At this time, engineering studies on traffic projections, flood plain analysis, preliminary right-of-way acquisition costs and construction costs have been completed. Cost benefit analysis is being conducted. Environmental consultants have completed studies on air quality, noise levels, flora and fauna and archaeology. The Draft Environmental Impact Statement is being written and will be distributed for review and comment as soon as it is completed.

The purpose of tonight's meeting is to:

1. Inform you of the progress made on the project;
2. Summarize the findings of the consultants' studies; and
3. Provide an opportunity for you to make comments and ask questions.

BACKGROUND ON PROJECT

The realignment of Alii Drive has been recommended by several studies over the years. Acting on these recommendations the County commissioned Belt, Collins and Associates to examine alternative routes. In 1973, an alignment

report was prepared and an EIS was written on the preferred alignment. Funds for construction were not available so the project was delayed. However, the recommended alignment was given semi-official status on the County of Hawaii's planning maps. In August 1980, Ordinance 610 was adopted amending the zoning code and map to delineate the proposed Alii Drive Realignment minimum 100-foot right-of-way. Recently, the County decided to proceed with the project and to seek financial assistance from the U.S. Department of Transportation through the Federal-Aid Highway Program. Because of Joint funding, the proposed realignment project is now subject to both National and State environmental laws.

PROJECT DESCRIPTION

The alternatives being studied are:

1. No action.
2. Widen existing Alii Drive.
3. Realignment of Alii Drive mauka of its present location. (Four alternative alignments are being studied. See Figure 1.)

The proposed realignment alternatives are all inland of and parallel to existing Alii Drive. The length of the roadway ranges from 4.0 to 4.5 miles, depending on which alignment is selected. The proposed minimum 100-foot right-of-way will be adequate for a four-lane road. Initially, only two lanes will be constructed, except in the area between the Kuakini Highway extension (New Hawaii Belt Road) and existing Kuakini Highway. Four lanes are being recommended for this segment for truck-climbing lanes because of the relatively steep grade. Proposed connector roads between Alii Drive and the proposed realignment are shown in Figure 1.

SUMMARY OF ENGINEERING STUDIES

Traffic Projections (Figures 2 and 3)

1. No Action - The no-action alternative would result in traffic congestion in Kailua Town during the peak hour for predicted 1985 traffic. Congestion would occur throughout the length of Alii Drive by the year 2005.

Figure 2
 1985 AND 2005 AVERAGE DAILY TRAFFIC (ADT)
 WITHOUT ALII HIGHWAY

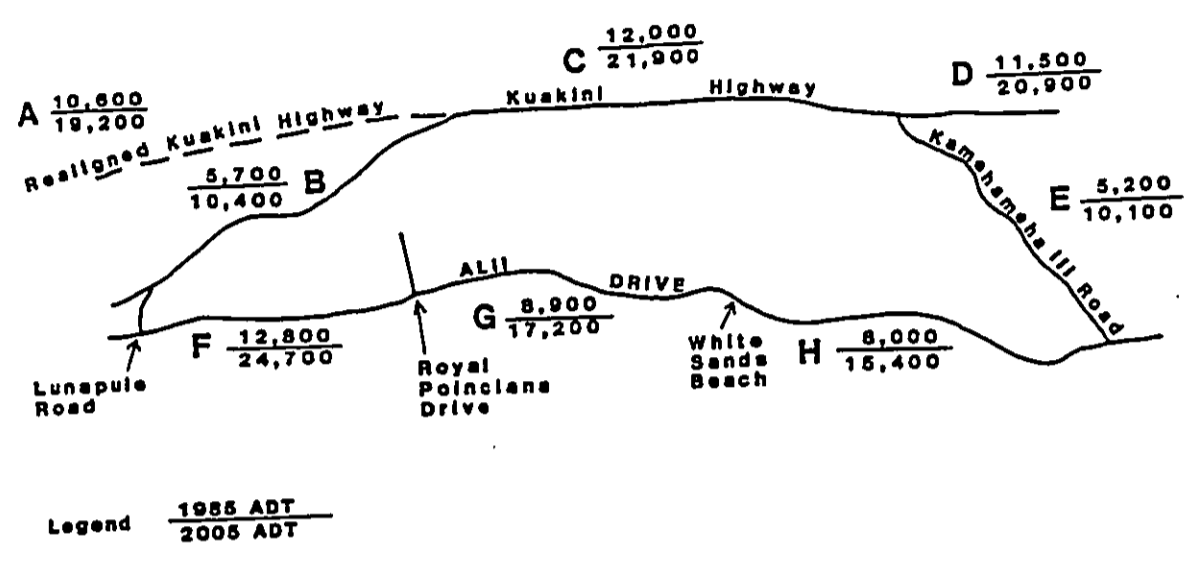
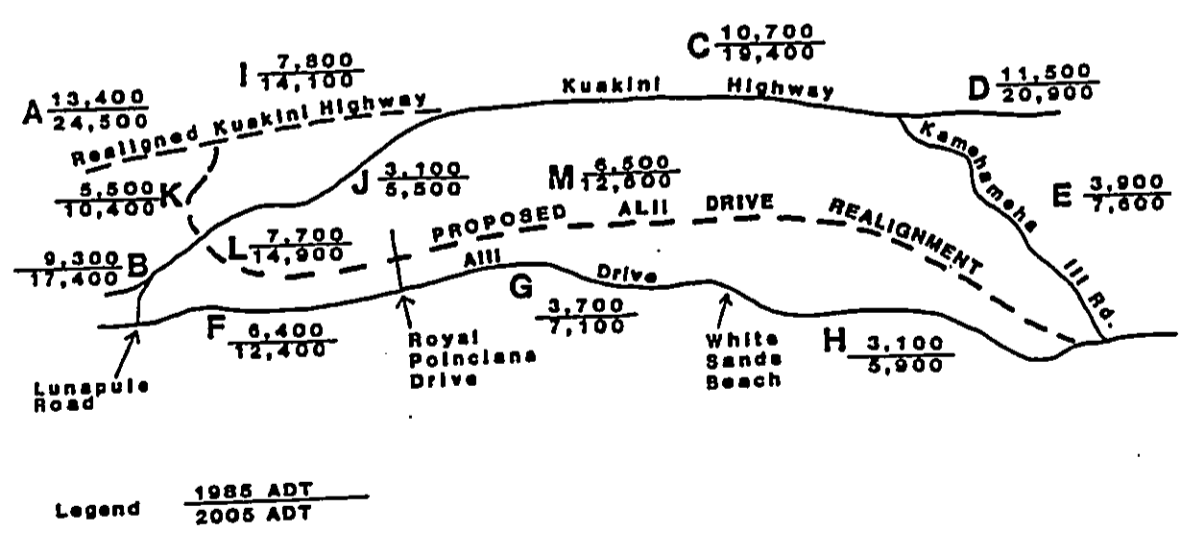


Figure 3
 1985 AND 2005 AVERAGE DAILY TRAFFIC (ADT)
 WITH ALII HIGHWAY



2. Widening Alit Drive - An 80-foot right-of-way with four traffic lanes would be required to adequately handle predicted traffic volumes. The existing right-of-way is 50 feet along most of Alit Drive with 40 feet right-of-way through Kaiua Town.

3. Construction Alternatives - Constructing the realignment will relieve congestion on Alit Drive. Four lanes would be required between Kuakini Highway and the Kuakini Highway extension to provide a truck-climbing lane. The remainder of the road would be two lanes, with adequate right-of-way for four lanes when needed.

Flood Plain Analysis

The proposed realignment would cross several flood plains identified on the U.S. Army Corps of Engineers Flood Insurance Maps. These are: Waiaha Stream, Holualoa Gulch, unnamed gulch (approximately 1300 feet south of Holualoa Gulch), and Kaumalumu Gulch.

Proposed actions are:

1. Waiaha Stream (Line A2 only) - Replace existing culvert on Kuakini Highway; provide culvert for design flow of $Q_{50} = 5,480$ cfs; channelization to occur with development of the area.
2. Holualoa Gulch - Provide culvert for design flow of $Q_{50} = 2,550$ cfs; channelize flow to ocean.
3. Unnamed Gulch - Provide culvert for design flow of $Q_{50} = 93$ cfs.
4. Kaumalumu Gulch - Provide culvert for design flow of $Q_{50} = 1,530$ cfs.; Channelize flow with development of the area.

Costs

Right-of-way acquisition, construction and design are summarized in Table 1.

TABLE 1

COST SUMMARY

	ALTERNATIVE ALIGNMENTS		
	A1, B, C1, D	A1, B, C2, D	A2, B, C1, D
Construction			
Mobilization	300,000	300,000	300,000
Excavation	1,700,000	1,700,000	1,900,000
AC Pavement	1,341,000	1,314,000	1,413,000
Roadway Improvements	234,000	232,000	244,000
Drainage	435,000	435,000	680,000
Contingency	401,000	398,000	454,000
TOTAL CONSTRUCTION COSTS	4,411,000	4,379,000	4,991,000
Right-of-Way (R.O.W.) Ac.	1,845,000	1,841,000	1,887,000
Engineering and Design	500,000	498,000	552,000
TOTAL	6,756,000	6,718,000	7,430,000

SUMMARY OF ENVIRONMENTAL STUDIES

Air Quality

The State Department of Transportation, Materials Testing and Research Laboratory conducted an air quality study in June 1983. Ambient carbon monoxide (CO) levels were measured at Kahakai Elementary School. The ambient CO level was equal to or less than 0.5 parts per million (ppm). Traffic projections and auto emission levels for 1985 and 2005 were used to project the CO levels in those years. These levels were then compared to Federal and State standards. Results are shown in Table 2. The results indicate that the proposed realignment is not expected to have any adverse effect on ambient air quality in the Kailua-Kona and Keauhou areas. The estimated CO concentration levels for 1985 and 2005 are well below the Federal one hour standard of 35 ppm and the State one hour standard of 9 ppm.

Noise Levels

The Materials Testing and Research Laboratory also conducted the noise survey. Ambient noise level measurements were taken in July 1983 in numerous locations along existing Alii Drive and the proposed realignment. Future noise levels were predicted for the no build, widening of Alii Drive and alternative alignments and are shown in Tables 3 and 4 for selected test locations. Results indicate predicted noise levels are within acceptable limits except through Alii Kai subdivision. Noise abatement measures can be taken to reduce noise to acceptable levels.

Flora and Fauna

A flora and fauna survey of the project area was conducted by EARTHWATCH, Environmental Resource Investigators, February 18 through 21, 1983. No rare or endangered species were sighted during the survey. Tables 5, 6 and 7 list the major vegetative cover types, bird and mammal species observed.

TABLE 2

AIR QUALITY		1-HR CARBON MONOXIDE (CO) CONCENTRATION					
RECEPTOR LOCATION	FEDERAL 1-HR STANDARD STATE 1-HR STANDARD *AMBIENT CO LEVEL IN KONA	NO BUILD		WIDEN ALII DRIVE		REALIGNMENT	
		1985	2005	1985	2005	1985	2005
EDGE OF ROADWAY	35.0 PARTS PER MILLION (PPM)	1.627	1.810	0.897	0.997	1.021	1.136
50' FROM ROADWAY	9.0 PARTS PER MILLION (PPM)	0.255	0.284	0.189	0.210	0.160	0.178
100' FROM ROADWAY	0.5 PARTS PER MILLION (PPM)	0.065	0.073	0.048	0.053	0.041	0.046
200' FROM ROADWAY		0.003	0.003	0.002	0.002	0.002	0.002
500' FROM ROADWAY		0.000	0.000	0.000	0.000	0.000	0.000

* Ambient CO level 0.5 ppm should be added to CO level for each alternative.

TABLE 4

NOISE LEVELS
 PROPOSED ALII DRIVE REALIGNMENT
 FHMA ALLOWABLE NOISE LEVEL IS $L_{eq} = 67$ dBA

TEST SITE	TEST LOCATION	Ambient Noise Levels		Predicted L_{eq} Noise Levels, dBA		Predicted L_{eq} Noise Levels, dBA	
		L_{eq} dBA	Mo-Build	With Realigned Alii Drive	With Realigned Alii Drive	1985	2005
A	End of Pualo Pl. cul-de-sac 250' from Realignment (Kona Hillcrest Subdivision)	47				63	65
B	End of Pumehana Pl. cul-de-sac 200' from Realignment (Kona Hillcrest Subdivision)	47				63	65
E	Kahakai School Fence Line	43				68	70
F	Kahakai School Library 500' from Realignment	43				59	61
6	South of Royal Poinciana Rd. and West of Plumeria Rd. 50' from Realignment (Alii Kai Subdivision)	59				68	70
10	End of Kaipoi Pl. in cul-de-sac 200' from Realignment (White Sands Subdivision)	40				59	62
17	Road to Nursery Across from Kahaluu Beach Park, 140' from Realignment	49				63	66

TABLE 3

NOISE LEVELS
 EXISTING ALII DRIVE
 FHMA ALLOWABLE NOISE LEVEL FOR RESIDENCES, RESORT USE, RECREATION AREAS, ETC. IS $L_{eq} = 67$ dBA

TEST SITE	TEST LOCATION	Ambient Noise Levels L_{eq} dBA	Mo-Build		Predicted L_{eq} Noise Levels, dBA		Predicted L_{eq} Noise Levels, dBA	
			1985	2005	With Realigned Alii Drive	With Realigned Alii Drive	1985	2005
3	Yama Store 50' from Alii Drive	60	66	69	63	66	65	68
4	Royal Poinciana Rd. 10' from Alii Drive	69	69	72	66	69	68	71
5	Royal Poinciana Rd. 50' from Alii Drive	61	66	69	63	66	65	68
13	Queen Kalama Rd. 50' from Alii Drive	60	66	69	63	66	65	68
15	St. Peter's Church 50' from Alii Drive	56	66	69	63	66	65	68
18	Kona Lagoon Hotel 50' from Alii Drive	57	66	69	63	66	65	68

Table 5

MAJOR VEGETATIVE COVER TYPES

GRASSLAND

- Guinea grass
- Sourgrass
- Small shrubs and forbs

OPEN MIXED SCRUB

- Shrubs
- Grasses and small forbs
- Kiawe trees

OPEN KOA-HAOLE WOODLAND

KIAME FOREST

MIXED FOREST

- Kiawe
- Koa-haole
- Optuna

RECENT LAVA FLOW VEGETATION

- puapilo
- sword fern
- noni
- natal redtop grass
- Christmas berry
- Guava

Table 6

BIRD SPECIES LIST

<u>COMMON NAME</u>	<u>CATEGORY</u>
GRAY FRANCOLIN	III
LESSER GOLDEN PLOVER	II
SPOTTED DOVE	III
ZEBRA (BARRED) DOVE	III
BARN OWL	III
JAPANESE WHITE-EYE	III
COHON MYNAH	III
MARBLING SILVERBILL	III
SPOTTED MUNIA	III
JAVA SPARROW	III
HOUSE SPARROW	III
SAFFRON FINCH	III
YELLOW-BILLED CARDINAL	III
NORTHERN CARDINAL	III
HOUSE FINCH	III

II = INDIGENOUS, MIGRATORY
 III = INTRODUCED (EXOTIC)

Table 7

**A LIST OF MAMMALS OCCURRING OR
 PROBABLY OCCURRING ON OR ADJACENT
 TO THE PROPOSED REALIGNMENT**

<u>COMMON NAME</u>	<u>VISUAL OR SIGN RECORD</u>	<u>PROBABLY PRESENT</u>
HAWAIIAN BAT		X
RAT		X
HOUSE	X	
CAT	X	
DOG		X
HONGOOSE	X	

Archaeology

Science Management, Inc. (SMI) and Paul Rosendahl, Ph.D. Inc. (PHRI) conducted an archaeological reconnaissance survey of the proposed alignments. The fieldwork was conducted January 31 to February 20, 1983 and April 4, 6 and June 3, 1983. Two-hundred ninety-eight features were recorded, including six religious features (four heiau, a possible heiau and a possible shrine). A summary of the archaeological features by functional classification is shown in Table 8.

Table 8

ARCHAEOLOGICAL FEATURES BY
FUNCTIONAL CATEGORIES

Boundary Walls	11
Habitation Features	60**
Grave Monuments	82+**
Agricultural Features	137+
Religious Features	6
Miscellaneous Sites	
Great Wall of Kuakini	1
Judd Trail	1
	<hr/>
	298+

B-15

* Includes 'Ohi'a Cave

** Includes 4 Known Human Burials in 'Ohi'a Cave

Summary of Public Input

Thirty-eight people are listed on the sign-in sheet but the attendance was estimated at over 50. Their written and oral comments are summarized below.

The following topics were discussed in the question and answer period:

- o Time frame for the project.
- o Why the project is termed a realignment rather than a new highway.
- o Only one home is within highway r.o.w.
- o The location of the realignment through Alii Kai Subdivision.
- o The design of the intersection of the new road and Kuakini Highway.
- o The question of need for an overpass at this intersection.
- o Cost of highway versus need for another road.
- o Secondary development impacts of the highway.
- o Noise levels along realignment would be increased although design noise criteria would be met.
- o Possibility of congestion at Keauhou end of realignment and reason for choice of endpoint.
- o Planning for frequency of driveway intersections along highway and the need for acceleration/deceleration lanes.
- o Whether project will continue to be supported when new administration takes office in 1984.

- o The most extensively discussed topic was the impact of the project on the archaeological resources of the area. Specific sub-topics included:
 - The need for further archaeological work.
 - The research should include contacting long-time Kona residents.
 - Treatment of artifacts discovered in survey work.
 - Indirect impacts of highway on historic cultural atmosphere of area and thus on tourism.
 - Concern over dividing the complexes of historic sites that encompass the full length of the several ahupuaa crossed by the highway.
 - Whether a heiau was located within the highway right-of-way.
 - The need for mapping burial caves crossed by highway before detailed design begins.
 - Whether there was any engineering proposal to prevent the collapse of the caves.
 - The cost of the archaeological work.
 - The poor example of the Queen Kaahumanu Highway extension project in terms of treatment of archaeological/burial sites.

A Public Hearing concerning the Alii Drive Realignment project was held on Wednesday, October 24, 1984 in the Kamehameha Ballroom of the Kona Surf Hotel, at Keauhou-Kona, at 7:00 p.m. A presentation of the project was made by a representative of the Hawaii County Department of Public Works and representatives of the project's consultant, Belt Collins & Associates. No formal testimony was presented by the public during the meeting. However, three questions were raised during a question and answer period following the close of the formal portion of the public hearing. The first dealt with an individual's concern about the configuration of the proposed

highway in relation to the existing location of his home. He was advised that the distance would be great enough that no impacts from noise would be experienced. The second question concerned how the safety of school children would be affected by the highway. It was stated that the pedestrian sidewalk will be separated from the roadway with a fence probably restricting direct access to the highway shoulder. Additionally, a pedestrian-actuated traffic signal will be placed at the intersection utilized by school children. A third question was raised concerning which agency of the County government would be responsible for establishing an improvement district to fund the County's portion of the project cost. It was stated that the County Council, upon recommendation from County Agencies would be responsible for establishing an improvement district.

APPENDIX C

SUMMARY OF COMMENTS RESPONDING TO THE DEIS

The following agencies, organizations and individuals provided comments on the DEIS. A copy of each letter and our response to it is also provided.

Federal Agencies

USDA - Soil Conservation Service
USDA - Forest Service
USDA Ag. Stabilization and Conserv. Service
U.S. Dept. of Interior: Fish and Wildlife Service
Department of the Air Force
Army Corps of Engineers
Corps of Engineers - Facilities Engineering
U.S. Navy - Pearl Harbor Headquarters
U.S. Dept. of Commerce - NOAA
U.S. Dept. of Interior - USGS
U.S. Dept. of Interior (see footnote below)
U.S. Dept. of Transportation - Coast Guard
U.S. Dept. of Transportation - Federal Aviation Administration

State of Hawaii

Public Works Engineer
Department of Hawaiian Home Lands
Department of Agriculture
Department of Defense
Department of Health
Office of Environmental Quality Control
University of Hawaii Water Resources Center
University of Hawaii Environmental Center
Office of Hawaiian Affairs

County of Hawaii

Department of Water Supply
Department of Parks and Recreation
Fire Department

Organizations

Kona Outdoor Circle
American Lung Association
Advisory Council on Historic Preservation
Hawaii Leeward Planning Organization
Natural Energy Laboratory of Hawaii

The response to the DOI on page C-20 incorrectly refers to a planning stipulation in the Memorandum of Agreement. No such stipulation is made in the MOA. Preparation of the MOA supercedes County coordination of historic preservation.

