BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
JERRY M. MATSUDA
GLENN M. OKIMOTO

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

HWY-PA
2.0906

JUL -3 1996

TO: GARY GILL, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: KAZU HAYASHIDA
DIRECTOR OF TRANSPORTATION Glenn M Okimoto

SUBJECT: FINDING OF NO SIGNIFICANT IMPACT (FONSI)
AND FINAL ENVIRONMENTAL ASSESSMENT FOR
QUEEN KAAHUMANU HIGHWAY UPGRADE, NORTH KONA, HAWAII

The Department of Transportation, Highways Division, has reviewed the Final Environmental Assessment (EA) for the subject project and hereby issues a FONSI for the project. Please publish notice of availability for this project in the July 23, 1996 OEQC Bulletin.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the Final EA. Please contact Mr. Kenneth Au at 587-1843 if you have any questions.

Enclosures

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1996-07-23-HI-FEA-Queen Kaahumanu Hwy Upgrade
1996

FINAL
ENVIRONMENTAL ASSESSMENT for

QUEEN KAAHUMANU HIGHWAY WIDENING

Kailua to Keahole, County of Hawaii

MAY 1996

U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration

DEPARTMENT OF TRANSPORTATION
Highways Division, State of Hawaii

FEDERAL HIGHWAY ADMINISTRATION (FHWA)
FINDING OF NO SIGNIFICANT IMPACT (FONSI)
FOR
QUEEN KAAHUMANU HIGHWAY WIDENING
KAILUA TO KEAHOLE (COUNTY OF HAWAII)
PROJECT NUMBER STP-019-1(20)

The FHWA has determined that the proposed widening of Queen Kaahumanu Highway from a two lane highway to a four lane divided highway from Henry Street to the Keahole Airport Access Road will not have any significant impact on the human environment. This FONSI is based on the attached Final Environmental Assessment (FEA), which has been independently evaluated by the FHWA and determined to adequately and accurately discuss the environmental issues and impacts of the proposed project. It provides sufficient evidence and analysis for determining that an environmental impact statement is not required. The FHWA takes full responsibility for the accuracy, scope and content of the attached FEA.

6/10/96	Abraham Wong	Div. Adm.
Date	For FHWA	Title

FINAL

ENVIRONMENTAL ASSESSMENT
for
QUEEN KAAHUMANU
HIGHWAY WIDENING
(Kailua to Keahole)

North Kona, Hawaii

MAY 1, 1996

Federal Highway Administration
U.S. Department of Transportation

and

Highways Division
Department of Transportation

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SECTION 1
PROJECT SUMMARY

Proposed Action:	Upgrading the Queen Kaahumanu Highway from two lane highway to a four lane divided highway from Kailua, Kona (intersection of Queen Kaahumanu and Henry Street) to Keahole Airport Access Road.
Proposing Agency :	State of Hawaii, Department of Transportation, Highways Division
Accepting Agency:	Federal Highway Administration U.S. Department of Transportation Box 50206 300 Ala Moana Boulevard Honolulu, Hawaii 96850 Telephone: (808) 541-2700 and State of Hawaii Department of Transportation Highways Division 600 Kapiolani Boulevard, Room 304 Honolulu, Hawaii 96813 Contact: Ronald Tsuzuki Telephone: 587-1830
Location:	Kailua to Keahole, Hawaii
EA Preparers:	R.M. Towill Corporation 420 Waiakamilo Road, Suite 411 Honolulu, Hawaii 96817 Contact: Chester Koga Telephone: (808) 842-1133
Existing Land Uses:	Existing highway, limited industrial areas and agricultural lands adjacent to ROW
State Land Use District:	Urban, Conservation, and Agriculture
County General Plan:	Industrial, Extensive Agricultural, Open, and Urban Expansion
County Zoning Designation:	Open, Industrial, Agricultural, and Residential

SECTION 2
PROJECT DESCRIPTION

2.1 PROJECT OBJECTIVE

The objective of widening Queen Kaahumanu Highway (SR 19) from 2-lanes to 4-lanes is to meet current demand and fulfill future demand upon the highway infrastructure of the North Kona region of the island of Hawaii. The Queen Kaahumanu Highway is the main State highway serving this area, and is surrounded by commercial, agriculture, resort, and residential land uses. The rapid growth of the resort areas, together with increased commercial and residential development and other activities in West Hawaii, has resulted in a significant increase of vehicular traffic using the existing highway. Planned residential, commercial, and resort developments will further add to the existing highway traffic volume. This study evaluates alternative means of meeting this increase in traffic volume between Keahole to Kailua to the year 2010.

2.2 PROJECT LOCATION

Queen Kaahumanu Highway is located within the North Kona and South Kohala districts of the County of Hawaii (See Figure 2-1) and extends from Kailua to Kawaihae. The portion of the highway that will be upgraded extends from Kailua (near Henry Street) to the Keahole Airport access road. Figure 2-2 shows the study area and existing Queen Kaahumanu Highway alignment. The distance Kailua and Keahole Airport is approximately 7 miles. Major existing intersections within the project limits along this highway occur at Henry Street, Palani Road, Kaiwi Road, Makala Boulevard, Honokohau Harbor, Hinalani Drive, Kaiminani Road, and Keahole Airport access road.

2.3 HISTORICAL PERSPECTIVE

Queen Kaahumanu Highway opened in 1970 to connect the rapidly growing Kailua area with Kawaihae which was to become a primary deep draft harbor for the island. Previously, the only route between Kailua, Kohala, and Hamakua was the Mamalahoa Highway/Hawaii Belt Road (SR 190) which is accessed from Kailua via Palani Road and runs northward to Waimea.

The Mamalahoa/Hawaii Belt Road is still in use, though its distance from coastal development and its numerous curves keep it from being a viable alternative to accessing the coastal region along the Queen Kaahumanu Highway.