Individuals

Chang & Woo - Kona Coast Properties
Peter S. Fithian

Public Utilities

Hawaiian Telephone Company

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COPY

February 19, 1988

P. O. BOX 50004
HONOLULU, HAWAII
96850

October 16, 1984

UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

Mr. H. Kusumoto
Administrator, Hawaii Division
Federal Highway Administration
Box 50206
Honolulu, HI 96850

Subject: Draft BIS/4(f) Statement, FHWA-HI-BIS-84-01-D
Aili Highway Project, Kailua-Keolu, County of Hawaii

Data on the peak discharge rates for the major drainage basins in the project area are available in the North Kona Flood Plain Management Study Draft Report. You may obtain this information by contacting Kenneth Kaneshiro, Planning Staff Leader, at 546-3165.

The study also identifies areas where water from Waiala Stream crosses Queen Kaahumanu Highway, Kuakini Highway and Aili Drive at other locations than those mentioned in your draft BIS. The water meets and crosses Aili Drive near the Royal Seacrest Condominiums. Part of the water also flows south along Aili Drive and crosses Aili Drive at the Kona By the Sea Condominiums.

Please refer to the enclosed sheet from Appendix A of the North Kona Flood Plain Management Study.

Thank you for the opportunity to review the document.

Sincerely,

Francis C.H. LJM
FRANCIS C.H. LJM
State Conservationist

Enclosure

cc:
K. Kaneshiro

STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
U S DEPARTMENT OF AGRICULTURE
P O BOX 50004
HONOLULU HI 96850

SUBJECT: AILI HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KUMA TO KEAUNOHU, ISLAND OF HAWAII

This is in response to your letter of October 16, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the Final Environmental Impact Statement for Aili Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.

Hugh Y. Lau

HUGH Y. LAU, P.E.
Chief Engineer

UHW:lq

cc: Bell, Collins & Assoc.
Engineering Div.



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 ALPINE STREET - HONOLOULU, HAWAII 96813 - TELEPHONE (808) 531-8321

February 19, 1988

DIRECTOR LAND MANAGEMENT PLANNING
 FOREST SERVICE PACIFIC SOUTHWEST REGION
 U.S. DEPARTMENT OF AGRICULTURE
 630 SANSONE STREET
 SAN FRANCISCO CA 94111

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 187)
 ENVIRONMENTAL IMPACT STATEMENT
 KAILUA-KONA TO KEAHOHU, ISLAND OF HAWAII

This is in response to your letter of November 7, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments. Following are responses to your comments in the order they appear in your letter.

Comment 1

We had some difficulty tracking the various parameters of the different alternatives throughout the document. It would help if there were tabulations of the values of the alternative parameters at the end of Chapter II; this would provide an organized comparison.

Response: The following table will be included at the end of Chapter II.

Table II-II. Comparison of Existing Conditions on Alii Drive with Construction Alternatives	
Existing	Alignment
2 lanes	4 lanes
22' - 24' pavement	48' wide lane
50' R.O.W.	80' min. R.O.W.
no parking on roadside	parking allowed along roadside
no sidewalks	sidewalks installed
	possible sidewalks

Source: Uelt, Collins & Associates



REGIONAL OFFICE
 630 SANSONE STREET
 SAN FRANCISCO, CA 94111

PACIFIC SOUTHWEST REGION

FOREST SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

REPLY TO: 1950
 DATE: November 7, 1984

U.S. Department of Transportation
 Federal Highway Administration
 Box 50206
 Honolulu, HI 96850

Dear Sir/Hadam:

We have reviewed the Draft EIS/AF statement, FWH-HI-EIS-84-01-D Alii Highway project, Kailua-Keaunohu, County of Hawaii. It is apparent that a considerable amount of time and effort has gone into this project and that some significant values are involved. However, we did have some difficulty tracking the various parameters of the alternatives through the document. It would help the reader if there was a tabulation of the values of the alternative parameters at the end of Section II. This would provide an organized comparison.

It appears that some significant engineering that might be pivotal to a reasoned decision has not yet been completed. Of concern is a large lava tube that contains significant archeological artifacts and burial sites. The new construction alternative must cross this tube and the roof of the tube is only about 10 feet below the surface. The solution is to bridge this section. However, on page IV-50 is the statement that, "In the unlikely event that this solution (the bridge) is not feasible, collapse of the cave roof would be necessary and this change would have to be added to the list of adverse effects." Whereas on page IV-60 in reference to the same bridge it says, "no adverse effect on the feature (lava tube) or its contents is to be expected".

It should be noted that the addition of a significant unanalyzed impact and its subsequent consequence such as the need to collapse the cave roof could require supplementation of the EIS and a repeat of entire NEPA process. If this is a potential alternative it should be analyzed and its effects reported in this document.

There is a considerable description of the historical significance and archaeological value of the area and a discussion of the high dollar cost of widening Alii Drive, but there is no meaningful comparison of these two values.

It would be very difficult to make a reasoned decision from this document as it is now presented.

Sincerely,

John D. Kennedy
 JOHN D. KENNEDY, Director
 Land Management Planning

U.S. Department of Agriculture
Page 2
February 19, 1988

Comment 2

It appears that some significant engineering that might be pivotal to a reasoned decision has not yet been completed. Of concern is a large lava tube that contains significant archaeological artifacts and burial sites. The new construction alternative must cross this tube, and the roof of the tube is only about 10 feet below the surface. The solution is to bridge this section. However, on page IV-50 is the statement that, "in the unlikely event that this solution (the bridge) is not feasible, the collapse of the cave roof would be necessary, and this change would have to be added to the list of adverse effects." Whereas on page IV-60 in reference to the same bridge it says, "no adverse effect on the feature (lava tube) or its contents is to be expected."

It should be noted that the addition of a significant unanalyzed impact and its subsequent consequences, such as the need to collapse the cave roof, could require supplementation of the EIS and a repeat of the entire NEPA process. If this is a potential alternative it should be analyzed and its effects reported in this document.

Response

At the time the Draft EIS was published, only a preliminary engineering analysis of the method that would be used to span the cave had been completed. While the results of that analysis indicated that there would be no difficulty spanning the cave, its preliminary nature led us to qualify the conclusion and to indicate that collapse was a remote possibility. Subsequently, further engineering analysis of the cave has supported the preliminary conclusion that the cave can be preserved, and references to damage to the cave and its contents have been removed from the Final EIS.

The Memorandum of Agreement (MOA) between the State Historic Preservation Officer, the Advisory Council on Historic Preservation, the Federal Highway Administration, and the County of Hawaii provides for preservation of the Ohia Cave:

new text - Sec. 4.3.2.

The Memorandum of Agreement (MOA) between the State Historic Preservation Officer, the Advisory Council on Historic Preservation, the Federal Highway Administration, and the County of Hawaii provides for preservation of the Ohia Cave (see Appendix D). Detailed engineering studies

U.S. Department of Agriculture
Page 3
February 19, 1988

indicate that the roadway can be carried over the cave on a structural span which would support the weight of the road and the vehicles travelling on it.

Comment 3

There is a considerable description of the historical significance of the area and a discussion of the high dollar cost of widening Ali'i Drive, but there is no meaningful comparison between the two.

Response


As indicated in the Draft EIS, most of the sites impacted by the proposed highway are important primarily for their research value, i.e., for the information about aboriginal Hawaiian culture which study of the sites could reveal. Destruction of these sites can be mitigated by implementing the Data Recovery Plan called for in the Memorandum of Agreement referred to above. The cost of this effort has not been determined at this time, but it is expected to be in the \$500,000 to \$1 million range. Those sites determined to have high cultural value, i.e. the Ohia Cave and four heiau, are being preserved. Site-specific stabilization and interpretation plans have not been developed at this time. However, the best available estimates place such costs at well under \$100,000. Adding these to the construction costs of the highway gives a total cost of approximately \$11 million for the new construction alternatives.

As indicated in the Draft EIS, the estimated cost of widening Ali'i Drive is \$16.85 million. When the cost of archaeological work required for this alternative (it is also with the Kahatu'u and Kona Field System Historic Districts) is included, the cost would exceed \$17 million. This compares very unfavorably with the new construction alternative cost of about \$11 million.

Not only is the cost of the new construction alternatives significantly lower than that of the other possibilities, its potential benefits are higher as well. First, both the capacity and the level of transportation service that would be provided by the new facility are greater than that available from widening existing Ali'i Drive. Their flexibility and expandability are greater as well. Finally, ambient noise and air pollution levels in areas adjacent to the roadway are lower with the new construction alternatives than they are for the widening alternative.

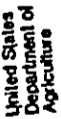
Department of the Interior
Page 4
February 19, 1988

Your letter and this response will be included in the Final Environmental Impact Statement for All's Highway. The Federal Highway Administration and will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.


HUGH Y. OMD, P.E.
Chief Engineer

DHM:bq

cc: Belt, Collins & Associates
Engineering Division



United States
Department of
Agriculture

Agricultural
Stabilization and
Conservation Service

P. O. Box 50008
Honolulu
Hawaii 96850

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COPY

February 19, 1984

September 28, 1984

Mr. H. Kusumoto
Division Administrator
U. S. Department of Transportation
Federal Highway Administration
P. O. Box 50206
Room 4119, PJJK Building
Honolulu, HI 96850

Dear Mr. Kusumoto:

RE: Environmental Impact Statement
Alli Highway Project
County of Hawaii

I have no comments to make on the subject EIS. Thank you for giving me an opportunity to review this document.

Yours very truly,

Max S. Coray
Max S. Coray
State Executive Director
Hawaii State ASCS Office

STATE EXECUTIVE DIRECTOR
HAWAII STATE ASCS OFFICE
U S DEPARTMENT OF AGRICULTURE
P O BOX 50008
HONOLULU HI 96850

SUBJECT: ALI'I HIGHWAY (FMS NO. 107)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KUHAU TO KĀUNOHO, ISLAND OF HAWAII

This is in response to your letter of September 28, 1984 regarding the Draft Environmental Impact Statement for the above project. Inasmuch as your comments.

Your letter and this response will be included in the final environmental Impact Statement for Ali'i Highway. The Federal Highway Administration will send you a copy of the EIS after it is accepted by the Governor and the Federal Highway Administration.

John Y. Udo
John Y. Udo, P.E.
Chief Engineer

UHM:bdq
cc: Belt, Collins & Assoc.
Engineering Div.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P.O. BOX 50187
HONOLULU, HAWAII 96850

NO REPLY NEEDED
ES
ROOM 6307
OCT 25 1984

Mr. H. Kusumoto
Division Administrator
Federal Highway Administration
U.S. Department of Transportation
Prince Kuhio Federal Building, Room 4119
P.O. Box 50206
Honolulu, Hawaii 96850

Re: Alii Highway Project, Draft Environmental
Impact Statement, Kailua-Keauhou, Hawaii

Dear Mr. Kusumoto:

We have reviewed the referenced project. Although the Hawaiian hoary bat, a listed endangered species, may exist in the area under consideration, we concur with your determination that your action will not affect that species. No further documentation or authorization vis-a-vis the Endangered Species Act is required.

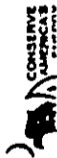
We will not need a copy of the Final Environmental Impact Statement.

We appreciate this opportunity to comment.

Sincerely yours,

Ernest Kosaka
Ernest Kosaka
Project Leader
Office of Environmental Services

cc: DAR
DP&W
EPA, San Francisco



COPY

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

February 19, 1988

ERNEST KOSAKA, PROJECT LEADER
OFFICE OF ENVIRONMENTAL SERVICES
FISH AND WILDLIFE SERVICE
U.S. DEPARTMENT OF THE INTERIOR
300 ALA MOANA BOULEVARD
P O BOX 50187
HONOLULU HI 96850

SUBJECT: ALII HIGHWAY (KAS KUUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAHOHU, ISLAND OF HAWAII

This is in response to your letter of October 25, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the Final Environmental Impact Statement for Alii Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.

Ernest Kosaka
ERNEST KOSAKA, P.E.
Chief Engineer

DHM:bq

cc: Belt, Collins & Assoc.
Engineering Div.



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING (PACAF)
HICKAM AIR FORCE BASE, HAWAII 96853

COPY

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HONOLOULU, HAWAII 96720

1 OCT 1984

REPLY TO: DEEV (Mr Fujimoto, 449-1831)
ATTN OF:

February 19, 1984

SUBJECT: Draft Environmental Impact Statement for the Alii Highway Project,
Kailua-Keolu, County of Hawaii, State of Hawaii

TO: US Dept of Transportation
Federal Highway Administration
Hawaii Division
ATTN: M. Kusumoto
Box 50206
Honolulu, Hawaii 96850

CHIEF, ENGINEERING AND ENVIRONMENTAL
PLANNING BRANCH
DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING (PACAF)
HICKAM AIR FORCE BASE HI 96853

1. This office has reviewed the subject EIS and has no comment relative to the proposed project.
2. We greatly appreciate your cooperative efforts in keeping the Air Force apprised of your project and thank you for the opportunity to review the document. The EIS is returned for your file.

SUBJECT: ALII HIGHWAY (FAS ROUTE 167)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KOHA TO KEAUKOU, ISLAND OF HAWAII

Robert M. Okazaki
ROBERT M. OKAZAKI
Chief, Engrg & Envtl Plng Div
Directorate of Civil Engineering

This is in response to your letter of October 1, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the final Environmental Impact Statement for Alii Highway. The Federal Highway Administration will send you a copy of the EIS after it is accepted by the Governor and the Federal Highway Administration.

Hubert Y. Gao
Hubert Y. Gao, P.E.
Chief Engineer

DH:104
cc: Belt, Lollins & Assoc.
Engineering Div.



DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
FT. SHAFTER, HAWAII 96864-5406

DATE OF
ATTENTION OF

October 26, 1984

Mr. Hitoshi Kusumoto
Federal Highway Administration
Region Nine
Hawaii Division
Box 50236
Honolulu, Hawaii 96850

Dear Mr. Kusumoto:

Thank you for the opportunity to review and comment on the draft EIS and Section 4(f) statement for Alii Highway Project, Kailua-Keolu, County of Hawaii. The following comments are offered:

a. Page 4. Although, as stated in the EIS, none of the flood plain areas crossed by the proposed highway corridor have significant value as wildlife habitats, the national policy on flood plain management (Executive Order 11988 on Flood Plain Management) is to preserve flood plain areas, and to prevent modification to the natural flood plain environment by maintaining it as closely as possible to its natural state.

b. Page 5. If the Ohia Cave is to be bridged to allow the proposed highway to cross without damage to the cave and its content, why reinter the burials?

c. Page III-5. According to the State Data Book (1983), Mauna Kea is 13,796 feet and Mauna Loa is 13,677 feet.

d. Page IV-54. The EIS is unclear whether the archaeological data recovery program involving intensive survey and salvage will be compiled.

Section 4.3.4.2 should be expanded to include the impact of easier access to an area previously isolated from direct impacts.

-2-

e. Page IV-55. The appropriate governmental agencies should be specified for the Planning Memorandum of Agreement.


f. Page IV-57. The "preservation sites" should be preserved even though some of the alignment routes will be impacted.

Although the cave can be spanned, there should be data recovery/salvage in case of accidental collapse. Richness of the cave has been demonstrated by archaeological research in Ohia Cave by Rosendahl.

g. Page IV-60. The EIS should discuss the reasons why the centerline of Segment C-1 cannot be adjusted to avoid Sites 37-3822 and 37-2078.

h. Page B-10. Reference to the U.S. Army Corps of Engineers Flood Insurance Maps are incorrect. The Flood Insurance Maps are prepared by the Federal Insurance Administration.

Sincerely,


Clarence Fujita
Acting Chief, Engineering
Division



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 AUPUHI STREET - HONOLULU, HAWAII 96820 - TELEPHONE 808 941-5231

DAVID S. CAPTAIN
Mayor
MAGY D. ORO
Chief Engineer
MACE C. MACKAY
Deputy Chief Engineer

February 19, 1988

CHIEF ENGINEERING DIVISION
DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION CORPS OF ENGINEERS
FORT SHAFTER HI 96858-5440

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAHOHU, ISLAND OF HAWAII

This is in response to your letter of October 26, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments. Following are responses to your comments in the order they appear in your letter.

Comment 1

Although, as stated in the EIS, none of the flood plain areas crossed by the proposed highway corridor have significant value as wildlife habitats, the national policy on flood plain management (Executive Order 11988 on Flood Plain Management) is to preserve flood plain areas, and to prevent modification to the natural flood plain environment by maintaining it as closely as possible to its natural state.

Response

The discussion on page 4 is only a summary of the in-depth discussion of floodplain impacts contained in Section 4.2.5 of the Draft EIS. The discussion includes a summary of the Federal Highway Administration policy regarding the use and development of the nation's floodplains. The expressed purpose of the Executive Order is to protect lives and property while preserving or restoring natural floodplain values. The Department of Transportation has implemented the Executive Order through the adoption of DOT Order 5650. This order prescribes policies and procedures for ensuring that proper consideration is given to the avoidance and mitigation of adverse floodplain impacts.

Corps of Engineers, Ft. Shafter
Page 2
February 19, 1988

Because the highway corridor parallels the coast for a distance of approximately five miles, it crosses a number of drainage basins. It is impossible to avoid these crossings while still achieving the purpose of the proposed action. All of the drainageways are poorly defined, and streamflow in them is intermittent, generally once every few years.

The floodplain encroachments resulting from the proposed action: (1) would not pose a risk to human life; (2) would not lead to probable future property damage that could be of substantial cost or extent; (3) would not have a serious adverse impact on natural and beneficial floodplain values; and (4) would not result in a potential interruption of termination of service on a key transportation facility. For these reasons, they are not deemed significant.

Comment 2

If the Ohia Cave is to be bridged to allow the proposed highway to cross without damage to the cave and its content, why reinter the burials?

Response

Ohia Cave contains four known burials and other archaeological material in the vicinity of the highway corridor. Plans call for bridging the cave, and it is expected that the burials could be left in place. However, because of the burials' possible cultural significance to Native Hawaiians and area residents, the possibility exists that they may be moved to a point within the cave away from highway crossing or to an entirely new location outside the cave. A final decision regarding this matter will be made following procedures outlined in the Memorandum of Agreement between the State Historic Preservation Office, the National Advisory Council on Historic Preservation, and the County of Hawaii. The Final EIS does not contain specific references to the disposition of the burials.

Comment 3

According to the State of Hawaii Databook (1983), Mauna Kea is 13,796 feet and Hauna Loa is 13,677 feet.

Response

The elevations given for the two mountains have been corrected.

Corps of Engineers, Ft. Shafter
Page 4
February 19, 1988

Segment C-1, however, and Segment C-2 has been designated as part of the preferred alignment. Elimination of Segment C-2 from further consideration makes it possible to preserve all of the heiau.

The Memorandum of Agreement provides for decision-making relative to archaeological data recovery and salvage within Ohia Cave.

Comment 7

The EIS should discuss the reasons why the centerline of Segment C-1 cannot be adjusted to avoid Sites 37-3822 and 37-2078. Segment C-1 passes through a portion of the Kahalu'u Historic District which contains numerous heiau and other archaeological remains having significant cultural value. The relatively steep terrain imposes significant operational and construction constraints on the choice of feasible alignments. Engineering studies determined that the 100-foot wide right-of-way could not be fitted within this 300-foot wide corridor without destroying at least one of the heiau or compromising highway design standards.

Comment 8

Reference to the U.S. Army Corps of Engineers Flood Insurance Maps are incorrect. The Flood Insurance Maps are prepared by the Federal Insurance Administration.

Response

Appendix B consists of material that was handed out at a public meeting held on September 29, 1983 and cannot, therefore, be edited at this time. However, a note will be added noting the error. Please note that the text of the draft EIS correctly refers to the Federal Insurance Administration as the source of the Flood Insurance Rate Maps.

Your letter and this response will be included in the Final Environmental Impact Statement for All'i Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.



HUGH Y. OHU, P.E.
Chief Engineer

DH#:bq

cc: Belt, Lollins & Associates
Engineering Division

Corps of Engineers, Ft. Shafter
Page 3
February 19, 1988

Comment 4

The EIS is unclear whether the archaeological data recovery program involving intensive survey and salvage will be completed. Section 4.3.4.2 should be expanded to include the impact of easier access to an area previously isolated from direct impacts.