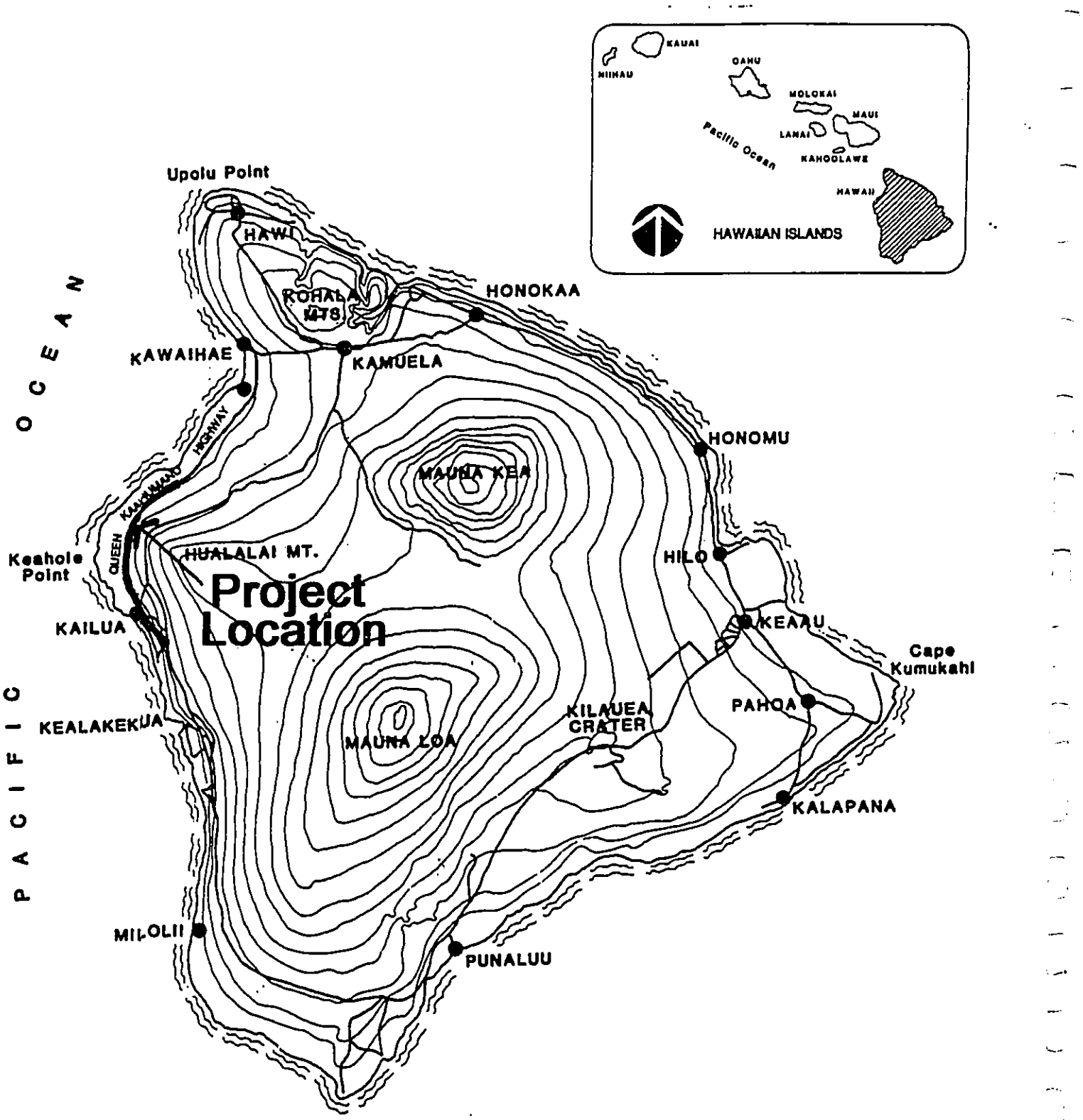
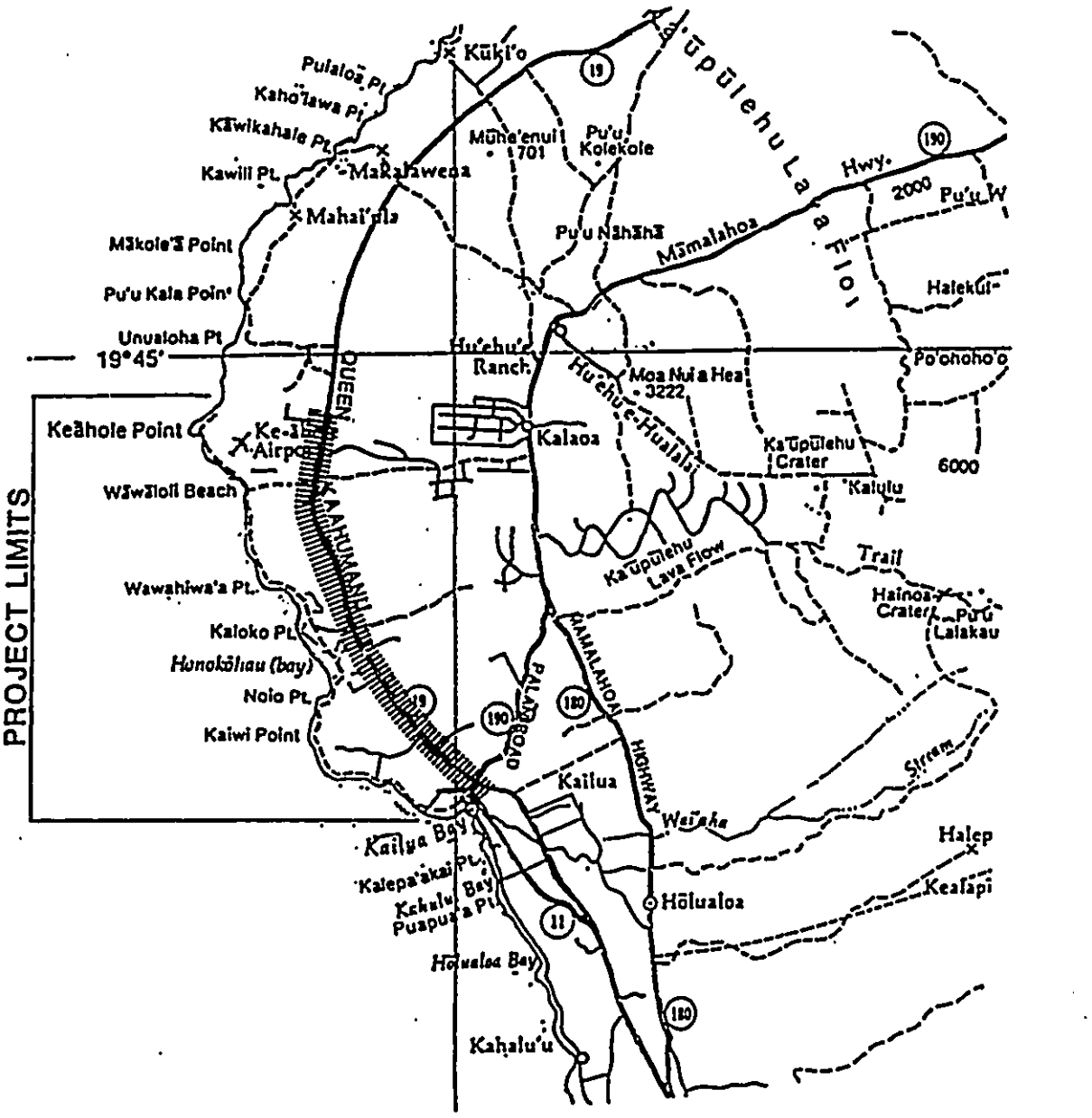


Figure 2-1
LOCATION MAP
Queen Kaahumanu Highway Widening
Department of Transportation - Highways Division

0 14 28
MILES

R. M. TOWILL CORPORATION



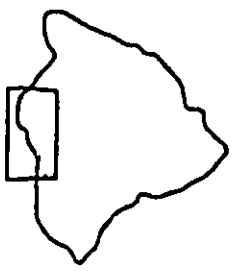


Figure 2-2

EXISTING HIGHWAY ALIGNMENT
Queen Kaahumanu Highway Widening
Department of Transportation - Highways Division

0 2 4 6 KILOMETER
0 2 4 MILES

R. M. TOWILL CORPORATION

Historically, fishing was the primary form of subsistence in this dry, desolate region. This is evidenced by nineteen major fishponds along the coastline. The population distribution closely correlated with the location of fishponds. This is reflected by the numerous archaeological features along the coast and around the ponds.

Kailua-Kona was the first capital of the Kingdom of Hawaii. Today, the Hulihee Palace still stands along Kailua's coastline as a reminder of its royal past. Kailua has been, since World War II, one of the premier visitor destinations in the state. Development in the area prompted the construction of the Keahole Airport in 1969, and the closure of the Kona Airport in response to increased air traffic demands. Keahole Airport, located north of Kailua along the Queen Kaahumanu Highway, has surpassed Hilo's General Lyman Field in air traffic. Keahole Airport and Kawaihae Harbor opened the road to development along the coastal region between Kailua and Kawaihae. As a result, industrial parks were created between Kailua town and Keahole Airport and residential development blossomed in the upland northeast of Kailua.

South Kohala has historically been an area of significance on the island of Hawaii. Located in the area is Puukohola Heiau, which was the sacred site where Kamehameha the Great came to pray to the war god Kukailimoku before going into battle. The South Kohala district has become the key area of growth in resort development for the island of Hawaii and is rapidly becoming a major resort destination area of the State of Hawaii. Commencing with the opening of the Mauna Kea Beach Hotel in the 1960's, the area has experienced a tremendous amount of growth in recent years, taxing infrastructure as well as the job market. The planned resort of Waikoloa was the first major development in the area which included a residential community.

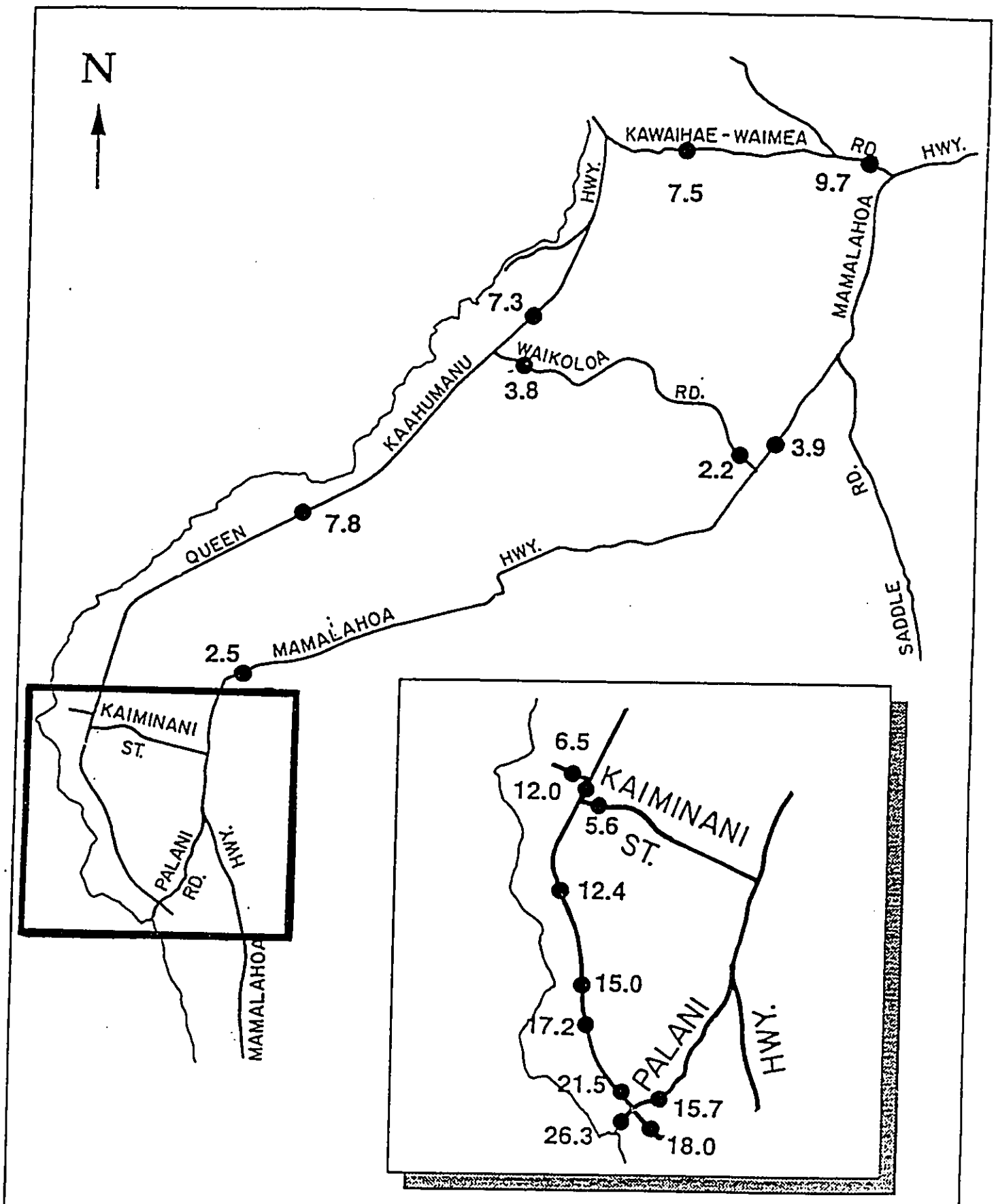
2.4 TRAFFIC FORECAST AND FACILITY DETERMINATION

2.4.1 Existing Traffic Volumes

Existing traffic volumes on the Queen Kaahumanu Highway were collected to establish a baseline for projected traffic. Existing average daily traffic (ADT) volumes were collected in two ways: 1) compilation of 1992 Traffic Survey Data (State DOT) and 2) field surveys. This data was used to calibrate a computer model called Tranplan. Tranplan, a mathematical analysis tool, was used to produce traffic volume data based upon quantitative relationships among variables. The average base year daily traffic volumes are shown in Figure 2-3.

2.4.2 Projected Traffic Volumes

Projected traffic volumes were based on the State's M-K population projections. These



Parsons Brinckerhoff	**Base Year Traffic Volumes** Daily Volumes in Thousands	FIGURE 2-3

population projections were also used to establish facilities needs in the 1991 Island of Hawaii Long-Range Highway Plan (LRHP). Based on data available at that time, the LRHP noted that the Queen Kaahumanu Highway between Keahole Airport and Palani Road would require upgrading to either a four-lane controlled freeway or a six-lane divided arterial with dedicated turn lanes provided at major intersections. This forecast of traffic volumes assumes the development of a number of new roads shown in Figure 2-4. Without any improvements, the level of service would degrade from LOS C to LOS E in the year 2010. The projected 2010 ADT is shown in Figure 2-4.