Response

A report summarizing the results of the archaeological data recovery program will be prepared and submitted to the appropriate agencies, including the National Advisory Council on Historic Preservation, the State Historic Preservation Officer, and the County of Hawaii. Section 4.3.4.3 has been revised to clarify this point. Possible indirect effects on preservation sites are discussed in Section 4.3.4.4.2 of the document.

Comment 5

The appropriate governmental agencies should be specified for the Planning Memorandum of Agreement.

Response

The parties to the Memorandum of Agreement have been added and included in this section of the Final EIS.

Comment 6

The "preservation sites" should be preserved even though some of the alignment routes will be impacted. Although the cave can be spanned, there should be data recovery/salvage in case of accidental collapse. Richness of the cave has been demonstrated by archaeological research in Ohia Cave by Rosendahl.

Response

All of the sites which the archaeological survey identified as having high cultural value will be preserved. As stated in Section 4.3.4.4.1, page IV-57 of the Draft EIS, four of the five sites recommended for preservation lie very close to the intersection of Segment C-1, Segment C-2, and Segment D. Engineering studies showed that Segments C-1 and D could be constructed without destroying any sites recommended for preservation; satisfactory highway geometrics could not be achieved using



DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SUPPORT COMMAND, HAWAII
DUNNING HALL
FORT SHAFTER, HAWAII 96858

REPLY TO
ATTENTION OF:

Directorate of Facilities Engineering

OCT 1 8 1984

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COPY

February 15, 1968

DIRECTOR OF FACILITIES ENGINEERING
CORPS OF ENGINEERS
DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SUPPORT COMMAND HAWAII
DUNNING HALL
FORT SHAFTER HI 96858

Mr. H. Kusumoto
Division Administrator
US Department of Transportation
Federal Highway Administration
Box 50206
Honolulu, Hawaii 96850

SUBJECT: AII'I HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAUHOU, ISLAND OF HAWAII

Dear Mr. Kusumoto:

The Draft Environmental Impact Statement (EIS) and Section 4 (f) Statement for the AII'I Highway Project, Kailua-Keolu, County of Hawaii, State of Hawaii has been reviewed and we have no comments to offer. There are no Army Installations or activities in the vicinity of the proposed project.

Thank you for the opportunity to comment on the Draft EIS.

Sincerely,


Ronald A. Borrello
Colonel, Corps of Engineers
Director of Facilities Engineering

This is in response to your letter of October 16, 1964 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the final Environmental Impact Statement for AII'I Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.



Hudd V. UKO, P.E.
Chief Engineer

DHM:baq

cc: Bell, Collins & Assoc.
Engineering Div.



HEADQUARTERS
NAVAL BASE PEARL HARBOR
PEARL HARBOR, HAWAII 96860

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COPY

February 19, 1984

IN REPLY REFER TO:

9510
SER 002B/1987

03 OCT 1984

Mr. H. Kusumoto
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
Box 50206
Honolulu, HI 96850

FACILITIES ENGINEER
HEADQUARTERS NAVAL BASE PEARL HARBOR
P O BOX 116
PEARL HARBOR HI 96860

Dear Mr. Kusumoto:

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAHOU, ISLAND OF HAWAII

Draft EIS/4(E) Statement
HMA-HI-EIS-01-D Alii Highway Project, Kailua-
Kona and Keahou, County of Hawaii, Hawaii

The subject Draft EIS forwarded by your ltr HMA-HI (undated) has
been reviewed and we have no comments to offer.

This is in response to your letter of October 3, 1984 regarding the Draft
Environmental Impact Statement for the above project. Thank you for your
comments.

Accordingly, the Draft EIS is returned for your files.

Sincerely,

Hugh V. Oud

H. J. RINNERT
CAPTAIN, CEC, U. S. NAVY
FACILITIES ENGINEER

BY DIRECTION OF THE COMMANDER

Enclosure

Hugh V. Oud

HUGH V. OUD, P.E.
Chief Engineer

DWH:baq

cc: Walt Collins & Assoc.
Engineering Div.



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
Western Pacific Program Office
P. O. Box 3830
Honolulu, Hawaii 96812

October 29, 1984 V/SWR1:JJN

U.S. Department of Transportation
Federal Highway Administration
Region Nine
Hawaii Division
Box 50206
Honolulu, HI 96850

Gentlemen:

Subject: Draft EIS and Section 4(f) Statement, Alii Highway Project, Kailua-Kaunohou, County of Hawaii, State of Hawaii.

The National Marine Fisheries Service (NMFS) has reviewed the subject DEIS for the Alii Highway Project, Kailua-Kaunohou, County of Hawaii, State of Hawaii.

The proposed action described in the DEIS should not affect resources for which NMFS has a responsibility. Therefore, we have no comments.

Sincerely yours,

Doyle E. Gates
Doyle E. Gates
Administrator

cc: F/SWR, Terminal Is., CA
F/H4, Washington, D.C.

COPY.

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 98710

February 19, 1984

MR DOYLE E GATES ADMINISTRATOR
NATIONAL MARINE FISHERIES SERVICE SOUTHWEST REGION
WESTERN PACIFIC PROGRAM OFFICE
U S DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
P O BOX 3830
HONOLULU HI 96812

SUBJECT: ALII HIGHWAY (FAS ROUTE 167)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KOHA TO KEAHOHU, ISLAND OF HAWAII

This is in response to your letter of October 29, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the final environmental Impact Statement for Alii Highway. The Federal Highway Administration will send you a copy of the FDIS after it is accepted by the Governor and the Federal Highway Administration.

M. Y. Liao

MESH Y. LIAO, P.E.
Chief Engineer

DHM:bdq

cc: Belt, Collins & Assoc.
Engineering Div.



United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
P.O. Box 50166
Honolulu, Hawaii 96850

October 5, 1984

H. Kusumoto
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
Regional Nine
Hawaii Division
P.O. Box 50206
Honolulu, Hawaii 96850

Dear Mr. Kusumoto:

Subject: Draft EIS/4(E) Statement, FHWA-HI-BIS-84-01-D
Alli Highway Project, Kailua-Keahou, County of
Hawaii, State of Hawaii

The Hawaii District Office of the U.S. Geological Survey, Water Resources
Division, has reviewed the above draft environmental impact statement and
has no comments to offer at this time.

We appreciate the opportunity to review the subject document and returning
it for your future use.

If we can be of further service, please don't hesitate and call on us again.

Sincerely,

W. A. Davis
W. A. Davis
Acting District Chief

Enclosure

COPY

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

February 19, 1988

DISTRICT CHIEF
WATER RESOURCES DIVISION
GEOLOGICAL SURVEY
U.S. DEPARTMENT OF THE INTERIOR
P.O. BOX 50166
HONOLULU HI 96850

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 167)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KEAHOA TO KEAHOA, ISLAND OF HAWAII

This is in response to your letter of October 5, 1984 regarding the draft
Environmental Impact Statement for the above project. Thank you for your
comments.

Your letter and this response will be included in the final Environmental
Impact Statement for Ali'i Highway. The Federal Highway Administration
will send you a copy of the EIS after it is accepted by the Governor and
the Federal Highway Administration.

M. Y. Lewis

M. Y. Lewis, P.E.
Chief Engineer

UW:tbq

cc: Belt, Collins & Assoc.
Engineering Div.



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

DEC 7 1984

In Reply Refer To
ER 84/1277 (WR-RPE)

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Mr. R. Kusumoto
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
Prince Kuhio Federal Building
Room 4119
P. O. Box 50206
Honolulu, Hawaii 96850

Dear Mr. Kusumoto:

This is in response to the request for the Department of the Interior's comments on the Draft Environmental Impact Section 4(f) Statement for the Alii Highway (Kailua - Keaunoh) Hawaii County, Hawaii.

SECTION 4(f) COMMENTS

The draft statement does not discuss the impacts of ongoing development, presently permitted by existing land use plans, on historical resources, nor does it address potential impacts of future development on these resources. We consider this especially important since the proposed project is justified on the basis of providing relief for traffic congestion generated by ongoing development, and of removing the constraints such congestion would have on the desirability of the area for future development. We also believe that development and transportation improvements on this section of Hawaii's coast are closely interrelated and that their cumulative impacts on historical resources should be addressed in the Section 4(f) evaluation.

The draft statement acknowledges that the existing Alii Drive and Kuakini Highway provide adequate traffic capacity through the Kailua-Keaunoh corridor for the moment. Consequently, we do not concur at this time that there are no feasible and prudent alternatives to the use of land within the Kona Field System and the Kahalua Historic District, or from the Great Wall of Kuakini.

Since continued development, made possible by improved transportation systems, is likely to result in the gradual disintegration of the involved historical resources -- all of which represent an extremely unique aspect of Hawaiian history and prehistory, we strongly urge that the Federal Highway Administration and the project sponsors (the State of Hawaii and the County of Hawaii) develop an integrated historic preservation plan for this area and use such a plan as the basis for a

ER 84/1277

supplemental Section 4(f) evaluation. Until this is done, we find that the No Action/Delayed Action alternative is a feasible and prudent alternative and accordingly recommend its selection for implementation. We would be pleased to reconsider this recommendation upon review of an integrated historic preservation plan, as suggested above.

In the meantime, and as an aid in developing such a plan, we recommend that final highway alignments avoid all significant historic sites to the fullest extent possible. The draft document treats historic sites as if salvage will suffice to mitigate adverse impacts to them. We do not agree with this approach because many of the sites and properties have significant in-situ values.

Sufficient flexibility exists within the various project corridors to avoid most, if not all, significant sites, and sufficient design level planning should be undertaken to assure that this is accomplished. In addition to preserving historic sites, these avoidance alignments will result in reduced costs for development and conduct of any data recovery activities which may be necessary.

Where alignments avoid, but pass close to historic sites, stabilization studies should be conducted and measures implemented to mitigate adverse effects of vibration and potential increased visitor activity. Cooperative efforts should be undertaken with private landowners wherever necessary to insure that increased accessibility does not reduce the physical integrity of historic sites.

Figure II-5 portrays proposed and existing connector roads, involving either new construction or upgraded or widened roadways. The effects of these connector roads on cultural resources should be addressed also since such roads and any improvements to them are directly interrelated to the proposed action.

The concerns of the local community of native Hawaiians with traditional ties to the area should be addressed regarding historic burials or cultural values that may be affected by project implementation. We recommend that an effort be made to determine whether local knowledge exists regarding historic sites with associative cultural values. These concerns should be incorporated into the selection of project alternatives and the development of adequate procedures for burial treatment and other mitigation measures.

ENVIRONMENTAL STATEMENT COMMENTS

The draft statement adequately addresses impacts to natural resources of concern to this Department.



DEPARTMENT OF PUBLIC WORKS

COURTYARD OF HAWAII - 23 ALUAKAI STREET - HONOOLULU, HAWAII 96813 - TELEPHONE (808) 551-8321

February 19, 1988

DIRECTOR ENVIRONMENTAL PROJECT REVIEW
U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON D.C. 20240

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAUHOU, ISLAND OF HAWAII

This is in response to your letter of December 7, 1984 (ER 84/1277 (NR-RPE) regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments. Following are responses to your comments in the order they appear in your letter.

Comment 1

The draft statement does not discuss the impacts of ongoing development, presently permitted by existing land use plans, on historical resources, nor does it address potential impacts of future development on these resources. We consider this especially important since the proposed project is justified on the basis of providing relief for traffic congestion created by on-going development, and of removing the constraints such congestion would have on the desirability of the area for future development. We also believe that development and transportation improvements on this section of Hawaii's coast are closely interrelated and that their cumulative impacts on historical resources should be addressed in the 4(f) evaluation.

Response

The authors of the DEIS believed that adverse impacts on historic resources are implicit in the discussions of ongoing development under the "No-Project" alternative contained in the DEIS. However, Section 4.3.5.1.1 has been revised to make this more explicit. (see attached New Text)

ER 84/1277

ENDANGERED SPECIES COMMENTS

Although the Hawaiian hoary bat, a listed endangered species, may exist in the area under consideration, the U.S. Fish and Wildlife Service advises that it concurs with the determination that the action will not adversely affect that species or its habitat. No further compliance with Section 7 of the Endangered Species Act is required, unless project plans are significantly changed.

SUPPLEMENTARY COMMENTS

The Department of the Interior objects to Section 4(f) approval of this project at this time. We would be willing to reconsider this position after review of the overall historic preservation plan we recommend above, along with any supplementary Section 4(f) material that may be prepared.

For technical assistance about matters pertaining to cultural resources and Section 4(f), please contact the Regional Director, Western Region, National Park Service, 450 Golden Gate Avenue, P.O. Box 36063, San Francisco, California 94102 (telephone: FTS 556-4196 or (415) 556-4196).

Thank you for the opportunity to provide these comments.

Sincerely,

Bruce Blanchard
Bruce Blanchard, Director
Environmental Project Review

cc

It is important to note that both of these alternatives involve a high degree of urban development within the corridor served by the proposed Ali'i Highway. Given the large investments that property owners have in the land, the extent to which land use approvals have already progressed, and the strength of the market for residential and visitor-related land uses, it is not realistic to believe that withholding federal funds will lead to the abandonment of private development plans in the Ali'i Highway corridor.

Compared to the "with-project" alternatives, Scenario 1, the "No Project" alternative, would result in high land development costs, greater congestion on Ali'i Drive and Kuakini Highway, and an overall decrease in transportation efficiency and the attractiveness of the area. Together, these will lower the overall quality of development within the corridor. They could even result in some landowners abandoning their development plans, but the absence of economically viable alternative uses for their property will lead most owners to choose to implement their plans even without the benefit of the proposed new highway.

In Scenario 2, the County would provide the improvements without the benefit of federal matching funds. Instead, local property owners and other taxpayers would be called upon to bear the full costs of the endeavor. Again, the higher taxes might prevent some development, but the marginal costs are relatively small compared to total development costs. Hence, the majority of the secondary growth expected if the proposed federal aid highway is constructed would still occur.

For the reasons outlined above, it is very unlikely that the "No Project" alternative would be accompanied by substantially less development of the area between Ali'i Drive and Kuakini Highway. Consequently, it would not substantially increase the protection afforded archaeological sites within the Kaha'u'u Historic District or the Kona Field System Historic District. In fact, to the extent that the archaeological work carried out under the Memorandum of Agreement that has been signed by the FHMA, the Advisory Council on Historic Preservation, and the State Historic Preservation Officer provides a comprehensive framework for analyzing and interpreting the archaeological remains, the Ali'i Highway project may promote many of the historic values the Districts were created to protect.

The important point here is not that urbanization does not constitute a threat to the Kona Field System and Kaha'u'u Historic Districts; clearly it does. Rather, it is that the threat is largely independent of the

However, the FHMA respectfully disagrees with your contention that further development within the region is closely related to transportation improvements such as the proposed federal aid highway. While portions of the existing road network are already congested at peak hours, the congestion has not reached the point where it would preclude further development. To the contrary, the available evidence indicates that the majority of the properties that are within the Historic Districts and are served by the proposed highway will be developed even if federal aid does not become available for the project.

New text (1)-Section 4.4.2.1 and Section 4.3.5.1.1

At the present time, Ali'i Drive and Kuakini Highway provide adequate capacity through the Kailua-Kona to Keanohu corridor. Hence, if no further growth were expected in the region, "No Action" would be a viable alternative to the proposed project. Such a moratorium on further growth is considered highly unlikely, however. On the contrary, both State and County land use plans call for urbanization of the great majority of the land between Kuakini Highway and Ali'i Drive.

If the current Federal Aid project is not implemented, two fundamentally different development scenarios are possible:

Scenario 1 - A roadway alignment is selected but the County does not construct the project. Instead, it creates a roadway reserve and places conditions on future subdivision, zoning, and other land use approvals for private land traversed by the alignment. These conditions would require each developer to construct the highway improvements within its parcel and to dedicate them to the County in return for development approval. Under this scenario, roadway segments are constructed only as rapidly as the adjacent properties are developed, and there is no guarantee that the segments will ultimately be linked to form a through-road. Until they are, each parcel continues to rely upon Ali'i Drive and/or Kuakini Highway for access.

Scenario 2 - A roadway alignment is selected, and the County proceeds with the project without Federal assistance, i.e., using only local funds. Under this scenario, the cost of the proposed land acquisition and highway improvements are borne solely by local government. A variety of methods (e.g., improvement districts, reimbursement upon development approval, etc.) are used to help offset part or all of the costs.

U S Department of the Interior
Page 5
February 19, 1988

and accordingly recommend its selection for implementation. We would be pleased to reconsider this recommendation upon review of an integrated historic preservation plan, as suggested above.

In the meantime, and as an aid in developing such a plan, we recommend that final highway alignments should avoid all significant historic sites to the fullest extent possible. The draft document treats historic sites as if salvage will suffice to mitigate adverse impacts on them. We do not agree with this approach because many of the sites have significant in-situ values.

Response

As previously noted (and explained in detail in the discussion that has been added to Sections 4.3.5.1 of the FEIS and Section 4.4.2.1 of the revised Section 4(f) Statement, most of the area served by the Ali'i Highway will be developed even if the federal aid highway is not constructed. Under Scenario 1 (see Section 4.3.5.1) for example, the level of service provided by the transportation network will be much worse unless and until the roads constructed within individual subdivisions are linked together; under Scenario 2 (construction without federal aid), the absence of federal participation might lead to even less protection of historic resources, and it is certain that the cost to the local community will be greater. These consequences are believed to be severe in view of the negligible preservation benefits that would be afforded.

Your desire for a comprehensive treatment of the resources of the two historic districts is understandable. However, we question whether or not review of plans for the Ali'i Highway project is a suitable venue for such an undertaking. In view of the fact that the Ali'i Highway project would increase the development pressure on lands within the two historic districts only marginally if at all, the FIMA believes it is inappropriate to make federal aid for the project contingent upon implementation of a comprehensive historic preservation plan for them.

With respect to this issue, several points are worth noting. First, neither of the historic preservation agencies involved (the Advisory Council on Historic Preservation and the State Historic Preservation Officer) nor the Department of the Interior has made any prior efforts to develop district-wide preservation plans, despite the fact that both the Historic Districts have been on the National Register for over a decade.

U S Department of the Interior
Page 4
February 19, 1988

Ali'i Highway project. In view of this, the FIMA believes it would be a grave mistake to believe that potential adverse impacts on the historic resources could be avoided or even significantly mitigated by withholding federal aid funds for the Ali'i Highway project.

Comment 2

The draft statement acknowledges that the existing Ali'i Drive and Kuakini Highway provide adequate traffic capacity through the Kailua-Keolu corridor for the moment. Consequently, we do not concur at this time that there is no feasible and prudent alternative to the use of land within the Kona Field System and the Kahalua (sic) Historic District, or from the Great Wall of Kuakini.

Response

The DEIS does indeed acknowledge that the roadway capacity through the corridor is adequate for the present. However, it also acknowledges that traffic congestion will continue to increase resulting in deteriorating traffic levels. Table 1-4 indicates that traffic conditions on roadway segment H will reach level of service E as early as 1985. It is, therefore, conceivable that conditions may reach level of service F before construction is completed on the proposed highway. Prudent planning would acknowledge the steady increase in traffic congestion documented along the corridor and would respond with timely infrastructure improvements to correspond with continuing population growth in the area. The purpose of transportation and land use planning is to foresee trends and formulate appropriate responses before they result in unmanageable problems. While the comment states that there are "feasible and prudent alternatives" to the proposed Ali'i Highway project, no specific suggestions are given. FIMA believes that none exist.

Comment 3

Since continued development, made possible by improved transportation systems, is likely to result in the gradual disintegration of the involved historical resources - all of which represent an extremely unique aspect of Hawaiian history and prehistory, we strongly urge the Federal Highway Administration and the project sponsors (the State of Hawaii and the County of Hawaii) to develop an integrated historic preservation plan for this area and use such a plan as the basis for a supplemental Section 4(f) evaluation. Until this is done, we find the No Action/Delayed Action alternative is a feasible and prudent alternative

U S Department of the Interior
Page 6
February 19, 1988

Second, the County of Hawaii has developed a draft cultural resources management plan which provides a framework for decision-making regarding historic resources, but it has not yet taken specific steps relative to the two historic districts traversed by the proposed highway. Finally, the MOA for the project provides for the consideration of historic values in land use planning for the region by requiring that:

The County of Hawaii Planning Department shall insure that all future land use planning and development proximal to, and/or related to, the Ahihi Highway shall be coordinated with the State Historic Preservation Officer.