2.4.3 Level of Service

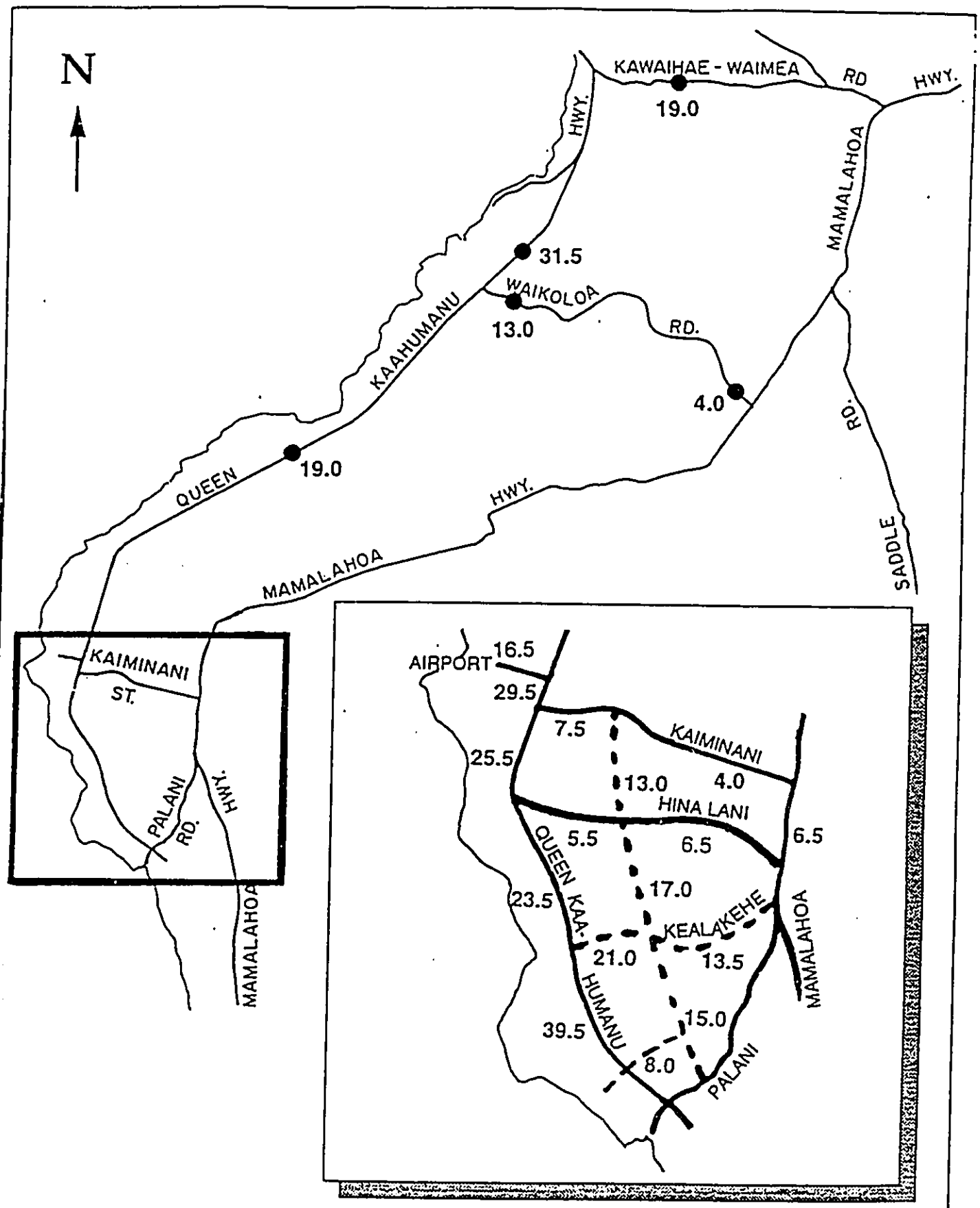
A level of service (LOS) analysis was performed for the peak period to examine the necessity for roadway improvements along the highway corridor between the Keahole Airport and Palani Road. Based on the level of service analysis, both the AM and PM peaks would degrade to LOS E from LOS D between Keahole Airport access road and Kaiminani Road by the year 1996 given current growth projections. At LOS E, it is assumed that the highway is operating at capacity and improvements will be required. LOS is a qualitative measure used by traffic engineers to describe traffic operational conditions. Six levels have been defined, from LOS-A (best operating conditions) to LOS-F (worst). For a more detailed description of LOS, see Appendix E.

The current forecast study confirms the need to upgrade Queen Kaahumanu Highway to a four-lane divided facility.

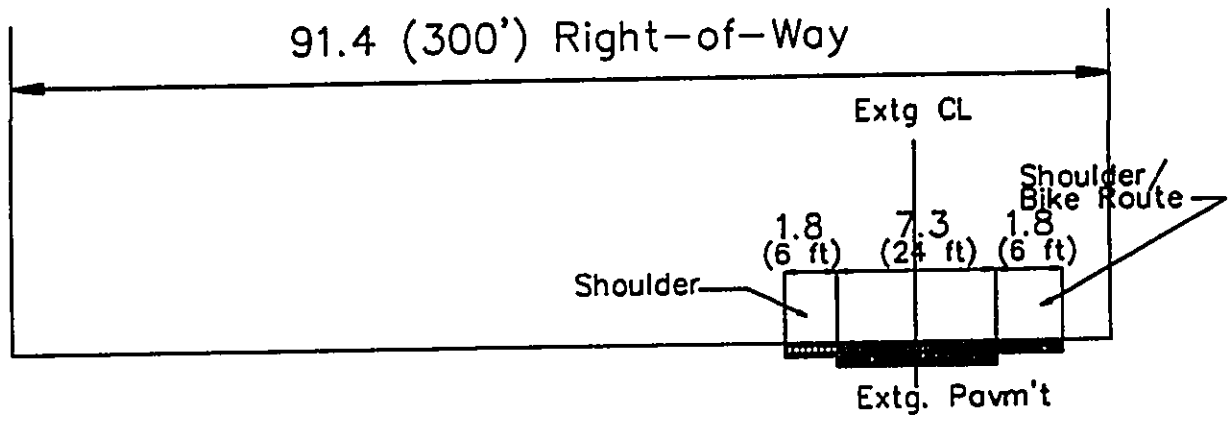
2.5 PROJECT PLANS

The proposed action will entail widening of Queen Kaahumanu Highway from its existing two lanes to a four-lane divided highway from Henry Street to Keahole Airport. A typical section of the existing highway is shown in Figure 2-5. The design parameters for the upgraded highway is as follows:

Functional Classification	Principal Arterial
Design Speed	50 miles per hour (Kailua to Makala Blvd.)
	70 miles per hour (Makala Blvd. to Keahole)
Level-of-Service	C
Design Vehicle	SU, WB-50
Design-Hourly Volume (DHV)	2,860
Number of Lanes	4



Parsons Brinckerhoff	M K Forecast Daily Volumes in Thousands	FIGURE 2-4



EXISTING ROAD SECTION (Typical)
(View north, drawing not to scale)
(Dimensions in meters (feet)

Figure 2-5
EXISTING ROAD SECTION

Queen Kaahumanu Highway
Department of Transportation – Highways Division

R.M. TOWILL CORPORATION

The existing highway right-of-way within the project limits ranges from 80 feet (near Kailua) to 300 feet. The highway segment from Palani Road to the entry to the Honokohau Boat Harbor has a right-of-way of 80 feet. From the Harbor to Keahole Airport access road, the right-of-way is 300 feet.

2.5.1 Typical Road Section

The typical road section for the upgraded Queen Kaahumanu Highway is shown in Figure 2-6. The highway is proposed to be improved from its current two lanes to a four lane divided highway. The right-of-way between Palani Road and the entrance to the Honokohau Harbor will be expanded from its current 80 feet to 300 feet. Lands acquisition will be required between Palani Road and Kealakehe to achieve the required right-of-way. The highway right-of-way from the Kaloko area to the Keahole Airport is adequate for the proposed improvements without acquisition of additional right-of-way.

2.5.2 Intersections

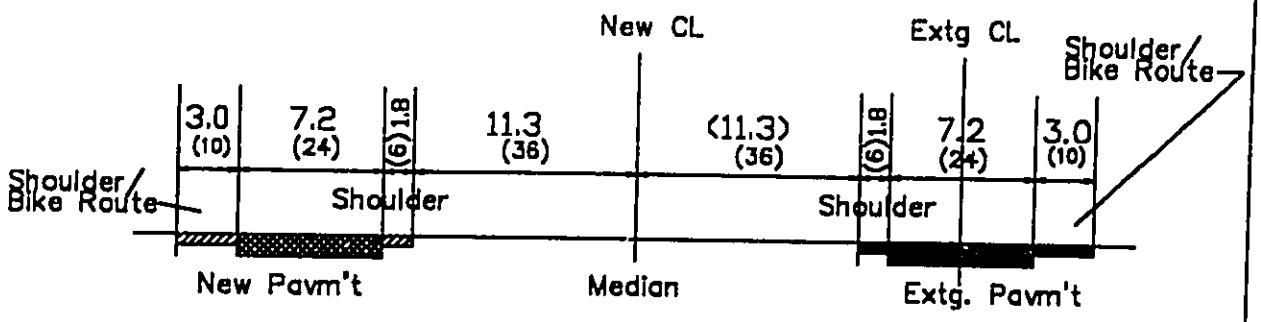
The new highway section will require improvements at existing and proposed intersections along the highway corridor. Intersection improvements recommended are summarized in Table 1.