In suggesting that final highway alignments avoid all significant sites to the fullest extent possible (emphasis added), the comment simply reiterates a point used as a guiding precept in formulating the set of alternatives shown in the DEIS. However, as stated in the DEIS, the density of sites within the highway corridor is so great that it is impossible to avoid all of the quality sites that are present; hence the plan to undertake an extensive data recovery program as outlined in our proposed Memorandum of Agreement with the Advisory Council on Historic Preservation.

Finally, we cannot agree with your conclusion that "...many of the sites and properties have significant in-situ values. Both the National Register forms for the districts and the in-depth archaeological reconnaissance survey that was done for the Ahihi Highway project conclude that the vast majority of the sites present are valuable primarily for the information which they contain regarding aboriginal Hawaiian culture, i.e., for their scientific research value. The primary exception to this rule are the heiau and the Ohia Cave, and the recommended alignment preserves these.

Comment 4

Sufficient flexibility exists within the various project corridors to avoid most, if not all, significant sites, and sufficient design level planning should be undertaken to assure that this is accomplished. In addition to preserving historic sites, these avoidance alignments will result in reduced costs for development and conduct of any data recovery activities which may be necessary.

U S Department of the Interior
Page 7
February 19, 1988

Response

The comment does not make it clear what sites the Department of the Interior deems to be "significant". The FHWA believes that there are many sites within the corridor which have significant research potential. It is not possible to construct the proposed roadway without destroying a significant number of these sites (all those within the 100-foot wide right-of-way); hence, extensive archaeological data recovery and salvage will be carried out on these before construction begins. Moreover, the five sites within the right-of-way deemed to require preservation would be left intact and measures outlined in the revised FEIS/4(f) Statement taken to protect them.

Comment 5

Where alignments avoid, but pass close to historic sites, stabilization studies should be conducted and measures implemented to mitigate adverse effects of vibration and potential increased visitor activity. Cooperative efforts should be undertaken with private landowners wherever necessary to insure that increased accessibility does not reduce the physical integrity of historic sites.

Response

The requirement for stabilization studies has been added to the MOA for the project. In addition, the MOA now stipulates a process and assigns responsibility for formulation and implementation of measures needed to interpret, manage, and physically protect preserved sites.

Comment 6

Figure 11-5 portrays proposed and existing connector roads. Involving either new construction or upgraded or widened roadways. The effects of these connector roads on cultural resources should also be addressed since such roads and any improvements to them are directly interrelated to the proposed action.

Response

The connector road locations shown in Figure 11-56 are tentative and approximate. The roads will be constructed by private landowners as they

U S Department of the Interior
Page 8
February 19, 1988

develop the area, not with Federal, State, or County agencies. Development plans for the various parcels have not yet progressed to the point where connector road alignments are set, and it is therefore impossible to carry out detailed archaeological surveys at this time. However, the County of Hawaii has a comprehensive set of land use controls, and the MOA requires that all future development of the area served by the A111 Highway be coordinated with the State Historic Preservation Officer.

Comment 7

The concerns of the local community of native Hawaiians with traditional ties to the area should be addressed regarding historic burials or cultural values that may be affected by project implementation. We recommend that an effort be made to determine whether local knowledge exists regarding historic sites with associative cultural values. These concerns should be incorporated into the selection of project alternatives and the development of adequate procedures for burial treatment and other mitigation measures.

Persons and organizations from the local community of native Hawaiians were contacted during the course of project planning, and information obtained from these sources has been incorporated in the Final EIS. Procedures for the treatment of burials encountered during the course of construction have been developed in conjunction with the Hawaiian community as part of the Kuakini Highway project, which also passes through the Kona Field System Historic District. It is expected that similar procedures will be followed during construction of the A111 Highway.

Your letter and this response will be included in the Final Environmental Impact Statement for the A111 Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.



HUGH Y. OHNO, P.E.
Chief Engineer

DHM:bq

cc: Belt, Collins & Associates
Engineering Division



Commander (dpt)
Fourteenth Coast Guard District

Prince Kahanui
Federal Building
300 Ala Moana Blvd.
Honolulu, Hawaii 96850
Phone: (808) 546-2861

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COPY

11888
Serial No. 4/169
27 September 1984

February 12, 1986

Mr. H. Kusumoto
U.S. Department of Transportation
Federal Highway Administration
P.O. Box 59286
Honolulu, Hawaii 96859

Dear Mr. Kusumoto:
The Fourteenth Coast Guard District has reviewed the Draft EIS for the Alii Highway Project, Kailua-Keauhou, County of Hawaii and has no objection or constructive comments to offer at the present time.

Sincerely,

J. P. HILBRAND
Commander, U. S. Coast Guard
District Planning Officer
By direction of Commander,
Fourteenth Coast Guard District

Copy: Mr. Edward Harada, Department of Public Works, Hilo, HI.

DISTRICT PLANNING OFFICER
UNITED STATES COAST GUARD
300 ALA MOANA BLVD
HONOLULU HI 96850

SUBJECT: ALII HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KUHA TU KILAUHEU, ISLAND OF HAWAII

This is in response to your letter of September 27, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the Final Environmental Impact Statement for Alii Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.

HUGH T. UAU, F.E.
Chief Engineer

DHU:baq

cc: Belt, Collins & Assoc.
Engineering Div.



AIRPORTS DISTRICT OFFICE
P.O. BOX 50244
HONOLULU, HAWAII 96850
Telephone: (808)546-7129

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COPY

February 14, 1988

September 28, 1984

Mr. H. Kusumoto
Division Administrator
DOT, Federal Highway Admin.
Region Nine, Hawaii Division
P.O. Box 50206
Honolulu, Hawaii 96850

Dear Mr. Kusumoto:

Please refer to your letter (HDA-HI) transmitting the Draft EIS/4(f) Statement for the proposed construction of A111 Highway between Kailua-Kona and Keaouhou on the island of Hawaii.

We have no comments to offer and do not need a copy of the Final Environmental Impact 4(f) Statement.

Sincerely,

Daniel S. Matsumoto
DANIEL S. MATSUMOTO
Civil Engineer

Henry A. Sumida
Airports District Office Manager

AIRPORTS DISTRICT OFFICE
U S DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
P O BOX 50244
HONOLULU HI 96850

SUBJECT: A111 HIGHWAY (FAS HGALE 1b7)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAHOOU, ISLAND OF HAWAII

This is in response to your letter of September 28, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the Final Environmental Impact Statement for A111 highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.

Henry A. Sumida

HENRY A. SUMIDA, P.E.
Chief Engineer

DHS:dg

cc: Dr. H. Collins & Assoc.
Engineering Div.

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COPY

February 13, 1968

MR TEUANE TOMINAGA
STATE PUBLIC WORKS ENGINEER
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ACCOUNTING & GENERAL SERVICES
P O BOX 119
HONOLULU HI 96810

SUBJECT: ALI'I HIGHWAY (F&S ROUTE 107)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAHOE, ISLAND OF HAWAII

This is in response to your letter of October 16, 1964 regarding the draft environmental impact statement for the above project. Thank you for your comments.

Your letter and this response will be included in the final environmental impact statement for Ali'i Highway. The Federal Highway Administration will send you a copy of the EIS after it is accepted by the Governor and the Federal Highway Administration.

Teuane Tomimaga
Teuane Tomimaga
Chief Engineer

UH:tbq
cc: Felt, Collins & Assoc.
Engineering Div.

RECEIVED
FEB 19 1968
FELT, COLLINS & ASSOCIATES

Route to:	
Callahan, 1506-A	
Papandrew, P.	
White, P.	
Koyama, G.	
Kunimoto, E.	
Yoshitake, A.	
Brown, N.	
Miller, E.	
Hicks, P.	
The Job #121-222	

OCT 16 1964

Honorable Megumi Kon
Mayor
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

and

Mr. H. Kusumoto
Division Administrator
U. S. Department of Transportation
Federal Highway Administration
P. O. Box 50206
Honolulu, Hawaii 96850

Gentlemen:

Subject: Environmental Impact Statement
Ali'i Highway Project
Kailua-Keaheo, Hawaii

We have reviewed the subject document and have no comments to offer.


Very truly yours,
D. Tomimaga
TEUANE TOMINAGA
Acting State Public Works Engineer

RY:jnt 5-1
cc: Mr. Edward Harada
Felt, Collins & Associates

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COPY

February 19, 1984


JACK K. SUMA
CHAIRMAN, BOARD OF AGRICULTURE
SUZANNE D. PETERSON
DEPUTY TO THE CHAIRMAN

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814

Route for:	
Bell, J.	
Cain, P.	
Papandrews, J.	
White, P.	
Koyama, O.	
Kuniyoshi, E.	
Yoshitani, A.	
Brown, N.	
Fujita, K.	
Ishida, K.	
Wada, K.	
File Job #	111-0264

CHAIKIPAN
SUAKU OF AGRICULTURE
1420 SOUTH KING STREET
HONOLULU HI 96814

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 167)
ENVIRONMENTAL IMPACT STATEMENT
RAILUA-AUIA TU AKAHUOI, ISLAND OF HAWAII

Mr. H. Kusumoto
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
P. O. Box 50206
Honolulu, Hawaii 96850

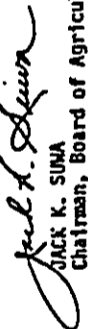
Dear Mr. Kusumoto:

Draft Environmental Impact Statement (EIS) and
Section 4(f) Statement RS-0187 (004) for Ali'i
Highway Project.

The Department of Agriculture has reviewed the subject draft
EIS and notes that our concerns are adequately addressed.

Thank you for the opportunity to comment.

Sincerely,


JACK K. SUMA
Chairman, Board of Agriculture

cc: Honorable Megumi Kon, County of Hawaii
Mr. Edward Harada, Department of Public Works
Belt, Collins & Associates

This is in response to your letter of November 16, 1984 regarding the
Draft Environmental Impact Statement for the above project. Thank you
for your comments.

Your letter and this response will be included in the final Environmental
Impact Statement for Ali'i Highway. The Federal Highway Administration
will send you a copy of the EIS after it is accepted by the Governor and
the Federal Highway Administration.



HUGH Y. UNO, P.E.
Chief Engineer

DHS:rq

cc: Belt, Collins & Assoc.
Engineering Div.

RECEIVED

FEB 19 1968

COLLINS & ASSOCIATES

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HONO. HAWAII 96720

COPY

February 19, 1968

State of Hawaii
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 Diamond Head Road
Honolulu, Hawaii 96816

HIENG

Mr. H. Kuumoto
Division Administrator
US Dept. of Transportation
Federal Hwy Administration
P. O. Box 50206
Honolulu, Hawaii 96850

Dear Mr. Kuumoto:

Alli Highway Project

Thank you for providing us the opportunity to review the proposed project,
"Alli Highway" Environmental Impact Statement (Draft).

We have completed our review and have no comments to offer at this time.

Yours truly,

JERRY M. MATSUDA
Major, HAWG
Contr & Engr Officer

cc: Mr. Edward Harada
County of Hawaii/Dept of Public Works
Belt, Collins and Associates
Env. Quality Control w/SIS

MR JERRY M MATSUDA
MAJOR HAWAII AIR NATIONAL GUARD
STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU HI 96816

SUBJECT: ALLI HIGHWAY (FAS NO. 107)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAHOU, ISLAND OF HAWAII

This is in response to your letter of October 1, 1967 regarding the draft
Environmental Impact Statement for the above project. Thank you for your
comments.

Your letter and this response will be included in the final environmental
Impact Statement for Alli Highway. The Federal Highway Administration
will send you a copy of the FEIS after it is accepted by the Governor and
the Federal Highway Administration.

Jerry M. Matsuda

Jerry M. Matsuda, P.E.
Chief Engineer

DWH:bq

cc: Lt. Collins & Assoc.
Engineering Div.



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
550 HALEKUANILUA STREET
ROOM 301
HONOLULU, HAWAII 96813

October 16, 1984

Mr. H. Kusumoto
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
P.O. Box 50206
Honolulu, Hawaii 96850

Dear Mr. Kusumoto:

Subject: Allii Highway Project EIS

The proposed Allii Highway will result in the destruction of a number of archaeological features. One of the most prominent is the Ohia Cave, over which the Highway will pass. Destruction of this lava tube will occur if a structural span to carry the weight of the road and vehicles proves unfeasible. Since this cave is not readily accessible to the general public, we would like to see a more detailed description than what is presently contained in the draft EIS.

Sincerely,

Letitia M. Uyebara

Letitia M. Uyebara
Director

cc: Megumi Kon, Mayor
Edward Marada, DPW-Hawaii

COPY

LETTER IN THE
MIDDLE
TELEPHONE #
548-0875

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

February 19, 1986

DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
550 HALEKUANILUA STREET ROOM 301
HONOLULU HI 96813

SUBJECT: ALLII HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAHOHU, ISLAND OF MAHUI

This is in response to your letter of October 16, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Studies conducted for the Environmental Impact Statement included an archaeological reconnaissance survey of the sections of the highway corridor not investigated during the 1973 Allii Drive realignment archaeological survey. A reconnaissance survey is a general inspection to determine the presence or absence and general nature of archaeological resources, to determine whether further archaeological work is necessary and to record data from those sites that do not warrant further investigation.

The Ohia Cave is unusual because the proposed roadway crosses over it. Engineering studies have now substantiated the feasibility of spanning the cave without damage to it or its contents.

Hugh Y. Ono

HUGH Y. ONO, P.E.
Chief Engineer

HW:bbq

cc: Lett, Collins & Assoc.
Engineering Div.



University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 203 - 2540 Dole Street
Honolulu, Hawaii 96822

11 October 1984

Mr. H. Kusumoto
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
P. O. Box 50206
Honolulu, Hawaii 96850

and
Mayor Megumi Kon
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Gentlemen:

SUBJECT: Draft Environmental Impact Statement, Aali Highway Project,
Kailua-Keshou, County of Hawaii, Project Number: HS-0187(00A)
September, 1984

We have reviewed the subject EIS and have no comment to offer. Thank you
for the opportunity to comment. This material was reviewed by NREG personnel.

Sincerely,

Edwin T. Murabayashi
Edwin T. Murabayashi
EIS Coordinator

ETH:jm

cc: E. Harada
Belt, Collins & Asso.

RECEIVED
OCT 17 1984

ETH, COLLINS & ASSOCIATES

Route to:	
Bell, J.	
Cahn, P.	
Papandrew	
White, P.	
Kojima, G.	
Kawachi, E.	
Yellack, A.	
Friess, N.	
Fisher, K.	
Harada, E.	
Hicks, J.	
File Job #	181-230

COPY

February 19, 1984

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

MR. EDWIN T. MURABAYASHI
WATER RESOURCES RESEARCH CENTER
HOLMES HALL 203
2540 DOLE STREET
HONOLULU HI 96822

SUBJECT: AALI HIGHWAY (AS ROUTE 107)
ENVIRONMENTAL IMPACT STATEMENT
KAIIUA-KAUA IUA ALAHIKA, ISLAND OF HAWAII

This is in response to your letter of October 11, 1984 regarding the
Draft Environmental Impact Statement for the above project. Thank you
for your comments.


Your letter and this response will be included in the Final Environmental
Impact Statement for Aali Highway. The Federal Highway Administration
will send you a copy of the EIS after it is accepted by the Governor and
the Federal Highway Administration.

Hugh Y. Uhu

HUGH Y. UHU, P.E.
Chief Engineer

UHU:bq

cc: Belt, Collins & Assoc.
Engineering Div.



 NOV 20 1984

 UNIVERSITY OF HAWAII

University of Hawaii at Manoa

Environmental Center
 Crawford 317 • 2550 Campus Road
 Honolulu, Hawaii 96822
 Telephone (808) 948-7301

November 19, 1984
 RE:0406

Route to:	
Beh, J.	
Chin, R.	
Papadimitriou, G.	
White, P.	
Koyama, G.	
Kawachi, T.	
Yoshida, A.	
Strom, N.	
Fisher, K.	
Harris, P.	
IFR Job #16	

Mr. H. Kusumoto
 Division Administrator
 U.S. Department of Transportation
 Federal Highway Administration
 P.O. Box 50206
 Honolulu, Hawaii 96850

Mayor Megumi Kon
 County of Hawaii
 25 Aupuni Street
 Hilo, Hawaii 96720

Dear Mr. Kusumoto and Mayor Kon:
 Draft Environmental Impact Statement
 AHI Highway Project
 Kailua-Keauhou, Hawaii

The proposed action is to construct approximately four miles of new highway between Kailua-Kona and Keauhou on the Island of Hawaii. The Environmental Center review of the above cited document has been prepared with the assistance of Charles Lamoureux, Botany; Matthew Spriggs, Anthropology; Jacquelin Miller and Pamela Bahrseit, Environmental Center.

One procedural problem with our review of this DEIS seems important to cite in hopes of avoiding a similar problem in the future. A note in the Appendices stated that the special studies...conducted for this DEIS are available on request from either the County of Hawaii, Department of Public Works, or the U.S. Department of Transportation. However, the studies were not available and it was only after one month of delays and the assistance of OEQC to locate copies for loan to us that we were able to review the more significant studies in detail.

Archaeology

The DEIS and the document titled, Archaeological Investigation of the AHI Drive Realignment Corridor, by Robert J. Hommon and Paul H. Rosendahl, September 1983, has not addressed the potential impacts to archaeological sites located in the various required drainage structures (see DEIS, IV.26). The drainage structures, while outside of

Mr. H. Kusumoto
 Mayor Megumi Kon

November 19, 1984

The project does not appear to take into account usage of the new Hawaii Belt Road which might relieve some of the traffic problems.

Studies have not been done to assess impacts to archaeological sites along the alignment of the proposed connector roads, Queen Kalama Avenue extension, Lako Street extension and a connector road mauka of Kahului Bay, which are indicated on the foldout map (Figure 11-5). These impacts should be addressed in the EIS.

Many references are given in the EIS to archaeological reports, but only two appear to be included in the "Selected Bibliography." All work cited in the text should be included in the bibliography.

On p. IV-54 of the DEIS, the information provided under the heading "Types of Effects" is misleading as is Table IV-12 (p. IV-51) because they refer only to sites recorded by Hommon and Rosendahl's survey of parts of the highway corridor. The DEIS states that, "Construction of the proposed highway would involve the physical destruction of numerous archaeological features as described in previous sub-sections. The precise number will depend upon the exact location of the right-of-way that is selected. However, it is clear that it would amount to less than half the number listed in Table IV-12* (emphasis added). Examination of Table 4 (p. 47), in Hommon and Rosendahl's 1983 report, shows that numerous sites recorded in previous surveys will also be impacted, more than doubling the number of sites recorded by Hommon and Rosendahl in Table IV-12 (DEIS, p. IV-51). It is therefore inaccurate to suggest that physical destruction will amount to less than half the number of sites listed in Table IV-12. A table showing all sites which would be affected by construction should be included in the DEIS.

Clearly alignment alternative C-2 must be chosen to avoid destroying culturally significant sites; there appears to be less impact to archaeological sites if alternative A-1 is chosen over A-2 but salvage excavation would be adequate to mitigate any adverse effects in A-1 or A-2.

No consideration is given to the potential for significant indirect adverse impacts to archaeological sites caused by the opening up of this inaccessible area by road construction. It is anticipated that residential and/or commercial developments will occur along the new road. Discussion of mitigation measures, such as further surveys both mauka and makai of the road alignment should be discussed in the EIS and Memorandum of Agreement.

We strongly suggest that the Memorandum of Agreement be reviewed and evaluated by OEQC and the Society of Hawaiian Archaeology or Bishop Museum prior to its acceptance and inclusion in the DEIS.

Mr. H. Kusumoto
Mayor Megumi Kon

-3-

November 19, 1984

Flora and Fauna

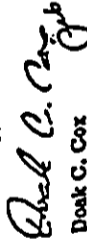
The survey conducted by Earthwatch, Environmental Resource Investigators appears to be more than adequate. The flora and fauna in the area is almost totally introduced and weedy. There would not, therefore, appear to be any significant biological impacts resulting from the proposed project.

There are a couple of minor technical corrections which, while not affecting the overall adequacy of the botanical report, are offered in the interests of accuracy:

- 1) On p. 18, the fern Nephrolepis exaltata is indigenous (I) not exotic (X). However, it is quite likely that the fern actually found in this area is not Nephrolepis exaltata but Nephrolepis multiflora, which really is an exotic species.
- 2) On p. 20, the plant which has been considered an endemic species, Portulaca cyanosperma, has been recently shown to be an exotic weed, Portulaca pilosa. Thus, there is really only one endemic plant on the list, Capparis sandwichiensis.

We appreciate the opportunity to comment on this DEIS and hope you will find our comments useful in the preparation of the revised document.

Yours truly,


Doak C. Cox
Director

cc:

ORQC
Edward Harada, County of Hawaii
Belt, Collins & Associates
Charles Lamoureux
Matthew Spriggs
Jacquelin Miller
Pamela Bahrsten



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 ALPINE STREET - HONOLULU, HAWAII 96820 - TELEPHONE (808) 947-1321

CHUCK R. CAMPBELL
Mayor
MELVIN T. OHNO
Chief Engineer
MURIEL C. MACLELLAN
Deputy Chief Engineer

February 19, 1988

DIRECTOR ENVIRONMENTAL CENTER
UNIVERSITY OF HAWAII AT MANOA
CRAWFORD 317
2550 CAMPUS ROAD
HONOLULU HI 96822

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAHOU, ISLAND OF HAWAII

This is in response to your letter of November 19, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments. Following are responses to your comments in the order they appear in your letter.

Comment 1

The DEIS and the document titled, Archaeological Investigation of the Ali'i Drive Realignment Corridor, by Robert J. Honoman and Paul H. Rosendahl, September 1983, has not addressed the potential impacts to archaeological sites located in the various required drainage structure (see DEIS, IV:26). The drainage structures, while outside of the immediate highway corridor may well significantly affect archaeological sites.

Response

As shown in Figure IV-6, the Ali'i Highway corridor (containing all alternate alignments) crosses four major drainageways identified by the National Flood Insurance Program as areas of 100-year floods. Drainage improvements associated with construction of the highway are intended to alleviate flooding conditions related to the drainageways. Figure IV-5 identifies the proposed improvements. All of the proposed drainage culverts lie within the 300-foot wide highway right-of-way covered by Honoman and Rosendahl's report. The proposed drainage channel located in

Environmental Center, UH
Page 2
February 19, 1988

drainage basin 9 (Figure IV-5) is a County project that is already in the design state; it is not a part of the Ali'i Highway project. Finally, the two future drainage channels located in basins 4 and 14 respectively, will be constructed by private developers independently of the Ali'i Highway project.

Comment 2

The project does not appear to take into account usage of the new Hawaii Belt Road which might relieve some of the traffic problems.

Response

Although outside of the area directly impacted by the proposed highway project, the Hawaii Belt Road is recognized as being a component of the overall traffic circulation pattern for the Keahou-Kona area. Existing and future traffic volumes on Ali'i Drive without the proposed project are identified in Figure I-4; the figure also contains traffic volume projections for the Hawaii Belt Road. As the data shows, even with the Belt Road serving as a 'reliever', traffic volumes on Ali'i Drive are expected to nearly double within 20 years.

Comment 3

Studies have not been done to assess impacts to archaeological sites along the alignment of the proposed connector roads, Queen Kalama Avenue extension, Lako Street extension and a connector road mauka of Kahului Bay, which are indicated on the foldout map (Figure 11-5)(sic). These impacts should be addressed in the EIS.

Response

While shown in Figure 11-5 for identification purposes, connector roads are not specific components of the proposed highway project. The Queen Kalama Avenue and Lako Street extensions, as well as other connector roads are projected by the County to be constructed at some future date as part of proposed residential developments. The exact location and actual construction of these roads is dependent upon the initiative of private developers. For this reason, they are not addressed in the EIS. The impacts of future connector roads upon archaeological sites will be properly addressed at the time their specific alignments have been determined and a development schedule has been proposed.

Environmental Center, UH
Page 4
February 19, 1988

Rosendahl and included in their 1983 report; 55 were identified as being either completely or partially destroyed; 38 were found to be located outside of the present corridor boundaries; 11 have been previously archaeologically excavated; and 3 were reported as "void" in the 1973 report.

The remaining 132 archaeological features identified by Ching in 1973 and briefly surveyed by Hommon and Rosendahl in 1983 have been identified as "intact sites and features included in present corridors" (Hommon and Rosendahl, 1983) and should have been included in Table IV-12. Table IV-12 in the EIS text has been revised to include these features. However, to maintain the integrity of the two studies, the features have been listed separately.

Comment 6

Clearly alignment alternative C-2 must be chosen to avoid destroying culturally significant sites; there appears to be less impact to archaeological sites if alternative A-1 is chosen over A-2 but salvage excavation would be adequate to mitigate any adverse effects in A-1 or A-2.

Response

As discussed in the FEIS, the recommended route for the proposed All' Highway consists of Segments A-2, B, C-2 and D. The route allows for preservation of significant archaeological sites while fully accommodating engineering and design considerations.

Comment 7

No consideration is given to the potential for significant indirect adverse impacts to archaeological sites caused by the opening up of this inaccessible area by road construction. It is anticipated that residential and/or commercial developments will occur along the new road. Discussion of mitigation measures, such as further surveys both mauka and makai of the road alignment should be discussed in the EIS and Memorandum of Agreement.

Environmental Center, UH
Page 3
February 19, 1988

Comment 4

Many references are given in the EIS to archaeological reports, but only two appear to be included in the "Selected Bibliography." All work cited in the text should be included in the bibliography.

Response

The comment is well taken and the appropriate corrections have been made to the Selected Bibliography.

Comment 5

On page IV-54 of the DEIS, the information provided under the heading "Types of Effects" is misleading as is Table IV-12(p. IV-51) because they refer only to sites recorded by Hommon and Rosendahl's survey of parts of the highway corridor. The DEIS states that, "Construction of the proposed highway would involve the physical destruction of numerous archaeological features as described in previous subsections. The precise number will depend upon the exact location of the right-of-way that is selected. However, it is clear that it would amount to less than half the number listed in Table IV-12" (emphasis added). Examination of Table 4 (p. 47), in Hommon and Rosendahl's 1983 report, shows that numerous sites recorded in previous surveys will also be impacted, more than doubling the number of sites recorded by Hommon and Rosendahl in Table IV-12 (DEIS, p. IV-51). It is therefore inaccurate to suggest that physical destruction will amount to less than half the number of sites listed in Table IV-12. A table showing all sites which would be affected by construction should be included in the FEIS.

Response

The 1983 study by Hommon and Rosendahl focused primarily upon those alternate segments of the proposed highway which were previously unsurveyed. A major portion of the alignment originally identified in the 1971 General Plan was extensively surveyed in 1973 by Ching et al. These sites were located during the 1983 study, but as your letter noted, were not specifically identified in Table IV-12.

The Ching study identified 281 archaeological features in the study area. Of those features, 43 were surveyed in detail by Hommon and

Environmental Center, UH
Page 5
February 19, 1988

Response

As discussed in Section 2.2.1 of the FEIS, the Keauhou-Kona region is identified as a residential and commercial growth area in the County General Plan, Regional Development Plan, and on existing Zoning Maps. Urbanization of the region is projected with or without approval of the proposed project. Extensive archaeological surveys have been conducted within a 300-foot right-of-way for each of the alternate routes contained in the proposed highway corridor. Archaeological sites outside of the study area will inevitably be impacted by new residential and commercial developments. Mitigation measures designed to reduce adverse impacts on these sites would most appropriately be addressed on a project by project basis at the time specific development is proposed.

New text: - Section 4.3.5.2.3

Subsequently, a Memorandum of Agreement (MOA) between the State Historic Preservation Officer, the Advisory Council on Historic Preservation, the Federal Highway Administration, and the County of Hawaii has been concluded and is included in this document (see Appendix D). The MOA is consistent with the principles and guidelines contained in Parts I and III of the National Advisory Council on Historic Preservation handbook entitled Treatment of Archaeological Properties, and with other guidance provided by Federal and State regulations. The MOA establishes specific procedures for Intensive Survey, Data Recovery and In-Place Preservation, as well as a comprehensive mitigation program. The MOA provides detailed guidance to project planners and engineers as well as assurance to concerned citizens that the area's rich historic resources will be protected.

Comment 8

We strongly suggest that the Memorandum of Agreement be reviewed and evaluated by OEQC and the Society of Hawaiian Archaeology or Bishop Museum prior to its acceptance and inclusion in the FEIS.

Response

Federal review procedures call for review of the draft MOA by agencies directly involved in the negotiation process. In this case, the process participants included the Federal Highway Administration, the County of

Environmental Center, UH
Page 6
February 19, 1988

Hawaii, the State Historic Sites Office and the Advisory Council for Historic Preservation. The MOA as approved by these agencies appears in Appendix D of the FEIS. While it would be inappropriate for a private contractor such as the Bishop Museum to be involved in the review process, we will be pleased to transmit a copy of the MOA to the Society of Hawaiian Archaeology.

Comment 9

There are a couple of minor technical corrections which, while not affecting the overall adequacy of the botanical report, are offered in the interests of accuracy.

Response

The corrections are noted and have been made to the final text (p. IV-39)

Your letter and this response will be included in the Final Environmental Impact Statement for Aiea Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.



HUGH Y. OMO, P.E.
Chief Engineer

DHM:bq

cc: Belt, Collins & Associates
Engineering Division

RECEIVED

DEC 5 1986

BEL, COLLINS & ASSOCIATES

COPY

Route 101	
Ball, J.	
Papandrew, I.	
Cain, Z.	
White, P.	
Royama, G.	
Kuniyoshi, E.	
Yoshitani, A.	
Brown, N.	
Murphy, A.	
Yenching, C.	
Uyechi, K.	
Z. Ed. J. Iida	
Library	



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
140 SOUTH KING STREET, SUITE 140
HONOLULU, HAWAII 96813
1-808-548-2000

December 2, 1986

Mr. H. Kusumoto
Division Administrator
U.S. Dept. of Transportation
Federal Highways Administration
P.O. Box 50706
Honolulu, HI. 96850

Dear Mr. Kusumoto:

SUBJECT: Draft EIS, All'i'i Drive Realignment, Kailua-Kona, Hawai'i

Thank you for the opportunity to comment on the Draft EIS of the proposed All'i'i Drive Realignment in Kailua-Kona. Our office has reviewed the Draft EIS, and we have discussed the project with your consultants at Belt, Collins and Associates at a meeting held in our office in July. We have the following comments to make:

We recommend that a complete, comprehensive archaeological survey be conducted in the project area, and that ten copies of the survey report be sent to our office for review and comment. So far, only two preliminary reconnaissance archaeological surveys have been conducted for this project, and neither report has been sent to our office for our use or review.

The variety and quality of the Hawaiian ruins in the Kailua-Kona area is impressive, and the interpretive and spiritual values associated with these sites should not be ignored. The sites that will be destroyed by the highway project have heritage value as an exhibit, in place, for public enjoyment and inspiration. The preparation of a scientific data recovery plan will only partially ameliorate the loss of the sites.

For instance, the project area contains impressive house sites, once the homes of ali'i (ruling chiefs). Such sites are not abundant today, and we ask that these be preserved as a part of the highway project. There are interesting agricultural fields, the same fields for which the Kona Field System was determined eligible for the National Register. These farming sites have interpretive and cultural values, too; and the preservation of a sample of such areas should be considered.

Mr. H. Kusumoto
December 2, 1986
Page 2

The supporting documentation for the EIS should provide a clear justification for the preservation of the sites. The Draft EIS proposes to preserve four heiau (temple) sites and one burial cave; these however, are not the only religious sites and burial sites in the area.

We recommend that arrangements be made for the Office of Hawaiian Affairs to visit the sites in the project area. The archaeological resources in the Kailua-Kona area are particularly dense in relation to other areas in Hawaii, and their association with the ali'i is an important consideration. The discussion of these resources in the Draft EIS is concise and well written; but it is also abbreviated. In order to conduct a reasonable review and evaluation of the plans for historic preservation on this project, it is important to make a field inspection of the sites in the project area.

The proposed Memorandum of Agreement with the Advisory Council on Historic Preservation should include a complete inventory and description of the sites which are determined eligible for the National Register and which will be affected by the project. Further, it should include a research design and a data recovery plan. A cultural resources management plan for the sites to be preserved should also be included and it should specify the disposition of all data and artifacts to be collected by the project. We recommend also that it include provisions for public visitation while archaeological fieldwork is in progress. We recommend further the provision for public dissemination of all archaeological reports prepared for the project.

If our office can be of any further assistance, please contact Malcolm Chun, our Cultural Affairs Officer, at 548-8960.

Sincerely,

Kamaki A. Kanahelo, III
Administrator

EN

cc: ADIP
SIPO
Hawaii Count
Peter Collins and Associates



DEPARTMENT OF PUBLIC WORKS
 COUNTY OF HAWAII - 25 ALIPIKA STREET - HONO, HAWAII 96720 - TELEPHONE (808) 981-4221

ERIC S. CARROLL
 Mayor
 ALVIN T. CHOI
 Chief Engineer
 BRUCE C. MCDONNELL
 District Chief Engineer

February 19, 1988

MR. KAWAKI A. KANAHELE III, ADMINISTRATOR
 OFFICE OF HAWAIIAN AFFAIRS
 567 SOUTH KING STREET
 HONOLULU HI 96813

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT
 ALI'I DRIVE REALIGNMENT PROJECT
 NORTH KOHA DISTRICT, HAWAII

Thank you for your December 2, 1986 letter regarding the Ali'i Drive Realignment project. We are pleased that the Draft Environmental Impact Statement (DEIS), your June 5, 1986 meeting with its authors, the copy of Science Management, Inc.'s archaeological reconnaissance survey report, and our consultant's telephone conversations with members of your staff have provided sufficient information for your agency to comment.

Your letter makes several points concerning the cultural values that could be affected by the project, the studies necessary to better understand and mitigate these effects, and the extent to which these studies should be made available to OHA and the general public. We would like to take this opportunity to respond briefly to those points and to update you on the status of the project.

(1) Previous Archaeological Surveys

Your letter refers to two previous preliminary archaeological reconnaissance surveys of the project area and notes that neither has been sent to your office for its use. Presumably these are the 1973 survey by Ching, et. al. and the 1983 survey by Science Management, Inc. At his request, a copy of the Science Management, Inc. survey report was sent to Mr. Malcolm Maa Chun of your office on June 17, 1986. This office does not have copies of the earlier report, but we believe a copy can be obtained from the files of the Historic Sites Section of the State Department of Land and Natural Resources.

(2) Need for Preservation of Sites

The proposed Ali'i Highway passes through an area containing many archaeological remains, some of which will inevitably be affected by its construction. Consequently, a draft Memorandum of Agreement (MOA) between the National Advisory Council on Historic Preservation, the State Historic Preservation Officer, the County of Hawaii, and the State of Hawaii Department of Transportation has been prepared. (See attached copy.) The draft MOA was submitted to the Advisory Council in October, 1986 and was signed in September 1987.

We recognize that data recovery cannot adequately mitigate against the loss of all types of cultural resources. Hence, the MOA specifically provides for the preservation of the five sites (four heiau and 'Ohia Cave) already determined by the consulting archaeologist to have preservation value. The phased mitigation program provided for in the MOA also allows for the designation of additional preservation sites if the findings of the intensive archaeological survey to be carried out in the first phase of the mitigation program indicate that this is warranted. Hence, the MOA provides a means for in situ preservation of additional sites subsequently determined to have heritage value.

The recommendation that the four heiau and 'Ohia Cave be preserved was based on their cultural significance, as well as the importance of the heiau in maintaining the character of the Kahala'u Historic District. Other sites which may have had a religious function are present, but information currently available suggests that most were probably of lesser significance. As implementation of the phased mitigation plan makes additional information available, additional sites may be placed in the "preservation" category.

(3) Site Visits by OHA Personnel

We are pleased you found the discussion of the archaeological resources within the alternative alignments to be concise and well written. The material presented in the DEIS was purposely limited because of the broad circulation which the report receives. A much fuller discussion of the archaeological remains is contained in the Science Management, Inc. report transmitted to your office last June.

Mr. Kawaki A. Kanahele, III
Page 3
February 19, 1988

The right-of-entry agreements between the County of Hawaii and private landowners under which the previous archaeological work was done have expired. Consequently, it is not possible to arrange for OHA personnel to carry out a complete field inspection at this time. However, if you are interested in seeing specific areas, it may be possible to arrange something. Please contact Mr. David Murakami of the Hawaii County Department of Public Works at 961-8327 if you wish to pursue this matter.

(4) Content of Memorandum of Agreement

As previously noted, a copy of the MOA for the project is enclosed for your use. It contains provisions for the items requested at the bottom of page 2 of your letter, including a complete inventory and description of sites, a research design, a data recovery plan, and a resources management plan for each preserved site. The Memorandum of Agreement also provides for the storage of all specimens, field notes, photographs, and processed data at an appropriately equipped institution designated by the State Historic Preservation Officer. Only one item requested in your letter is not included in the MOA: a specific requirement for dissemination of reports. The signatories of the MOA intend to make as much information as possible available to OHA and the general public.



HUGH Y. OMO, P.E.
Chief Engineer

DH#bq

cc: Belt, Collins & Associates
Engineering Division



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

25 AUPUNI STREET • HILO, HAWAII 96720

October 1, 1984

H. H. Kusumoto
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
P.O. Box 50206
Honolulu, HI 96850

ALII HIGHWAY PROJECT
ENVIRONMENTAL IMPACT STATEMENT (EIS)

We reviewed the EIS for the above-mentioned project and have no comments to offer.

We are returning the EIS to the State Office of Environmental Quality Control with a copy of this letter.

Thank you for giving us the opportunity to comment.

H. William Sewake
Manager

CS

cc - Mr. Edward Harada, Hawaii County Dept. of Public Works
cc - Mr. Belt, Collins & Associates
Office of Environmental Quality Control (w/enc.)

COPY

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COPY
February 19, 1988

MR. H. WILLIAM SEWAKE
MANAGER
DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII
25 AUPUNI STREET
HILO HI 96720

SUBJECT: ALII HIGHWAY (FAS ROUTE 167)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO AKAHONO, ISLAND OF HAWAII

This is in response to your letter of October 1, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the Final Environmental Impact Statement for AlII Highway. The Federal Highway Administration will send you a copy of the EIS after it is accepted by the Governor and the Federal Highway Administration.

HUGH Y. UAU, P.E.
Chief Engineer

Detroit

cc: Mr. Belt, Collins & Assoc.
Engineering Div.

COPY

DEPARTMENT OF PARKS & RECREATION
COUNTY OF HAWAII
HILO, HAWAII 96720

RECEIVED

FEB 19 1984

KIT, COLLINS & ASSOCIATES

Route to:	File #
Bel, J.	
Chin, R.	
Papandrew, D.	
White, P.	
Koyama, G.	
Kuniyoshi, E.	
Yokoyama, A.	
Brown, M.	
Fisher, K.	
Hirata, J.	
File Job #	

October 2, 1984

Mr. H. Kusumoto
Division Administrator
U. S. Dept. of Transportation
Federal Hwy. Administration
P. O. Box 50206
Honolulu, HI 96850

Subject: A111 Highway Project - EIS

We have reviewed the subject EIS and have no adverse comments to offer.

Thank you for the opportunity to review the document.

Milton T. Hakoda
Milton T. Hakoda
Director

MTH:CHral

cc: Mr. Edward Harada, Chief Engineer
/ Salt, Collins & Associates

C-40

COPY

February 19, 1984

DIRECTOR
DEPARTMENT OF PARKS AND RECREATION
COUNTY OF HAWAII
25 AUPUNI STREET
HILO HI 96720

SUBJECT: A111 HIGHWAY (FAS ROUTE 167)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-AHUA, TU ALUHOU, ISLAND OF HAWAII

This is in response to your letter of October 2, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the final Environmental Impact Statement for A111 Highway. The Federal Highway Administration will send you a copy of the EIS after it is accepted by the Governor and the Federal Highway Administration.

Rogul Y. Umu

Rogul Y. Umu, P.E.
Chief Engineer

DU:546

cc: Salt, Collins & Assoc.
Engineering Div.

MEGUHI KON
MAYOR



RECEIVED
HAWAII COUNTY FIRE DEPARTMENT
466 KIMOOLE STREET, HILO, HAWAII 96720
DEPUTY CHIEF
5 884 SHOZO NAGAO
FIRE CHIEF

October 4, 1984

Mr. H. Kusumoto
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
P.O. Box 50205
Honolulu, Hawaii 96850

Dear Mr. Kusumoto:

We received a copy of the Draft Environmental Impact Statement for the following project from the Office of Environmental Quality Control.