The intersection at Palani Road will be upgraded to include two through travel lanes in each direction as well as turning lanes (storage) for left turns and acceleration and deceleration lanes. This intersection will continue to be signalized. The right-of-way at this intersection will be expanded from 80 feet to 300 feet.

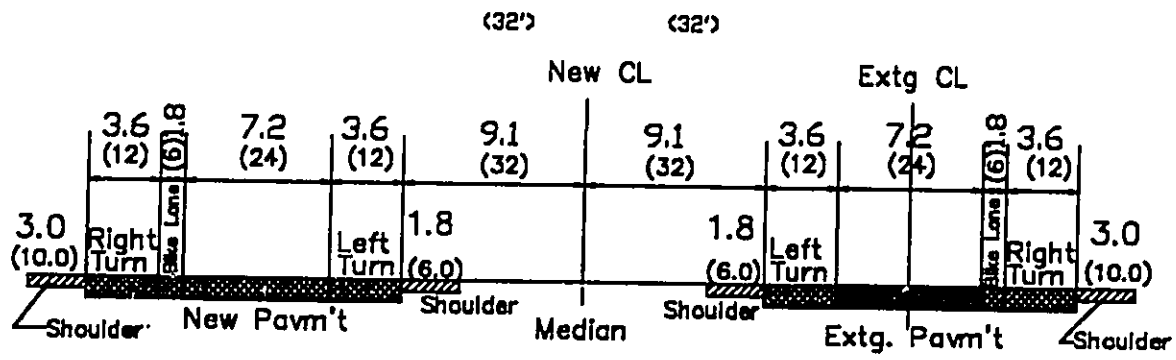
Intersection configurations for the remaining intersection between Palani Road and the Keahole Airport access road are listed in Table 1.

2.5.3 Design / Posted Speed

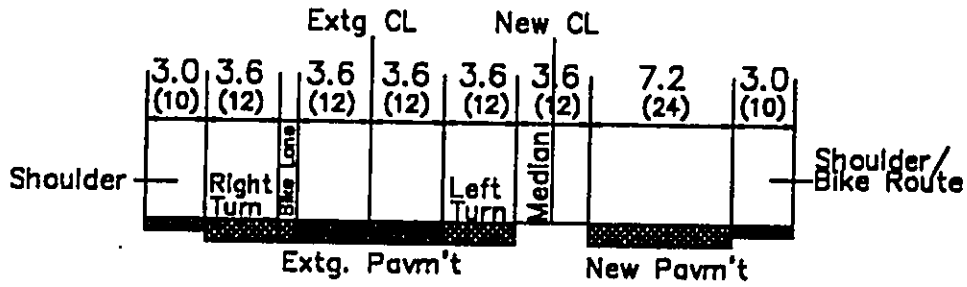
The design speed for the new upgraded portion of the Queen Kaahumanu is 70 miles per hour. The posted speed is a function of sight distances, horizontal and vertical curves, and will be set between 45 and 55 miles per hour.



TYPICAL FOUR LANE WIDENING



TYPICAL FOUR LANE WIDENING
WITH RIGHT AND LEFT TURN LANES



TYPICAL MINIMUM FOUR LANE WIDENING
(BETWEEN PALANI ROAD AND KAIWI STREET)

NOTE: All dimensions are in meters (feet)

Figure 2–6
TYPICAL ROAD SECTIONS
Queen Kaahumanu Highway (Upgraded)
Department of Transportation – Highways Division

R.M. TOWILL CORPORATION
November 1995

Table 1
INTERSECTION CONFIGURATION

Intersection/Location	Intersection Type / Description/Notes
Henry Street	Signalized 4-legged channelized intersection.
Palani Road	Signalized 4-legged channelized intersection.
Kaiwi Street	Limited Access*; channelized right-turn in and right-turn out only.
Makala Boulevard	A signalized 4-legged intersection.
Police Station	Right-turn in, right-turn out with single left towards Kailua.
Honokahau Harbor	The intersection that serves the existing Honokahau Small Boat Harbor will be upgraded to a signalized 4-legged channelized intersection and will also serve the future Kealakehe Parkway.
Kaloko-Honokahau National Park	Channelized right and left turns. The need for signalization to be determined.
Lanihau Properties	Limited Access*; right-turn in and right-turn out only.
Hinalani Drive (Kaloko Industrial Area)	Signalized 3-legged channelized intersection
Kaiminani Drive	3-legged channelized intersection with signals
At NELH	Limited Access*; channelized right-turn in and out only.
Keahole Airport	Signalized 3-legged channelized intersection
Hawaii Electric	Limited Access*; right-turn in and out only.

* Limited Access = No break in the median to allow left-turns.

2.5.4 Traffic Control Devices. Intersections along the upgraded portion of the Queen Kaahumanu that currently have signals as well as those being considered for signalization include: Henry Street, Palani Road, Makala Boulevard, Kealakehe Parkway, Hinalani Drive, Kaiminani Drive, and the Keahole Airport access road.

2.5.5 Highway Access. All landowners who currently have legitimate access to the Highway will continue to have this use. However, access may be restricted to right-turn only, and left turns for access to properties will not be allowed except at intersection allowing left turns or at designated u-turn areas.

2.5.6 Bikeway Plan. Bicycle facilities proposed for this project are in accordance with the *Bike Plan Hawaii, April 1994.*

2.6 PROJECT IMPLEMENTATION

The tentative schedule for this project are as follows:

a. Design - July 1997 - February 1998
b. Right-of-Way Acquisition - July 1996 - February 1998
c. Construction - July 1998 - June 2000

2.7 PROJECT COST

The estimated cost for the implementation of this project (based on 1993 dollars) is as follows:

Construction	$ 32.5	million
Construction Contingency 15%	4.9	
Subtotal		37.4
Design, Inspection, Administration	4.3	
Right-of-Way Acquisition	0.7	
Utility Relocation	0.5	
Subtotal		5.5
Total	$	42.9

SECTION 3
ALTERNATIVES TO THE PROPOSED ACTION

3.1 NO ACTION

The "no action" alternative was not considered because the Queen Kaahumanu Highway is a heavily used highway providing primary access to resort, commercial, industrial, and residential communities in the South Kohala and North Kona region. The South Kohala region has experienced in the past decade (1980-1990) the highest growth rate of any district in the State as reflected in the increases in traffic. Numerous planned and proposed developments in the region are expected to cause significant traffic increases. Without appropriately addressing the corresponding demands on the primary arterial highway servicing the region, the Queen Kaahumanu Highway will ultimately reach unacceptable levels of traffic congestion. Increased traffic congestion will result in greater air pollution, pedestrian-vehicle conflicts, and longer travel times. As a result, the region may suffer economically from loss of tourism and commerce caused by unacceptable means of accessing the region's resort areas.

3.2 ALTERNATIVE DESIGN

3.2.1 Four-Lane Freeway

The Island of Hawaii Long Range Highway Plan prepared in 1991 proposed the improvement of the Queen Kaahumanu Highway to a four-lane or six-lane controlled access freeway with grade separated interchanges and frontage roads to provide for local circulation and access to the freeway. This alternative was rejected because the traffic projections done for this study indicates that upgrade to a freeway is not necessary at this time. The cost of the improvements projected to develop a four-lane freeway is also substantially higher than any other alternative.