Title: Alii Highway Project
Location: Kailua-Keolu, Hawaii
Classification: Agency Action

We have no comments on the draft.

Sincerely,

Shozo Nagao
SHOZO NAGAO
FIRE CHIEF

SN/mo

cc: Mayor
Chief Engineer
Belt, Collins & Associates

COPY

February 19, 1988

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

FIRE CHIEF
HAWAII COUNTY FIRE DEPARTMENT
466 KIMOOLE STREET
HILO HI 96720

SUBJECT: ALII HIGHWAY (FAS ROUTE 167)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KEOLA TO KEANOHOU, ISLAND OF HAWAII

This is in response to your letter of October 4, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the final environmental impact statement for Alii Highway. The Federal Highway Administration will send you a copy of the EIS after it is accepted by the Governor and the Federal Highway Administration.

M. Y. Oki

MUSH Y. OKI, P.E.
Chief Engineer

DHM:bq

cc: Belt, Collins & Assoc.
Engineering Div.



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALPINE STREET - HONOLOULU, HAWAII 96820 - TELEPHONE 808-531-6321

PLANT & EQUIPMENT
MARCH 11 1988
MADE IN U.S.A.
DUPLEX COPYING

NOV 20 1988
STATE OF HAWAII

KONA OUTDOOR CIRCLE

Post Office Box 98
Kailua-Kona, Hawaii 96740

November 19, 1988

U. S. Department of Transportation
Federal Highway Administration
Box 50206
Honolulu, Hawaii 96850

Ladies & Gentlemen:

Thank you for your invitation to comment on Draft EIS/4(r) Statement, FHWA-HI-215084-01-D All-I Highway Project.

As outlined in our August 2, 1983 letter to Mr. Edward Iida of Belt, Collins & Associates, our concerns include the need for attractive landscaping along the length of the new highway. We also would suggest planted rest stops or areas at which drivers can pull off the road.

Water lines should be planned and placed to facilitate the planting of trees along the highway. As Kona is especially hot and sunny, the trees perform a very practical as well as aesthetic function.

The set-back requirements along the new highway should be as large as possible to insure protection of view planes. We also would prefer any utility lines to be placed underground.

Sincerely,

Nancy B. Frazier,
President

BHP/HH
CC: E. Harada
Belt, Collins & Associates

February 19, 1988

NANCY B. FRAZIER, PRESIDENT
KONA OUTDOOR CIRCLE
P O BOX 98
KAILUA-KONA HI 96740

SUBJECT: ALL-I HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAHOHU, ISLAND OF HAWAII

This is in response to your letter of November 19, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments. Following are responses to your comments in the order they appear in your letter.

Comment 1

Attractive irrigated landscaping should be provided along the length of the highway.

Response

Roadside landscaping would be both expensive to install and costly and difficult to maintain. Irrigation of the landscaping would consume a substantial amount of water that is needed for other purposes. For these reasons, landscaping within the project right-of-way will be kept to a minimum.

Comment 2

Rest stops or areas where drivers can pull off the road should be provided.

Response

The highway will have an 8- to 10-foot wide shoulder on either side of the travelway. Drivers will be able to use these for temporary stops and/or emergency repairs.

Kona Outdoor Circle
Page 2
February 19, 1988

Comment 3

Wide setbacks should be used adjacent to the highway to insure the protection of view planes.

Response

The proposed right-of-way is 100 feet wide. Only 24 feet is needed for the two lanes that are planned initially, and 48 feet will suffice for the four lanes that could ultimately be accommodated. Shoulder widths will range from 8 to 14 feet. Further setbacks will be needed in some areas in order to accommodate cut and fill slopes. Finally, the County zoning ordinance requires additional building setbacks.

Comment 4

It is preferable for the utility lines to be placed underground.

Response

At this time, there are no plans to run electrical power, telephone, or other overhead utility lines along the highway. However, such lines may continue to be used on roadways intersecting the proposed project. If they are, they would be visible from the A11's Highway.

Your letter and this response will be included in the Final Environmental Impact Statement for A11's Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.



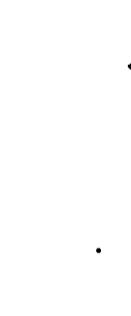
HUGH Y. DMO, P.E.
Chief Engineer

DHM:bq

cc: Belt, Collins & Associates
Engineering Division

RECEIVED
NOV 26 1984
EST, COLLINS & ASSOCIATES

245 North Kukui Street, Honolulu, Hawaii 96817, Telephone (808) 537-1566



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII - 25 ALUPOA STREET - HONOLOULU HAWAII 96813 - TELEPHONE 808 961-4221

AMERICAN LUNG ASSOCIATION of Hawaii

November 19, 1984

Mr. H. Kusumoto
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
P.O. Box 50206
Honolulu, Hawaii 96850

Dear Mr. Kusumoto:

Subject: Aili Highway Project, Kailua-Keauhou

We have reviewed the Environmental Impact Statement for the subject project with particular attention to those sections addressing air quality impact. While the analysis method used appears appropriate, the predicted carbon monoxide levels seemed rather low. This was particularly noticeable in the case of the "edge of roadway" estimates for 1985 where one would have expected somewhat higher values in a "worst case" analysis.

We were unable to evaluate the results since the detailed input parameters to the HWAY model were not presented in the report. In order that we might complete our evaluation, would you kindly provide the following information:

1. Vehicle speed(s) assumed in the modeling
2. Emission factors (g/ml) used and the how they were derived.
3. Meteorological conditions assumed (wind speed, stability category).

You attention to our request will be greatly appreciated.

Sincerely yours,

James W. Morrow
James W. Morrow, M.S.
Director
Environmental Health

JWM:sm
18430
cc: Mr. Edward Harada
Delt, Collins & Associates

February 19, 1988

JAMES W MORROW
DIRECTOR OF ENVIRONMENTAL HEALTH
AMERICAN LUNG ASSOCIATION
245 NORTH KUKUI STREET
HONOLULU HI 96817

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAUHOU, ISLAND OF HAWAII

This is in response to your letter of November 19, 1984 regarding the Draft Environmental Impact Statements for the above project. Thank you for your comments. Following are responses to your comments in the order they appear in your letter.

Comment

We would have expected somewhat higher "worst-case" CO concentrations along the edge of the roadway. Would you kindly provide information regarding vehicle speeds assumed in the modeling, the emission factors used and their derivation, and the assumed meteorological conditions.

Response

The Materials Testing and Research Branch, Highways Division, State Department of Transportation modeled air quality impacts of the proposed project. The input parameters used in the "worst case" analysis of the roadway have been added to Table IV-3 and are as follows:

New text - (Table IV-3):

These estimates are from the U.S. Environmental Protection Agency's "Hway" Model. Input values were as follows:

American Lung Association
Page 2
February 19, 1988

PARAMETER	ASSUMED VALUE	
	1985	2005
Vehicle Speed	30 mph	30 mph
Emission Factor	22.3 gm/mi	12.5 gm/mi
Cold Starts	20 percent	20 percent
Hot Starts	0 percent	0 percent
Ambient Temperature	80 degrees F.	80 degrees F.
Wind Speed	1.0 m/sec	1.0 m/sec

Source: Tabulation of Selected Low Altitude Vehicle Emission Factors, Federal Highway Administration; based upon Environmental Protection Agency's Mobile Source Emission Factors, March 1978.

Your letter and this response will be included in the Final Environmental Impact Statement for A11's Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.



HUGH Y. OMO, P.E.
Chief Engineer

DHM:bq

cc: Belt, Collins & Associates
Engineering Division

**Advisory
Council On
Historic
Preservation**

The Old Post Office Building
1100 Pennsylvania Avenue, N.W. #809
Washington, DC 20004

Reply to: 730 Siamese Street, Room 450
Golden, Colorado 80401

October 30, 1984

Mr. H. Kusumoto
Division Administrator
Federal Highway Administration
Hawaii Division
Box 50206
Honolulu, HI 96850

Dear Mr. Kusumoto:

On October 1, 1984, the Council received a copy of the Draft EIS/AF statement, FHWA-HI-EIS-84-01-D All Highway Project, Kailua-Keaou, County of Hawaii, State of Hawaii (DES). Staff review indicates that the DES is thorough and well prepared. There are, however, several points that we believe need to be clarified before the Final EIS is issued.

We are pleased to note that FHWA proposes to execute a Memorandum of Agreement (MOA) among the Council, the Hawaii State Historic Preservation Officer (SHPO), and FHWA that will cover the treatment of historic properties affected by the All Highway Project for inclusion in the Final EIS. Although we do not know what your schedule for the issuance of the Final EIS is, we are compelled to note that the development of an MOA for a project involving the sorts of historic properties identified in the DES might be fairly complicated and time consuming. FHWA should initiate consultation with the Council and SHPO as soon as possible to ensure timely and orderly development of the MOA. In addition, we note that throughout the DES reference is made to a "planning MOA." In the interest of clarity, the term "planning" should not be used, as the MOA must cover all aspects of the effects of the undertaking on historic properties (even if it is entered into during the planning phase of the undertaking).

The DES contains extensive discussion of the historic properties in the various alignments under consideration. Unfortunately, no discussion of the type or quality of data serving as the basis for the analysis is presented. It is, therefore, impossible to assess the completeness of the evaluation of effects. In fact, the DES notes that additional intensive survey work will be necessary before detailed data recovery plans can be developed (DES page IV-62).

While the DES does consider the direct and indirect effects of

the proposed All Highway on sites of cultural, rather than strictly archeological, significance (tour heiaus and Ohia Cave), it is unclear how FHWA determined that these sites are culturally significant. Were Native Hawaiians consulted? What efforts were made to identify other culturally significant sites? This latter question is particularly important in view of the fact that additional survey will be required to identify all affected sites. Furthermore, while it finally becomes clear on page IV-6 that the heiaus will not be directly affected unless alignment C-1 is constructed, all earlier discussions on this point are confusing. We suggest that earlier sections on this point be revised so that it is clear that which construction alternatives will/will not affect the culturally significant sites. Finally, some consideration should be given to what happens if FHWA discovers, during the additional survey, a culturally significant site after selecting alignments. At this point, avoidance may no longer be possible. What steps would be taken in such an instance? Or is it possible to complete identification of sites prior to selection of the route to be developed?

Our reading of the DES suggests that some, if not most of the resort development, including the Keaou Resort, would not occur if the All Highway is not constructed. If this is the case, then it seems that there is a direct link between the highway and the resort development. Since the development would not occur but for the construction of the highway, the impacts of the development constitute indirect effects of the Highway project that should be considered by FHWA in its compliance with Section 106.

Finally, we note that FHWA has removed site specific information from the DES to help protect the sites in question from vandals. Yet, the same data are available for inspection by the general public at locations published in the DES (page IV-50). Allowing public viewing of the site-specific information defeats the purpose of not disseminating that information in the DES--anyone who is interested can gain ready access to the information. The location of archeological sites is exempted from public disclosure under Section 9 (a) of the Archeological Resource Protection Act (16 U.S.C. 470aa). FHWA has correctly identified these resources as extremely sensitive and should take further steps to restrict unnecessary and unauthorized access to site-specific information by removing this information from the public review files.

If you have any questions, or if the Council can be of further assistance, please contact Alan Downer at (303) 236-2682 or 776-2682 (FIS). Please note our new telephone numbers.

Sincerely,

Robert Fink
Robert Fink
Chief, Western Division

COPY

COPY

Robert Fink
Page 2
February 19, 1988

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

February 19, 1988

MR ROBERT FINK
CHIEF, NORTHERN DIVISION OF PROJECT REVIEW
ADVISORY COUNCIL ON HISTORIC PRESERVATION
730 SIMMS STREET ROOM 450
GOLDEN CO 80401

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 167)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KUA IKA TO KILAKUA, ISLAND OF HAWAII

This is in response to your letter of October 30, 1986 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments. Following are responses to your comments in the order they appear in your letter.

COMMENT 1

FHWA should initiate consultation with the Council and SHPO as soon as possible to insure timely and orderly development of the MUA. In addition, we note that throughout the DEIS reference is made to a "Planning MUA". In the interest of clarity, the term "Planning" should not be used, as the MUA must cover all aspects of the effects of the undertaking on historic properties (even if it is entered into during the planning phase of the undertaking).

RESPONSE

A Memorandum of Agreement (MOA) has been approved and signed by all appropriate parties. The term "Planning" will not be used in the Final Environmental Impact Statement (FEIS) when referring to the MUA.

COMMENT 2

The DEIS contains extensive discussion of the historic properties in the various alignments under consideration. Unfortunately, no discussion of the type or quality of data serving as the basis for the analysis is presented. It is, therefore, impossible to assess the completeness of the evaluation of effects.

Response

The sources of the data used as the basis for the analysis are identified in Section 4.3.2 of the DEIS beginning on page IV-4B. A complete discussion of the data sources is found in a report entitled Archaeological Investigation of the Ali'i Drive Realignment Corridors - North Kona, Island of Hawaii. A copy of this report has been submitted to you for use by the Advisory Council.

The quality of the data that was produced by this in-depth reconnaissance survey is considered good, and it is unlikely that significant remains were overlooked. While the large number and richness of the sites present within the corridor made it impractical to carry out an intensive survey of the many alignments under consideration at this stage in the project, it is our belief that the data contained in the reconnaissance survey report permits a reasonably complete evaluation of potential effects.

Comment 3

While the DEIS does consider the direct and indirect effects of the proposed Ali'i Highway on sites of cultural, rather than strictly archaeological, significance (four heiaus and Uhi'a Cave), it is unclear how FHWA determined that these sites are culturally significant. Were Native Hawaiians contracted (sic)? What efforts were made to identify other culturally significant sites?

Response

A number of factors led to the conclusion that the four heiau and Uhi'a Cave are of cultural, as well as archaeological, significance. First, as noted in the National Register nomination papers for the Kahalu'u Historic District, Kahalu'u was a major seat of political power in ancient Hawaii. Important historical events are associated with the construction, dedication, and use of the heiau within the Historic District, and they are important to modern Hawaiians as symbols of these past events.

Second, while the material aspects of traditional Hawaiian culture have been almost totally abandoned, public testimony, letters, and the positions taken by many Hawaiian civic organizations, confirm that many Hawaiians still retain a strong respect for traditional Hawaiian spiritual values. The heiau of the Kahalu'u Historic District symbolize these values and are, therefore, of cultural, as well as archaeological, significance.

Third, while archaeological survey and data recovery could adequately mitigate against the potential loss of scientific data, comments made at public meetings, in personal communications between the design team and local residents, and in discussions with the County of Hawaii's cultural resource specialist made it clear that preservation is the only means of protecting the cultural values of the heiau and the Ohia Cave, both of which had important religious functions.

Finally, the five sites were singled-out by representatives of the Office of Hawaiian Affairs (OHA) as being of particular cultural significance to the Hawaiian people. OHA was established by a 1978 amendment to the State Constitution for the purpose of administering and managing a public land trust and other funds for the betterment of conditions for Native Hawaiians and Hawaiians. Operating under its own board of trustees elected by all citizens of Hawaiian descent, OHA is separate from other branches of State government. Hence, it is able to speak with an independent voice on matters of concern to the Hawaiian community. Since its founding, the Office has worked vigorously to identify and protect the rights of Native Hawaiians and to preserve Hawaiian culture. With both formal and informal communication networks reaching into all parts of the Hawaiian community, OHA's position relative to the cultural importance of the heiau and Ohia Cave validates the OHA's conclusions relative to their cultural significance.

Comment 4

When it finally becomes clear on page IV-6(sic) that the heiaus will not be directly affected unless alignment C-1 is constructed, all earlier discussions on this point are confusing. We suggest that earlier sections be revised so that it is clear which construction alternatives will/will not affect the culturally significant sites.

Response

Page IV-6 does not contain a discussion of the heiau; hence, we presume the reference should have been to the discussion in Section 4.3, probably page IV-60. This response is based on that presumption.

Two factors complicate the discussion of the various alternatives' direct effects on the heiau. The first is that map showing their location relative to the different alignments have been omitted in order to protect the sites; the second is that the alternatives consist of 300-foot wide corridors, whereas construction (and, therefore, direct impacts) will occur only within the 100-foot wide strip actually used for the road. In order to clarify the situation, the following changes will be made to the text of the environmental impact statement.

(a) The first two paragraphs in Section 4.3.4.4.1 will be deleted and the following discussion inserted:

4.3.4.4.1 Direct Effects on Preservation Sites. Four of the five sites recommended for preservation lie very close to the junction of Segments C-1, Segment C-2, and Segment D. These are Pa-O-Jai Heiau (Site 37-3823), Site 37-6414, Halela'au Heiau (Site 37-3822), and the unnamed heiau (Site 37-2078). However, by shifting the centerline of the 100-foot-wide roadway away from the centerline of the 300-foot wide corridor, both Segments D and C-2 could be used while preserving all of these sites. Hence, only Segment C-1, which crosses Halela'au Heiau and one of the unnamed heiau (Site 37-2078), would involve direct impacts to sites recommended for preservation.

(b) The following will be substituted for the first two paragraphs in Section 4.3.5.2.1. Similar changes will be made to Section 4.4.3.1.

4.3.5.2.1 Mitigation of Impact on Preservation Sites. The proposed Allt Highway would result in the destruction of sites recommended for preservation only if Segment C-1 is used. Sufficient space is available within the other segments to accommodate the roadway without directly impacting preservation sites.

Comment 5

Some consideration should be given to what happens if FmHA discovers, during the additional survey, a culturally significant site after selecting alignments. At this point, avoidance may no longer be possible. What steps would be taken in such an instance? Or is it possible to complete identification of sites prior to selection of the route to be developed.

Response

As noted above, a thorough reconnaissance survey of the alignments has been completed. Given the intensiveness of the survey effort (over 100 person-days in the field), the moderately open vegetative cover, and other factors, it is considered highly unlikely that major sites exist on the surface that were overlooked by the survey team. The possibility cannot be totally discounted, however, and it is always possible that further study will reveal the presence of subsurface materials not previously located.

Current plans are to complete the intensive archaeological survey prior to the start of construction, although not necessarily before construction plans are prepared. If, in the judgment of either the consulting archaeologist conducting the work or the representative of the State Historic Preservation Officer overseeing it, a site of possible cultural significance is unexpectedly encountered, the following steps will be taken.

- o The State Historic Preservation Officer and the Hawaii County Planning Department will be notified immediately by telephone. This initial contact will be followed by a letter outlining the nature of the remains encountered.
- o The Hawaii County Department of Public Works will notify such additional parties as the SHPO and the Hawaii County Planning Department suggest, including the Office of Hawaiian Affairs (OHA), offering to meet with them to describe the remains that have been found.
- o Based on advice from its consultants and the information and opinions offered by those parties consulted, the Department of Public Works will formulate a proposed plan for mitigating the project's impact on the newly discovered remains.
- o The Department of Public Works will submit a draft copy of the proposed mitigation plan to each party previously consulted for review and comment. Reviewers will be invited to discuss the plans in person or to submit written comments and recommendations within 30 days.
- o A final plan incorporating recommended changes and/or explanations of why some recommendations have not been adopted will be submitted to the State Historic Preservation Officer and the Hawaii County Planning Department for review.

Comment 6

Our reading of the DEIS suggests that some, if not most, of the resort development, including the Keauhou Resort, would not occur if the Aili Highway is not constructed. If this is the case, then it seems that there is a direct link between the highway and the resort development. Since the development would not occur but for the construction of the highway, the impacts of the development constitute indirect effects of the highway project that should be considered by Fink in its compliance with Section 10b.

Response

As discussed in chapters I and II of the Draft Environmental Impact Statement, on-going development in the North Kona District is expected to increase traffic volumes and decrease levels of service on Aili Drive between Kailua Village and Keauhou if no relief is provided. While the resulting congestion is expected to be inconvenient for residents, most private development plans, including that for the Keauhou Resort, are neither motivated by, nor dependent upon, the proposed highway's completion.

For the Keauhou Resort itself, Kamehameha III Road/Kuakini Highway constitutes a viable alternative for trips to and from Kailua Village and other points to the north. Development on parcels at the southern end of the Aili Highway corridor could also utilize the Kamehameha III Road route if necessary. If plans for the Aili Highway are abandoned, developers of the parcels served by the northern part of the corridor who have held their plans in abeyance pending finalization of the right-of-way will proceed on their own. If they do, the number of roads intersecting Kuakini Highway and Aili Drive will proliferate. The County will probably require land developers to construct segments of the highway crossing their property as a condition of subdivision and/or land use approval. However, there is no guarantee that the segments will ever be tied together into one continuous highway, and the opportunity for creating a well-integrated transportation network may well be lost.