3.2.2 Four-Lane, Undivided

A four-lane undivided facility was also considered to provide the necessary capacity to accommodate the projected traffic volumes. The proposed expansion would occur on the mauka (east) side of the existing highway alignment. The right-of-way to be acquired between Kaloko industrial area and Kailua would be sufficient for future improvements to allow for a controlled access facility. A traffic barrier would be required to minimize the potential for head-on collisions and to facilitate turning movements. The cost of this alternative would be the lowest of the alternatives considered.

3.2.3 Four-Lane, Divided

A four-lane divided facility will provide the necessary capacity to accommodate the projected traffic volumes. A divided facility, as proposed, would also provide for the future expansion with minimal disruption in the future by setting aside area for expansion within the median. This alternative would cause some near term problems because of the wider than normal median. However, this shortcoming can be overcome by channeling the turning movements.

3.2.4. Mid-Level Facility

The diversion of projected traffic onto the proposed mid-level facility would be a viable alternative if the facility could be constructed within the time frame of this proposed project. No time frame for construction has been put forward, and the responsibility for construction is uncertain. Therefore, this alternative was not deemed appropriate to alleviate the traffic projected.

3.2.5 Alternative Location Design

The relocation of the highway in an eastwardly direction was considered in the Kaloko area in order to avoid the removal of a portion of the Mamalahoa Trail. This alternative was rejected because certain design elements would need to be introduced that would reduced the operational efficiency of the highway. These elements include: the reduction of design speed because of sight distance limitation; the introduction of two horizontal curves; the need to superelevate the highway to allow for the two curves; and the reduction of the size of the median. In addition to design requirements, additional right-of-way will need to be acquired.

SECTION 4
PHYSICAL ENVIRONMENT

4.1 CLIMATE

Regional and local climatology significantly affect the air quality of a given location. Wind, temperature, atmospheric turbulence, mixing height and rainfall all influence air quality. Although the climate of Hawaii is relatively moderate throughout most of the state and most of the year, significant differences in these parameters may occur from one location to another. Most differences in regional and local climates within the State are caused by the mountainous topography.

The climate on the northwestern side of the island of Hawaii 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 (13,784 feet), Mauna Loa (13,680 feet), the Kohala Mountains, Kilauea, and Hualalai (8,251). 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 degrees Fahrenheit. Rainfall is greater in the summer months and less in the winter month, a pattern unique in the State.

Impacts and Mitigation Measures

The proposed project is not expected to impact the local climate of the project area.

4.2 TOPOGRAPHY, GEOLOGY AND SOILS

The island of Hawaii is the largest and youngest island in the Hawaiian group. It was built from the ocean floor by voluminous outpouring of lava from five volcanoes-- Mauna Kea, Mauna Loa, Kohala, Kilauea and Hualalai. The study area is situated on the northwestern coast of the island between Kailua and Keahole, on the southwest slopes of Mauna Kea, Mauna Loa, Hualalai Volcanoes, and the Kohala Mountains.

Mauna Kea, the highest mountain, reaches 13,784 feet above sea level. The volcano has not erupted during historic time. It is built up of olivine basalt and covered with layers of volcanic ash. Hualalai mountain, 8,251 feet high, is built up of basalt. The last eruption of Hualalai, in

1800-1801, produced olivine basalt. Mauna Loa covers an area of 2,035 square miles. This volcano rises 13,680 feet high and last erupted in 1985.

There are primarily five soil associations within the study area, as identified by the U.S. Department of Agriculture Soil Conservation Service. The Puu Pa-Pakini-Waiaha association is located in the coastal plains area of Kailua and Kohala Mountains. This association has the characteristic of having nearly level to steep, well-drained to somewhat excessively drained soils that have a medium-textured sub-soil or medium-textured underlying material. The Kukaiau-Ainakea-Paahau association is located east of Kailua. These soils are well-drained and have a moderately fine textured subsoil. The Lava Flows association is found all along the coastal plains from just north of Kailua to Kapalaloa and inland from Kukio to the Hawaii Belt Road. These lava flows are nearly barren, excessively drained, and gently sloping to steep. The Kekake-Keei-Kiloa association is located along the Hawaii Belt Road from Palani Junction to Puu Alauawa. The Kawaihae association is found along the coastal plains of Puako Bay to Kawaihae and the lower slopes of the Kohala Mountains. They occur on moderately deep, gently sloping to moderately steep, somewhat excessively drained soils that have a medium-textured sub-soil.

Three soil types, as described below, have been identified on the project lands by the U.S. Department of Agriculture, Soil Conservation Service (SCS) (December, 1973) in a comprehensive soil survey of the Island of Hawaii. None of the three soil types are agriculturally significant. See Figure 4-1.

rPYD **Punaluu extremely rocky peat,** 6-20% slopes. Rock outcrops occupy 40 to 50 percent of the surface. Runoff is slow, and the erosion hazard is slight. This soil is used for pasture. This type of soils generally occur towards the east of the Queen Kaahumanu Highway.

rLW **Lava Flows, Pahoehoe.** This lava has a billowy, glassy surface that is relatively smooth. In some areas, however, the surface is rough and broken, and there are hummocks and pressure domes. Pahoehoe lava has no soil covering and is typically bare of vegetation except for mosses and lichens. This type of soils are predominantly found in areas affected by the 1801 lava flows of Hualalai.

rLV **Lava Flows, Aa.** This lava has practically no soil covering and is bare of vegetation, except for mosses, lichens, ferns, and few small ohia trees. It is associated with pahoehoe lava flows and many soils.

Proverbs 31
KONA BEAUTY SUPPLY

Dana Bruyn
(808) 326-2883

KONA
Kaahumanu Plaza
75-5467 Kawai St.
Kailua-Kona
HI 96740

MONTEREY
428 Alvarado Street
Monterey, CA
93940

Service Backed with Integrity

3-8-96

DIRECTOR'S OFFICE
DEPT. OF
TRANSPORTATION
MAR 12 10 16 AM '96

Att: Director, Dept of Transportation

I am writing to STRONGLY URGE you to NOT BLOCK OFF KAIWI St. in the proposed plan of widening Queen Kaahumanu Highway in the North Kona District.

It would create the most unsafe congestion and traffic accidents irritating drivers to the point of no control. Already... we have a hard time moving the traffic along at a decent pace with 3 exits of this industrial area. To eliminate one of those three would be DISASTROUS.

Won't you please hear our many voices and use an alternate plan? I'm sure mauka has room to make adjustments.

Mahalo for listening

Home Convenience Center
JOD Enterprises, Inc.
Lic. No. C-9854

74-5487 Kaiwi Street, Bay #2
Kailua-Kona, Hawaii 96740
Telephone: 329-3356

DIRECTOR'S OFFICE
DEPT. OF
TRANSPORTATION
MAR 15 11 24 AM '96

March 12, 1996

RECEIVED
MAR 18 2 01 PM '96
DEPT. OF TRANSPORTATION
HIGHWAYS DIVISION

Director, Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Re: Closure of Kaiwi Street Exit
Kailua-Kona, Hawaii

Aloha,

It has come to my attention that you are proposing to close the Kaiwi Street Exit from the Old Industrial Area in downtown Kailua-Kona. My store is located in the Kaahumanu Plaza at the top of Kaiwi.

We have waited many years to have right turns in and out of this complex. This long awaited priviledge was finally granted to us last year. Now you propose to close off the easiest access to our center. The closure could be the final financial blow to us. We are trying to survive in very difficult economic times. This while competing with the new Costco, KMart and Walmart.