Comment 7

Finally, we note that FHWA has removed site-specific information from the DEIS to help protect the sites in question from vandals. Yet the same data are available for inspection by the general public at locations published in the DEIS (page 14-56). Allowing public viewing of the site-specific information defeats the purpose of not disseminating the information in the DEIS - anyone who is interested can gain ready access to the information. The location of archaeological sites is exempted from public disclosure under Section 9(a) of the Archaeological Resource Protection Act (16 U.S.C. 470aaa). FHWA has correctly identified these resources as extremely sensitive and should take further steps to restrict unnecessary and unauthorized access to site-specific information by removing this information from the public review files.

Response

This comment is well taken. The note at the beginning of the "References" section of the DEIS will be re-written to read as follows:

Robert Fink
Page 7
February 19, 1988

A number of special studies were conducted during the preparation of this environmental impact statement. Copies of reports dealing with air quality, noise, drainage, water quality, flora, and fauna are available to the general public for review at the locations listed below. The report entitled Archaeological Investigation of the Ali'i Drive Realignment Corridor, North Kona, Island of Hawaii is also on file at those locations. However, in order to protect the archaeological resources it describes from possible removal, vandalism, and/or destruction, that report is available only to those individuals having a legitimate research interest in the area. Requests for permission to review the report should be submitted to the County of Hawaii Department of Public Works. The request should include an explanation of the purpose to which the information contained in the report will be put.

Your letter and this response will be included in the Final Environmental Impact Statement for Ali'i Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.



HUGH Y. O'MALLEY, P.E.
Chief Engineer

DHM:bq

cc: J. Belt, Collins & Associates
Engineering Division



The Natural Energy Laboratory of Hawaii

October 2, 1984

RECEIVED
OCT 4 1984

BEI COLLINS & ASSOCIATES

Route 101	
Bell, J.	
Cole, R.	
Papadopoulos, J.	
White, P. G.	
Koyama, G.	
Kuriyoshi, E.	
Yokouchi, A.	
Brown, N.	
Easton, K.	
Wicks, P.	
J.C. File Job	

Mr. H. Kusumoto
Division Administrator
U.S. Dept. of Transportation
Federal Hwy. Administration
P.O. Box 50206
Honolulu, Hawaii 96850

Dear Mr. Kusumoto:

SUBJECT: Draft EIS/4(f) Statement, FHWA-HI-EIS-84-01-D
A111 Highway Project, Kailua-Keaunohu, County
of Hawaii, State of Hawaii

We have briefly reviewed the draft EIS/4 Statement for the proposed A111 Highway Project. Our only concern would be for the potential of the project to affect the purity of the seawater supply at the Natural Energy Laboratory of Hawaii (NELH). Since the proposed construction is several miles from Ke-ahole Point, the project should have no effect on NELH operations. Thank you for advising us of your project plans.

Best Regards,
Jack P. Hinzlugh
Jack P. Hinzlugh
Executive Director

JPH:mn

cc: Dr. Thomas H. Daniel, Laboratory Director
Mr. Edward Harada, Chief Engineer, County of Hawaii
Belt, Collins & Associates

COPY

February 19, 1988

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

EXECUTIVE DIRECTOR
THE NATURAL ENERGY LABORATORY OF HAWAII
1170 UNIVERSITY AVENUE SUITE 402
HONOLULU HI 96826

SUBJECT: A111 HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KUHA TO KEAUNOHU, ISLAND OF HAWAII

This is in response to your letter of October 2, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the Final Environmental Impact Statement for A111 Highway. The Federal Highway Administration will send you a copy of the EIS after it is accepted by the Governor and the Federal Highway Administration.

Hugh R.
HUGH Y. OMO, P.E.
Chief Engineer

DHW:tcq

cc: Belt, Collins and Assoc.
Engineering Div.

CHANG & WOO

Attorneys at Law

126 QUEEN STREET, SUITE 302 HONOLULU, HAWAII 96813 TELEPHONE (808) 536-6696

John W. K. Chang
Donna M. Woo

Of Counsel
T. David Woo, Jr.

November 2, 1984

Re: Proposed Alignments for All Highway,
North Kona

Mr. H. Kusumoto
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
Prince Jonah Kūhiō Kalanianoʻe Federal Bldg., Rm. 4119
P.O. Box 50208
Honolulu, Hawaii 96850

Dear Mr. Kusumoto:

Please be advised that I am one of the attorneys for Kona Coast Properties, Ltd. and Keanoh Investments, the co-owners of a parcel of land located in Pahoaohoe 2, North Kona (TMK 3-7-008-021), and am authorized to make this statement on their behalf.

The proposed highway directly affects my clients since it will divide our parcel into two segments.

It would appear, based on the information available to us at this time, that the "mauka" alignment is preferable to my clients. In light of our present generalized development concept of bringing more moderate cost-affordable housing to Kona, the "mauka" alignment would best fulfill our objectives.

Thank you for your kind consideration of our views.

Sincerely yours,



T. David Woo, Jr.

TDW:gt

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BT	1
RW	1
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3	1
4	1
AM	1
FC	1
MCS	1

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COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

February 19, 1988

MR T DAVID WOO JR
126 QUEEN STREET SUITE 302
HONOLULU HI 96813

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-AOHA TO KEAHOHO, ISLAND OF HAWAII

This is in response to your letter of November 2, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the Final Environmental Impact Statement for Ali'i Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.



HUGH Y. WU, P.E.
Chief Engineer

DHW:bq

cc: Velt, Collins & Assoc.
Engineering Div.

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COPY

February 19, 1968

PETER S FITHIAN
2923 MAKALEI PLACE
HONOLULU HI 96815

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KLAUHOU, ISLAND OF HAWAII

This is in response to your letter of October 19, 1964 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the final Environmental Impact Statement for Ali'i Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.

Peter S. Fithian
HUGH Y. UKO, P.E.
Chief Engineer

DHF:ba

cc: Welt, Collins & Assoc.
Engineering Div.

RECEIVED
OCT 3 1968
HUGH Y. UKO & ASSOC.

Peter S. Fithian
2923 Makalei Place
Honolulu, Hawaii 96815

October 19, 1964

U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration
Box 50206
Honolulu, HI 96850

SUBJECT: Draft EIS/IS Statement, FHWA-HI-EIS-84-01-D
Ali'i Highway Project, Kailua-Kaunohou, County
of Hawaii, State of Hawaii

Gentlemen:

My field of knowledge is resort destinations and their marketing and control.

What does not seem to have been said as loud and clear as it might be is that Kaunohou offers the only realistic opportunity for Kona to have an area competitive to Wailea or Hanalei on Maui. This is true because of the one owner that exists. Without this, one has patchwork zoning and development a la Kailua Town, which while quaint is not likely to attract and hold the repeat visitor or investor.

One of the keys to a resort destination is its access—how simple to get there and what the approach looks like. Obviously, Ali'i Drive and Kuakini were not constructed when this factor was known or taken into consideration. Ali'i Highway would seem to address this while relieving what, even to a lay person, is an enormous amount of vehicular pressure on these two old roads and the present single connector, Kam III Road.

Thank you for this opportunity to comment.

Very truly yours

Peter S. Fithian
Peter S. Fithian

PSF:kf

cc: Mayor Maguni Kon, County of Hawaii, Hilo
Mr. Edward Harada, Chief Engineer, County of Hawaii, Dept. of Public Works, Hilo
Welt, Collins & Associates, Honolulu

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
HILO, HAWAII 96720

COPY

February 19, 1988

MR KENNETH TANAKA
SUPERVISING ENGINEER
HAWAIIAN TELEPHONE COMPANY
P O BOX 4243
HILO HI 96720

SUBJECT: ALII HIGHWAY (FAS ROUTE 167)
ENVIRONMENTAL IMPACT STATEMENT
MAILUA-KUAA TO KEAHOHU, ISLAND OF HAWAII

This is in response to your letter of October 12, 1984 regarding the Draft Environmental Impact Statement for the above project. Thank you for your comments.

Your letter and this response will be included in the final Environmental Impact Statement for Alii Highway. The Federal Highway Administration will send you a copy of the FEIS after it is accepted by the Governor and the Federal Highway Administration.

Kenneth Tanaka

Kenneth T. Tanaka, P.E.
Chief Engineer

UWH:by

cc: Felt, Collins & Assoc.
Engineering Div.

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FEB 27 1984

FEL, COLLINS & ASSOC.

Route to:	
Bell, J.	
Cain, E.	
Papandrew, J.	
White, P.	
Koyama, G.	
Kunimoto, E.	
Yokouchi, A.	
Brown, N.	
Pyle, K.	
Harvey, J.	
File Job #144-212	

HAWAIIAN TELEPHONE
613

October 12, 1984

Mayor Megumi Ima
County of Hawaii
25 Auahi Street
Hilo, HI 96720

Dear Mayor Ima:

Subject: Draft EIS/A(f) Statement, YHWA-HI-EIS-84-01-D
Alii Highway Project, Mailua-Keahou, County of Hawaii,
State of Hawaii, HS-0187(004)

This is to acknowledge receipt of the subject document and to inform you that, based on the assumption that the widening of Alii Drive is not a viable alternative, this highway project's probable impact on existing telephone facilities will be minimal.

We will appreciate receiving timely developmental and progress reports on this project.

Sincerely,

Kenneth Tanaka
Kenneth Tanaka
Supervising Engineer

cc: E. Harada
FELT, COLLINS & ASSOC.
Engineering Div.

APPENDIX D

COORDINATION WITH KEY AGENCIES

APPENDIX D
COORDINATION WITH KEY AGENCIES

Coordination with the State Historic Preservation Officer

The representatives of the State Historic Preservation Officer (SHPO) in Hawaii are the staff of the Historic Sites Section of the Department of Land and Natural Resources (DLNR-HSS).

Many letters, meetings, and phone conversations with the DLNR-HSS staff, especially Mr. Wendall Kam, the archaeologist responsible for this area of the state, have been exchanged, both to keep the SHPO informed of the progress of the project and its impacts on historic cultural sites, and to obtain the SHPO's input on the various stages of archaeological work. The major contacts with the SHPO staff are summarized below.

- o Meeting on November 17, 1980 attended by County of Hawaii Department of Public Works staff and DLNR-HSS staff to apprise the SHPO staff of the project.
- o Letter dated January 15, 1982 from Belt, Collins & Associates (BCA) to DLNR-HSS, transmitting proposals for archaeological work for his informal review and comment.
- o Phone conversation on January 20, 1982 between BCA staff and DLNR-HSS discussing the proposed scope of work for archaeological studies.
- o Meeting on January 29, 1982 attended by staff of DLNR-HSS, State Department of Transportation (DOT), and County of Hawaii Department of Public Works (DPW). Minimum requirements for reconnaissance level surveys were discussed as well as the procedures for obtaining SHPO review and assistance.

- o Letter dated February 22, 1982 from County DPW to SHPO, requesting permission to submit a scope of work for DLNR-HSS review and concurrence.
- o Letter dated March 23, 1982 from County DPW to DLNR-HSS, soliciting guidance on review of the proposal for archaeological work.
- o Letter dated June 23, 1983 from BCA to SHPO, transmitting EIS Preparation Notice and requesting comments.
- o Letter received on July 21, 1983 by BCA from SHPO responding to EISPN comment request. He recommended two copies of the archaeological survey report be submitted to DLNR-HSS prior to EIS publication to allow coordination to be documented in the EIS.
- o July 29, 1982 meeting attended by BCA staff and DLNR-HSS staff. Appropriate review procedures for the archaeological reconnaissance survey were discussed.
- o Letter dated July 29, 1982 from BCA staff to DLNR-HSS staff summarizing meeting and discussing the type of Memorandum of Agreement (MOA) to be developed before the Final EIS.
- o Meeting on September 16, 1983 attended by BCA staff and DLNR-HSS Archaeologists. Archaeological survey report was presented.
- o Letter dated October 11, 1983 from DLNR to BCA, with comments on the archaeological survey report.
- o Letter dated November 8, 1983 from DLNR to BCA, regarding revised final version of archaeological study. The recommendations in his October 11, 1983 letter remain unchanged.

- o Meeting on November 9, 1983 attended by Science Management, Inc. (Project Archaeologists); and DLNR-HSS staff. Considerations that would be involved in complying with Federal historic preservation requirements were informally discussed.
- o Letter dated November 10, 1983 from County DPW to SHPO, requesting a meeting of DLNR-HSS staff, BCA as County DPW representative, State Highways Division staff, and Federal Highway Administration staff.
- o Meeting on November 18, 1983 attended by BCA staff, County DPW, and DLNR-HSS staff, to initiate discussions leading to a Memorandum of Agreement for the project.
- o Letter dated December 5, 1983 from SHPO to County DPW, regarding preliminary case report and memorandum of agreement. An on-site meeting was recommended.
- o On-site meeting on January 9, 1984 attended by Hawaii County Planning Department staff, DLNR-HSS staff, and BCA staff. Discussed mitigation measures for preservation sites.
- o On-site review on June 25, 1984 by Hawaii Division and Washington Division of FHWA with County DPW.
- o Meeting on August 3, 1984 attended by FHWA staff, State DOT staff and DLNR-HSS staff to discuss the MOA.

Coordination with the U.S. Fish & Wildlife Service

Section 7 of the Endangered Species Act requires Federal agencies to consult with the U.S. Fish & Wildlife Service to insure that their actions do not jeopardize endangered or threatened species or result in destruction of their habitat. The pertinent correspondence is summarized below.

- o February 1983 communication between flora and fauna consultants and staff of U.S. Department of Interior, Fish and Wildlife Service concerning possible known endangered species in the area of the proposed highway. Letter documenting contact is located in Appendix A, page A-21(a).
- o June 23, 1983 letter transmitting EIS Preparation Notice is sent to the U.S. Fish & Wildlife Service.
- o Response letter dated June 27, 1983 from U.S. Fish & Wildlife Service which stated their budget and manpower restrictions did not allow a "thorough review of fish and wildlife concerns associated with the referenced action at this time."
- o November 9, 1983 letter from the FHWA, transmitting subconsultant's report on flora and fauna survey, is sent to the U.S. Fish & Wildlife Service. The report states that one endangered species, the Hawaiian hoary bat, is potentially present within the study area. However, it notes that the potential is based only on historical reports of sightings of this species in similar environments and states that none were seen during the fieldwork conducted for this project.
- o Letter dated November 18, 1983 from U.S. Fish & Wildlife Service stating that the survey report had been reviewed and that they had "no comments to offer concerning this report."

Coordination with the U.S. Department of Interior and FHWA

Subsequent to the publication of the DEIS, the U.S. Department of Interior raised a number of specific concerns which have been addressed in the Final EIS. The following letters document communications between the U.S. Department of Interior and the Hawaii County Department of Public Works. These communications are summarized below:

- o June 3, 1988, DPW to FHWA determining that an EIS supplement is unnecessary.

- o August 16, 1988, DPW to DOI requesting approval of Pre-Final EIS and withdrawal of its objection to Section 4(f) approval.
- o August 30, 1988, DOI to DPW withdrawing its objection to Section 4(f) approval.
- o October 18, 1988, Kamehameha Investment Corp. (Landowner) to County Planning Department support of proposed project.
- o October 31, 1988, DPW response to DOI.

October 31, 1988

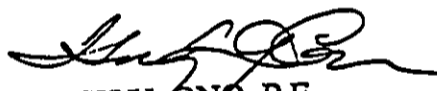
Mr. Bruce Blanchard
Director, Environmental Project Review
U.S. Department of the Interior
Office of the Secretary
Washington D.C. 20240

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 187)
ENVIRONMENTAL IMPACT STATEMENT
KAILUA-KONA TO KEAUHOU, ISLAND OF HAWAII

Thank you for your letter of August 30, 1988 regarding your withdrawal of the Department of Interior's previous objection to Section 4(f) approval, subject to your recommendations. The Final Environmental Impact Statement and Section 4(f) approval will be submitted to the Federal Highway Administration for approval of the build alternative.

Enclosed is a letter received from the property owner stating their views regarding the construction of the proposed project.

Finally, we believe that the statements on page IV-65a of the FEIS fulfill your concerns about a cooperative effort between public and private agencies, groups, and individuals. The preparation of the draft Cultural Resource Management Plan is a collaborative effort of private and public entities which must be approved by the County.


HUGH Y. ONO, P.E.
Chief Engineer

DHM:lws
attachment

DATE: 6/3/88
HUGH Y. O.
Chief Engineer
BRUCE C. McCLU
Deputy Chief Engineer

Handwritten initials and "b-b-til"



DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 AUPUNI STREET - HONOLULU, HAWAII 96720 - TELEPHONE (808) 961-8321

6 9 31 AM '88
DESIGN BRANCH
HIGHWAYS DIVISION
DEPT. OF TRANSPORTATION

June 3, 1988

MR WILLIAM LAKE
FEDERAL HIGHWAY ADMINISTRATION
P O BOX 50206
HONOLULU HI 96850

SUBJECT: ALII DRIVE REALIGNMENT, P-2093
Federal Aid Project No. RS-0187(04)
North Kona, Hawaii

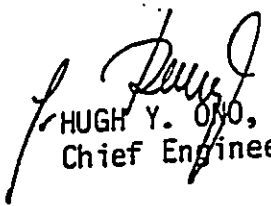
Four years have elapsed since the Draft EIS for this project was prepared in February 1984.

In accordance with Title 23 - Highways Chapter 1, Subchapter H, Part 771.129 "Re-evaluation," an evaluation has been made of the project. The following are our findings:

1. The project is urgently needed.
2. The alternative of widening the existing Alii Drive is more unfeasible now than previous.
3. The land that the proposed Alii Drive traverses has for the most part remained undeveloped.
4. Air quality and noise levels anticipated from our proposed project has not changed.
5. Floodplain impacts have not changed.
6. No threatened or endangered animal or plant species were seen to exist within the highway during fieldwork conducted for the Draft EIS, and it is assumed that this has not changed.
7. The project does not have any land designated as "prime" and "unique" agricultural land.
8. The mitigating measures planned for the archaeological sites is included in the Memorandum of Agreement negotiated between FHWA, OHA, SHPO and the National Advisory Council on Historic Preservation. This is a recently completed document and is therefore current.

Mr. William Lake
Page 2
June 3, 1988

Our conclusion in evaluating the subject project is that there have not been any significant changes in the project and the environment nor on its impacts. We therefore feel that a new Draft EIS or a supplement to it is unnecessary.


HUGH Y. OHO, P.E.
Chief Engineer

DHM:aa

cc: DOT Highways Division, Attn. Fred Abeshima

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HUGH Y. ONO
Chief Engineer

BRUCE C. MCCLURE
Deputy Chief Engineer



DEPARTMENT OF PUBLIC WORKS 18 1988

COUNTY OF HAWAII - 25 AUPUNI STREET - HILO, HAWAII 96720 - TELEPHONE (808) 961-8321

BELT, COLLINS & ASSOCIATES

August 16, 1988

DIRECTOR ENVIRONMENTAL PROJECT REVIEW
U S DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON D C 20240

SUBJECT: ALI'I HIGHWAY (FAS ROUTE 187)
Environmental Impact Statement
Kailua-Kona to Keauhou, Island of Hawaii

___	Eel, J.	___
___	Papandrew, T.	___
___	Cain, R.	___
I	White, P.	<i>[Signature]</i>
___	Koyama, G.	___
___	Kuniyoshi, E.	___
___	Mapes, A.	___
___	Van Horn, R.	___
2	Sichter, L.	<i>[Signature]</i>
___	Kanehiro, C.	___
___	Uyechi, K.	___
___	Library	___
___	File Job #	___

This is with regard to the preparation of the Final Environmental Impact Statement for the above project. On February 19, 1988, we responded to your letter of December 7, 1984 (ER 84/1227 [WR-RPE] commenting on the Draft EIS for the proposed Ali'i Highway. Copies of your letter and our response are attached for your reference.

Please note that our response contained a mis-statement which we would now like to correct. On page six and page eight of our response, we refer to a planning stipulation for historic preservation in the Memorandum of Agreement. Please be advised that no such stipulation is made in the MOA. Rather, the EIS indicates that a cultural resource management plan for the four heiau recommended for preservation is being recommended for preparation of the developer's expense for submission to the state and county agencies charged with historic preservation. Preparation of an integrated historic preservation plan for the area at local expense, separate from a highway MOA, is considered an appropriate approach for dealing with local land use/historic resource issues and responsibilities.