Aside from the personal concern, is the overall concern for traffic congestion. Currently, the traffic is backed up almost to Kuakini between 4PM and 5PM. The closure of Kaiwi would only aggrevate this problem. How would the cars leaving the industrial area get out from the side streets onto Kaiwi, if Kaiwi is totally backed up with traffic and only two exits? It seems as though you would be creating more conjestion and dangerous conditions than already prevails.

As it stands traffic can only enter the Queen Kaahumanu Highway from Kaiwi Street going South. Isn't that enough? Anyone going North has to use one of the other exits from the Industrial Area. Surely if you need to widen the road you would have to do it on the East side of Kaahumanu anyway. This side would be costly because of the steep grade down to the buildings.

Please reconsider your thought to close the Kaiwi intersecetion on the Kaahumanu Highway.

Sincerely,

Valerie P. Oskins
President

RECEIVED
STATE DEPARTMENT
OF TRANSPORTATION
HIGHWAYS DIVISION
PLANNING BRANCH
96 MAR 19 11 20 AM

ALL INC.
76-6168 Alii Drive
Kailua-Kona, Hi 96740

Department of Transportation
869 Punchbowl Street
HONOLULU, Hi 96813

March 17, 1996

Re: Proposal to Close Kaiwe at the Intersection of Queen Kaahumanu Highway, Kailua-Kona, Hawaii.

All Inc., an Association of Liliuokalani Lessee's wish to go on record as opposing any closing of access/egress to the Industrial Park.

All Inc. Supports submitted Public Testimony regarding factors of Safety, Traffic and Business impact. All turns should be allowed except left turns out of Kaiwi Street onto Queen Kaahumanu Highway , at a minimum, allow right turns.

As a practical matter, all widening should be mauka as any makai widening around Kaiwi intersection would be difficult.

Yours very truly,

ALL INC.

Gordon L. Bartsch President

MICHAEL J. MATSUKAWA
ATTORNEY AT LAW
SUITE NO. 2
75-167E HUALALAI ROAD
KAILUA-KONA, HI 96740
TELEPHONE NO. (808) 329-1385

March 20, 1996

Mr. Ron Tsuzuki
Highways Division
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

RE: KAAHUMANU HIGHWAY ROAD WIDENING

Dear Mr. Tsuzuki:

I testified at the Kona public hearing on the EA for Banfe & Mathison, owners of the Kaahumanu Plaza along Kaiwi Street. Can you please put me on your mailing list as to any action taken on the EA (negative declaration or requiring a full EIS). Thank you.

Yours truly,

Michael J. Matsukawa

MJM:jff\wp\misc\banf-dot.ltr

Banfe & Associates
dba Kaahumanu Plaza
60 N. Beretania St., #2402
Honolulu, Hawaii 96817
(808) 536-5673

March 12, 1996

Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Re: *Closure of Kaiwi Street/*
Widening of Queen Kaahumanu Highway
North Kona District
County of Hawaii

Dear Sir,

I am a part owner of Kaahumanu Plaza, a small shopping center located at the corner of Kaiwi Street and the Queen Kaahumanu Highway in Kailua-Kona, HI. Recently, the Department of Transportation advertised for comments regarding the proposed widening of the highway and the concurrent closure of Kaiwi Street. (Attached is a copy of the proposed conceptual scheme from your office) As you may have read or heard, there was considerable opposition to the proposed closure at the recent meeting. (Attached is a copy of an article about the meeting in the Kona newspaper for the following day.)

We were not able to attend that hearing so I would like register our opposition to the proposed closure of Kaiwi Street now. I believe I am supported by most of the hundreds of businesses located within the Kona Business Plaza which is served by Kaiwi Street and hopefully the community in general.

First, a short background of Kaiwi Street. It was built over 15 years ago and has since served the community well as the primary entrance and exit into and out of the Kona Business Park and secondly, as an alternate route to and from it to ease congestion to and from downtown Kailua-Kona. Concurrent with the recent addition of a stop-lighted artery, Makalapua Boulevard, approximately a mile down the highway at the entrance to K-Mart, Kaiwi Street's access was restricted to right turns onto and off of the freeway.

The following are my reasons for opposing the closure of Kaiwi Street:

- In short, the morning and evening traffic into, through, and out of Kona is terrible. I don't know if you have been in it yourself, but it looks pretty much like the H-1 during commute hours. Not a pleasant experience. Therefore, to close any artery especially one this useful, seems counter productive.
- Kaahumanu Plaza has fourteen locally owned businesses who rely on this access to maintain customers in an environment of ever increasing competition including recent mainland arrivals such as K-Mart (who appeared to gain its access with little effort), COSTCO and Walmart. Ease of access to Queen Kaahumanu Highway is vital for their survival.
- The Kona Business Park, through which Kaiwi Street flows, has hundreds of small and medium size businesses struggling to exist. The poor economy over the past 5 years has hit Kona particularly hard. Thus, any restrictions into or out of the park will only aggravate that situation.
- Shortly after the opening of Makalapua Boulevard, and after nearly a year of negotiating and work with the County, about 6 months ago the partnership borrowed nearly $50,000 to improve Kaiwi Street where it met the highway, including widening, improved lighting, and restriping. Will the State reimburse us for this expenditure?
- Lilioukalani Trust, lessor of the Kona Business Park favors keeping Kaiwi Street open.
- The restriction on Kaiwi Street to right turns onto and off of the freeway eliminates any safety concerns and allows for the continuous flow of traffic past that point. The proof is clearly visible.
- Finally, last week I visited the planning department. I was told by one individual that Kaiwi Street would not be closed. Also, another said the land owner wanted it closed, yet a letter from Lilioukalani Trust (the land owner) was read into the minutes of the meeting in Kona supporting the position that Kaiwi Street remain connected to the highway. What this means to me is that perhaps things are not set and that the department's position or leaning is still flexible. If this is so, please consider the importance of this issue to Kona. I, along with hundreds of businesses and perhaps thousands of commuters ask that the proposed plans be changed to allow this roadway to be left open to connect to the highway after its widening. Kaiwi Street has served the community well for over 15 years. Please allow it to continue.

Mahalo,

Sharon Banfe

Sharon Banfe
General Partner

Attachments: As stated

Dept. of Transportation
569 Punchbowl Street
Honolulu, 96813

March 7, 1996

Dear Sirs,

I do not know who placed the enclosed ad in our paper but I am grateful to them because I will now write to you to say I do concur with your plan to improve auto. safety in Kona by closing the east entrance to the old industrial area.

With the new up-to-date signaled intersection a short distance to the north there is no longer need for the intersection that you plan to close. It has always been dangerous due to the unusually steep approach and poor visibility.

I am surprised that anyone would protest the closing. I suppose they must property owners and business people who place their personal financial gains above public safety.

Please continue with your plan to close the intersection at the east end of Kaiwi Street.

thank you

Tony Solomon

3-8-96

To Whom It May Concern:

In regards to the closing of Kaiwi Street.

Please do not close that street because traffic gets backed up on Queen K. Highway all the time.

Kaiwi Street is a good alternate Street.

Even with the widening of Queen K. traffic will still back up.

That is a busy highway.

Mahalo,

a Kona Resident

SECTION 12

SUMMARY OF PUBLIC HEARING

The complete transcript of the public hearing can be viewed at the Highway Planning Branch, Department of Transportation, Highways Division, 600 Kapiolani Boulevard, Room 304, Honolulu, Hawaii.