We are now prepared to publish the Final EIS for the project. We feel we have satisfied your concerns and would appreciate your acknowledgement of our response to your comments and your approval. Please respond as soon as possible so that we might proceed with publication of the FEIS.

for
David Murahoni
HUGH Y. ONO, P.E.
Chief Engineer

DHM:aa

Attachment

cc: FHWA, Attn: Al Benet (w/attach.)
DOT, Highways Division (w/attach.)
Belt, Collins (w/attach.)
Engineering Division (w/attach.)



United States Department of the Interior

OFFICE OF ENVIRONMENTAL PROJECT REVIEW
WASHINGTON, D.C. 20240



ER 84/1277

AUG 30 1988

Mr. Hugh Y. Ono, P.E.
Chief Engineer
Hawaii County Department of Public Works
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Ono:

This answers your request for the Department of the Interior's acknowledgement of your responses to our comments on the draft environmental/Section 4(f) statement for the Ali'i Highway (Kailua-Kona to Keauhou), Hawaii County, Hawaii.

In our comments on the draft statement, we recommended selection of the No Action/Delayed Action alternative as an interim measure until an integrated historic preservation plan for the area was developed. Although this has not been done to the extent we think warranted by the importance of the Kona Field System and related resources, we nevertheless understand that a dialog has been initiated between appropriate parties at the State and local levels and that an enhanced potential now exists for the consideration of historic resources in local transportation and land use decisions.

Consequently, we would be willing to agree that a No Action/Delayed Action alternative is not prudent, provided the Federal Highway Administration determines that a build alternative is needed to solve existing transportation problems, or problems that can be reasonably foreseen over the next 20 years using recent information on rates of development and traffic generation in the Kailua-Keauhou area. Given such a determination, we would concur that there are no feasible and prudent alternatives to the proposed action.

We would also concur with the measures proposed to minimize direct harm to historic resources within the new right-of-way, and with your recommendation for the preparation of a cultural resource management plan for adjacent heiau determined to have in situ values worthy of preservation. Since such a plan is to be prepared at the expense of adjacent land owners, we suggest that it would be appropriate if the final statement included the views of these owners regarding your recommendation.

We fully appreciate, and to some extent agree with, the desire of the highway agencies to separate the effects of ongoing development from construction of the proposed project. Nevertheless, there is a relationship between transportation improvements and the degree or intensity of development. Although we agree that the preparation of an integrated historic preservation plan for the area is best accomplished at the State and local level, we urge that the final statement indicate the willingness of the highway agencies to support and actively participate in the preparation of such a plan. To the extent possible, we also urge that the final statement include an agreement in principle from other public and private agencies, groups, and individuals who may be called upon to provide input to the planning process.

Mr. Hugh Y. Ono

The Department of the Interior withdraws its objection to Section 4(f) approval of this project, subject to the above recommendations.

Thank you for the opportunity to provide additional comments on the Ali'i Highway Project.

Sincerely,



Bruce Blanchard, Director

cc: State of Hawaii DOT
FHWA, Hawaii Division
FHWA, Regional Administrator



KAMEHAMEHA
INVESTMENT
CORPORATION

OK
#102
LS
DS
File

October 18, 1988

Mr. Albert Lono Lyman
Planning Director
Hawaii County Planning Department
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Lyman:

Alii Drive Realignment: F-2093, RS-0187(4), North Kona, Hawaii

Thank you for your letter of September 26, 1988 concerning the above project. The proposed realignment of Alii Drive is generally acceptable and is compatible with our master plan for the area. The five archaeological sites identified for preservation are all located in areas we have designated as Historic Preserves or as open space. We understand that the existing 100 foot right-of-way will need to be shifted makai to avoid site 3823. We are willing to work with the County to accomplish the shift if action is taken in the near future.

Should you have any further questions regarding this or any matter pertaining to the Keauhou Resort, please do not hesitate to contact me.

Very truly yours,


Wallace K. Tirrell
President

WKT:sdhg

bcc: Mr. James R. Bell

APPENDIX E

MEMORANDUM OF AGREEMENT

COPY

-1-

Memorandum of Agreement

HISTORIC PRESERVATION
MEMORANDUM OF AGREEMENT
ALI'I HIGHWAY

PHASED MITIGATION PROGRAM

North Kona District, County of Hawaii, State of Hawaii

July 1987

WHEREAS, the Federal Highway Administration, Hawaii Division (FHWA) has determined that construction of the proposed Ali'i Highway (FAS Route 187), from a point on the Hawaii Belt Road approximately two miles south of Palani Road to an intersection with existing Ali'i Drive just north of Kamehameha III Road, will have an adverse effect upon the Kahalu'u Historic District, which is listed on the National Register of Historic Places, and upon the Kona Field System Historic District and the Kuakini Wall, both of which have been determined to be eligible for inclusion in the National Register of Historic Places, and upon the archaeological sites within these districts and has consulted with the Hawaii State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f),

WHEREAS, officials of the County of Hawaii (County), the State of Hawaii Department of Transportation (Hawaii DOT) and of the Office of Hawaiian Affairs (OHA) participated in the consultation and have been invited to concur in this Memorandum of Agreement (Agreement),

NOW, THEREFORE, FHWA, the SHPO and the Council agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on the historic properties.

STIPULATIONS

FHWA shall ensure that the following measures are carried out in consultation with the SHPO, ACHP, County of Hawaii, Hawaii DOT, and OHA.

- A. Identification and Treatment of Affected Properties in the Project Corridor, according to the Phased Identification & Treatment Plan (IT Plan), created in consultation among the signatories (attachment 1). The archaeological survey to identify all historic properties shall be completed within twelve (12) months after FHWA approval of a route alignment.
- B. All archaeological work done under this Agreement shall be directed by a professional archaeologist who meets at minimum the qualifications set forth in the Department of the Interior's "Professional Qualifications." (See Appendix C of Draft 36 CFR 66, at 42 FR 5382, 1/28/77).

C. All final archaeological reports resulting from actions pursuant to this Agreement shall be provided to the signatories to this Agreement and to the National Park Service for possible submission to the National Technical Information Service. All such reports shall be responsive to contemporary professional standards identified in the Council's current Manual of Mitigation Measures and the Department of the Interior's "Format Standards for Final Reports of Data Recovery Programs". Precise locational data may be provided in a separate appendix if it appears that release of such information could jeopardize archaeological sites. Draft final reports shall be circulated for review and comments by all signatories.

D. Through pre-construction meetings and scheduled project personnel meetings, the FHWA, Hawaii's DOI, and County of Hawaii's DPW shall ensure, in consultation with the SHPO and OHA, that County project personnel and the contractors' workforce are sensitive to the significance of archaeological properties associated with the Ali'i Drive project and are aware of the existence of Federal and State antiquity statutes.

E. To prepare for the possibility that Native Hawaiian human burials and/or associated funerary objects are uncovered during archaeological or construction work which will require removal and reinterment, OHA shall prepare a Burial Treatment Plan acceptable to FHWA, Hawaii's DOI, the County of Hawaii's, the SHPO, and the Council.

1. This plan will be completed within 6 months after Council acceptance of this Agreement.

2. Should such a plan not be submitted by OHA within the agreed upon time frame, the FHWA shall develop and implement a plan in consultation with the SHPO.

3. The plan shall be the result of a good faith effort to obtain the views of interested persons evincing cultural and traditional ties to the features or to the land in which the features are located. The plan shall provide methods for appropriate treatment of the human remains and associated funerary objects.

4. All costs for the development of the Burial Treatment Plan will be borne by OHA, and as appropriate, the County of Hawaii's subject to County Council appropriation of funds. All costs for the implementation of the plan will be borne by the FHWA and the County of Hawaii's.

F. Dispute Resolution

1. At any time during the implementation of the measures stipulated in this Agreement, should an objection be raised by a local government or a member of the public, FHWA shall consult with the objecting party, the SHPO, and, as needed, with the Council to resolve the objection. A record of the objection and FHWA's actions to resolve the objection shall be retained by the FHWA as part of the project files.

2. Should an objection be raised by a signatory to this Agreement (ACHP, the SHPO, Hawaii's DOI, the County of Hawaii's or OHA) regarding the implementation of the measures stipulated in this Agreement, FHWA shall consult with the objecting party to resolve the objection. A record of the objection and FHWA's actions to resolve the objection shall be retained by the FHWA as part of the project files. If FHWA determines that the objection cannot be resolved, it shall nevertheless seek the recommendations of the objecting party, document its consideration of the objecting party's recommendations in the project files and inform the objecting party and the ACHP of that consideration.

G. Agreement Amendment

Should FHWA, the SHPO or the Council determine that the terms of this Agreement cannot be met, that party will immediately notify the other consulting parties and request consultation to amend this Agreement in accordance with 36 CFR 800.5(e)(5)

Execution of this Agreement evidences that FHWA has afforded the Council an opportunity to comment on the undertaking and its effects on historic properties and that FHWA has taken into account the effects of its undertaking on historic properties.

ATTACHMENT 1

IDENTIFICATION & TREATMENT PLAN

FOR

ALI'I HIGHWAY HISTORIC PRESERVATION MEMORANDUM OF AGREEMENT

Ali'i Highway, North Kona, Hawaii's Island
County of Hawaii's
State of Hawaii's

July 1987

Federal Highway Administration, Hawaii's Division
By: *R. C. Fisher* 8/13/87 (date)

Hawaii's State Historic Preservation Officer
By: *[Signature]* 8/13/87 (date)

Advisory Council on Historic Preservation
By: *[Signature]* 1 Dec. '87 (date)

Concurring Parties:

County of Hawaii's
By: *[Signature]* (date)

Hawaii's State Department of Transportation
By: *[Signature]* 8/14/87 (date)

Office of Hawaiian Affairs
By: *Mau K. Kahala* 9-4-87 (date)

APPROVED as to FORM and LEGALITY <i>[Signature]</i> DEPARTMENT OF TRANSPORTATION COUNTY OF HAWAII Date 8/21/87

PHASES

PHASE 1 -- ARCHAEOLOGICAL INTENSIVE SURVEY: COMPLETING THE SITE IDENTIFICATION STUDIES

This step is necessary to:

1. Clearly identify all historic properties within the road corridor.
2. Gather sufficient information on the sites to evaluate their significance.

See Appendix A for requirements of the intensive survey.

PHASE 2 -- SIGNIFICANCE ASSESSMENTS

FHWA, in consultation with the SHPO and OHA, will evaluate properties identified in the survey according to National Register of Historic Places criteria of significance. This will result in consensus determinations. SHPO will be requesting OHA's assistance in verifying the cultural significance of sites that appear to be culturally significant for the Native Hawaiian people. At this point, a field inspection is likely to occur, if needed, so the SHPO and the OHA advisor on cultural significance can fully evaluate certain sites.

The results of these assessments will be made available to all the signatories and to the general public. Should any interested persons object in writing within 30 days of the notice of evaluation made between FHWA and the SHPO, or should a disagreement between FHWA and the SHPO arise about a property's eligibility criterion(s), the Keeper of the National Register of Historic Places will be requested to render a formal determination on the criteria for the disputed property(ies).

PHASE 3 -- DETERMINING TREATMENT OF THE SITES

This phase will determine which sites to data recover and which to preserve. The determination shall be made in consultation among the signatories of the Agreement.

BACKGROUND

This plan is hereby incorporated into the Agreement to cover Section 106 obligations of the National Historic Preservation Act. It is to ensure adequate identification and treatment of all historic properties within the project corridor. This plan has been created in consultation among the Agreement's signatories.

The Ali'i Highway realignment corridor crosses two major historic districts which are on, or have been determined to be eligible for inclusion on, the National Register of Historic Places. The entire corridor lies within the lower portions of the Kona Field System Historic District, and approximately one-fifth of the corridor is also within the Kahalu'u Historic District.

As with some historic districts in Hawai'i, neither of these historic districts are in pristine condition. Indeed, in the area of the realignment corridor, both districts have long been under pressure from and adversely affected by the rapidly expanding Kailua-Kona urban area and related construction.

Previous archaeological reconnaissance studies conducted in the Ali'i Highway realignment corridor identified a variety of historic sites. These automatically were considered contributing to the National Register of Historic Places as part of the Kahalu'u Historic District or the Kona Field System as "archaeological properties". Most are significant solely or primarily for their information content. Five (5) sites, to date, have also been determined to be significant for other criteria such as excellent examples of site types. These 5 sites include 4 heiau and the Ohia Cave.

In sum, treatment of historic properties in the project area will involve both preservation and archaeological data recovery. However, because the previous studies were only reconnaissance studies, some additional information to evaluate the specific significance criteria of all identified sites has yet to be gathered. This plan provides a phased approach to their significance, and to handle the successive steps leading to appropriate archaeological data recovery and in-place preservation.

To further ensure successful completion of each phase of the plan, the SHPO or his staff shall verify each phase's completion.

PHASE 4 -- PREPARATION OF AN ARCHAEOLOGICAL DATA RECOVERY PLAN

This plan shall be prepared following the Council's handbook, Treatment of Archaeological Properties. The plan shall be submitted to the SHPO, OHA, and to the Council for review. If one of these parties objects within 30 days of the receipt of the proposed plan, work may proceed. If any party objects, Stipulation F of the Agreement will be employed.

Public visitation as an educational component of the Agreement shall be included as part of the data recovery plan.

See Appendix B for requirements to be included in this plan.

PHASE 5 -- PREPARATION OF A SITE PRESERVATION PLAN

The plan shall be submitted to the SHPO, OHA, and the County. If any party objects, further consultation shall be undertaken to resolve the objections.

See Appendix C for requirements to be met in the preparation of this plan.

PHASE 6 -- EXECUTION OF ARCHAEOLOGICAL DATA RECOVERY PLAN

This phase will execute the archaeological data recovery plan.

PHASE 7 -- EXECUTION OF PRESERVATION PLANS

This phase will execute the preservation plans.

POSSIBLE PHASE 8 - ARCHAEOLOGICAL MONITORING

After the execution of the Archaeological Data Recovery Plan, a determination will be made whether new information that would contribute significantly to analysis of the research problems is highly likely to be uncovered during all or part of construction. If this is likely, a decision shall be made to implement archaeological monitoring as an eighth phase of the IT Plan.

The determination shall be made by all signatories. If a determination is made to conduct archaeological monitoring during construction, the SHPO shall prepare the scope of work. It shall then be reviewed and approved by all signatories. In the event of a disagreement, Stipulation F will apply.

If monitoring takes place, provisions will be included to ensure that the monitoring archaeologist can advise the Engineer to temporarily suspend operations in an immediate area in order for the archaeologist to carry out the monitoring scope of work.

APPENDIX A

ARCHAEOLOGICAL INTENSIVE SURVEY -- REQUIREMENTS

The Intensive Survey is Phase I of the IT Plan. It shall be conducted in accordance with the standards set forth in the SHPO. Reg. Vol. 10, Ch. 1, Sec. 1.9/1.10. The Survey Standards shall be as follows: SHPO. Reg. 1.9/1.10, App. B; Manual of Investigation Measures, App. C). It shall also meet the following requirements requested by the SHPO.

- I. BACKGROUND RESEARCH (Establishing the research problems for data recovery and establishing the broad interpretive framework for in-place preservation).
 - A. The research shall review archaeological work in all ahupua'a (land units) cross-cut by the Ali'i Highway to establish:
 1. past settlement and land use patterns at different points in time.
 2. past subsistence patterns at different points in time.
 3. past political patterns at different points in time.
 4. past religious patterns at different points in time.
 - B. The research shall review archaeological, historical and oral historical information for the ahupua'a (land units) cross-cut by the Ali'i Highway to specifically establish
 1. settlement and land use patterns in these ahupua'a from the 1850s-1940.
 - C. The above research shall lead to the development, prior to fieldwork, of models of site patterns and land use in the Ali'i Highway corridor over time and to the development of specific research hypotheses relevant to sites in the corridor.

- II. ORAL HISTORY COMPONENT. To enhance the archaeological research associated with this project, OHA will develop an "Oral History Plan." This plan will describe the methods and approach for assuring that culturally significant sites in the project area are identified and sufficient information is gathered to evaluate their significance. The implementation of this plan will be coordinated by OHA with the SHPO and the contract archaeologist as an Oral History Project.
- III. METHODS. Methods shall obtain basic site descriptive data, but shall also be geared to obtain data relevant to initially evaluating the models and research problems.
- IV. FIELDWORK. Fieldwork shall include mapping, surface collection, test excavations, and soil analyses of the strata in the excavations -- as well as basic retrieval and recording of remains.
- V. LABORATORY ANALYSES. These analyses shall include adequate dating and faunal/artifact analyses to evaluate site significance and to initially evaluate the predictions and research problems.
- VI. REPORT PREPARATION. A final report will be prepared, to be due at a fixed time. This report shall meet the reporting standards and review procedures noted under Item C of the Agreement. However, this report shall not include significance evaluations. These items shall be prepared separately.
- VII. COMPLETION VERIFICATION. The SHPO and OHA shall verify that this archaeological intensive survey has been successfully completed.

- VIII. COMPLETION VERIFICATION. The SHPO shall verify the successful completion of the data recovery. This shall be done in three steps.
 - A. At the completion of the fieldwork, the SHPO shall have the option of making a fieldcheck to verify that the data has been recovered as required in the data recovery plan.
 - B. OHA shall review the final report to verify that the "Oral History Data Recovery Plan" has been carried out.
 - C. The SHPO shall review the final report to verify that the data recovery plan has been carried out. This shall be done in consultation with the signatories following Stipulation C of the Agreement.
- IX. Public visitation as an educational component shall be arranged by the County of Hawai'i, in consultation with the SHPO, OHA, and the contract archaeologist.

APPENDIX B

DATA RECOVERY PLAN -- REQUIREMENTS

The Archaeological Data Recovery Plan is Phase 4 of the II Plan. It shall follow the standards set forth in the Council's handbook, Treatment of Archaeological Properties. Several points of emphasis are made here.

- I. RESEARCH PROBLEMS. The plan must clearly and precisely define research problems to be addressed by data recovery. All attempts must be made to make useful contributions toward these research problems, not simply minor addressing of each problem.
- II. SITES TO BE STUDIED. The plan must clearly identify which sites will be studied.
- III. ARCHAEOLOGICAL METHODS. The plan must clearly describe methods that will be used to recover information relevant to the research problems.
- IV. LABORATORY ANALYSES. The plan must clearly spell out the laboratory methods that will be used to analyze the data that is recovered, and these analyses must be directly relevant to study of the research problems. Dating must be a priority.
- V. OTHER DATA SOURCES. The plan must consider historical and oral historical research on the sites in the corridor and include such research if it promises to be useful for analysis of the data and the research problems.
 - A. OHA will develop, with the consulting archaeological firm, an "Oral History Data Recovery Plan." This plan will describe the methods and approach for assuring that the research problems are properly addressed through oral historical study related to the sites and the history of the corridor.
- VI. REPORT PREPARATION. A final report will be prepared, to be due at a fixed time. This report shall meet the reporting standards and review procedures noted under Item C.
- VII. BUDGET. A budget breakdown for the archaeological data recovery work will be included in the plan.

APPENDIX C

SITE PRESERVATION PLAN -- REQUIREMENTS

I. BACKGROUND

- A. Currently, five (5) sites have been designated for in-place preservation. These include:
 - 1. 4 heiau (temples): sites 37-2078, 37-3822, 37-3823, and 37-6414, and
 - 2. the Ohia Cave (site 37-7962).
- B. These sites shall be preserved in-place, with highway construction not to encroach onto the heiau and to span the cave.
- C. It is possible that additional sites may merit preservation after the specific significance assessments are made following the intensive survey. This determination will be made in consultation among the Agreement's signatories.

II. ITEMS TO BE INCLUDED IN THE PRESERVATION PLAN

- A. The plan shall include steps to prevent damage to these sites during construction, to include clearly marking buffers around the sites.
- B. For sites that are acquired within the right-of-way, the plan should address the following preservation, interpretation, and maintenance concerns:
 - 1. access, with parking and foot access considered and with restricted access to sensitive areas considered.
 - 2. recommendations for site clearing and restoration.
 - 3. recommendations for interpretive signs.
 - 4. recommendations for warning signs, regarding penalties, hazards, etc.
 - 5. long-term management needs and agency responsibility

III. REVIEW

The SHPO and OHA shall verify that the preservation plan has been completed.