SUMMARY OF ISSUES
PUBLIC HEARING
ON THE
QUEEN KAAHUMANU HIGHWAY WIDENING PROJECT
March 7, 1996
Kealakeke Intermediate School

Presiding Officer: Mr. Stan Tamura, Acting District Engineer, Department of Transportation

Notice of Public Hearing: Honolulu Advertiser, February 7 and 28, 1996

Total In Attendance: 42

Total Number Testifying: 17

The complete transcript of the public hearing can be viewed at the Planning Branch, Department of Transportation, Highways Division, 600 Kapiolani Boulevard, Room 304, Honolulu, Hawaii.

Summary of Issues and Responses:

1. In Favor of the Project: (Mr. D. Medeiros, Mr. K. Greenwell, Mr. K. Shigezawa). Three speakers stated that they were in favor of the project without qualification.

2. No speaker spoke against the project.

3. Closure of Kaiwi Street (Ms. L. Tyler, Mr. M. Matsukawa, Ms. A. Peterson, Mr. R. Mears, Mr. J. Tyler, Ms. K. Washuta, Mr. J. Greenwell, Mr. B. Close). The speakers spoke against the closure of Kaiwi Street citing a variety of reasons as follows: the road provides access to shops and businesses in the area; economic impact resulting from limiting access; the road provides an alternative out of the area; and investments in the area will suffer.

DOT Response: Kaiwi Street will remain open, however, limited to right turn movements in and out.

4. Single Issue Speakers: (Ms. A. Peterson, Mr. F. Kuailani, Mr. T. Daniel)

   a. A representative of a bicycle advocacy group spoke in support of the project with regards to bicycle planning.

   b. A representative of the National Park Service spoke on the new access being proposed for the Kaloko Honokohau National Park. The plan for the Park is under review.

c. A representative of the Natural Energy Laboratories of Hawaii providing information on the plans of NELH and questioned why the u-turns were located where they were.

Response: The u-turns are located where they are in order to facilitate traffic movements (especially weaving). If the u-turns were less than those proposed on the plan, traffic safety will be compromised.

5. Highway Aesthetics. (Mr. K. Greenwell, Mr. K. Shigezawa). The speakers noted that the plans should include provisions for landscaping.

Response: Landscaping to be addressed during the design phase of the project.

6. Traffic Issues - General (Mr. W. Easler, Ms. M. Herkes, Ms. J. Tanimoto, Mr. R. Mears). Issues and concerns addressed by these speakers include:

a. Access along the highway to collector streets, such as Hinalani, Makala, and Henry Street.

Response: None provided.

b. Development of the planned mid-level road should be coordinated with the development of the Queen Kaahumanu Highway.

Response: The mid-level road development is being coordinated by Hawaii County. To date, no development schedule is available.

c. Traffic Volumes. Are traffic volumes higher north or south of Palani Road?

Response. Traffic volumes are larger south of Palani Road.

d. The plans show a wide median (sic. larger than H-1), and believes is "overkill".

Response. The acquisition of the large highway right-of-way affords the Department of Transportation with the ability to plan for the future.

e. Access and the development proposed at Henry Street should be examined.

Response. The plans at Henry Street will be re-evaluated.

7. Mamalahoa Trail. (Mr. J. Tyler). The proposed removal of portions of the trail should be re-evaluated to the extent feasible, or limit removal to one side of the Highway.

Response. The majority of the removal will be on the west (*makai*) side of the Highway. The removal is needed in order to meet design objectives for the Highway. On the east (mauka) side of the Highway, portions of the trail will be removed because of shoulder improvements.

Respectfully submitted:

Chester Koga

Chester Koga, AICP
Project Manager

N O T I C E

The State Department of Transportation in cooperation with the Federal Highway Administration announces the availability of the draft Environmental Assessment (EA) for the widening of Queen Kaahumanu Highway in the North Kona District, County of Hawaii. The proposed project involves upgrading the Queen Kaahumanu Highway from a two lane highway to a four lane divided highway from Henry Street in Kailua-Kona to Keahole Airport. Copies of the Environmental Assessment are available for public review and inspection at the following locations:

Federal Highway Administration
Room 3202
300 Ala Moana Boulevard
Honolulu, Hawaii

State Department of Transportation
Highways Division, Planning Branch
600 Kapiolani Boulevard, Room 301
Honolulu, Hawaii

Hawaii State Library (Main Branch)
Reference Desk
478 South King Street
Honolulu, Hawaii

State of Hawaii
Office of Environmental Quality Control
220 South King Street
Honolulu, Hawaii

Kailua-Kona Public Library
75-140 Hualalai Road
Kailua-Kona, Hawaii

Highways Division
Hawaii District
50 Makaala Street
Hilo, Hawaii

Notice is also hereby given that the State Department of Transportation will hold a public hearing on March 7, 1996, at 7:00 p.m. at Kealakehe Intermediate School (74-5062 Onipaa Street, Kailua-Kona) for the purpose of receiving evidence and testimony relating to the Queen Kaahumanu Highway project. Interested persons will be heard particularly with reference to the social, economic, and environmental impacts of the proposed project. The public hearing will discuss the design of the improvements, environmental effects, and the tentative schedules for right-of-way acquisition and construction. Persons unable or desiring not to appear at the public hearing may file signed statements presenting their views on the project. Such statements should be submitted up to and including March 18, 1996, and should be addressed to Director, Department of Transportation, 869 Punchbowl Street, Honolulu, Hawaii 96813.

Maps, drawings, and other pertinent information including written views as a result of coordination with other government agencies are available for public inspection and copying at the following location:

State of Hawaii Department of Transportation
Highways Division, Planning Branch
600 Kapiolani Boulevard, Room 301
Honolulu, Hawaii

KAZU HAYASHIDA
Director of Transportation

Honolulu Advertiser: February 7, 1996 and February 28, 1996

DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
FT. SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF

Planning and Operations Division

February 15, 1996

HWY-PA
2.9826

FEB 22 1996

Mr. Ron Tsuzuki
State of Hawaii
Department of Transportation
Highways Division, Planning Branch
600 Kapiolani Boulevard, Suite 301
Honolulu, Hawaii 96813

Dear Mr. Tsuzuki:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Queen Kaahumanu Highway Widening Project, Kailua to Keahole, Hawaii (SR-19). The following comments are provided pursuant to Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1960 and to issue Department of the Army (DA) permits under the Clean Water Act; the Rivers and Harbors Act of 1899; and the Marine Protection, Research and Sanctuaries Act:

a. Based on the information provided, a DA permit will not be required for the project (960000067).

b. The flood hazard information provided on page 4-4 of the DEA is correct.

Sincerely,

Paul Mizue, P.E.
Acting Chief, Planning
and Operations Division

Mr. Paul Mizue, P.E.
Acting Chief, Planning
and Operations Division
Department of the Army
Pacific Ocean Division
Corps of Engineers
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Mizue:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of February 15, 1996, commenting on the proposed widening of Queen Kaahumanu Highway.

We appreciate your participation in the public hearing process.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

DO:gm

cc: HWY-PA

HWY-PA 2.9719

Mr. Gordon L. Bartsch
President
All Inc.
76-6168 Alii Drive
Kailua-Kona, Hawaii 96740

Mr. Michael J. Matsukawa
Attorney-at-Law
75-167E Hualalai Road, Suite #2
Kailua-Kona, Hawaii 96740

Ms. Sharon Banfe
General Partner
Banfe & Associates
dba Kaahumanu Plaza
60 N. Beretania Street, #2402
Honolulu, Hawaii 96817

Mr. Jerry Magoon
P. O. Box 2579
Kailua-Kona, Hawaii 96745-2579

R. Damron
73-4334 Lipine Place
Kailua-Kona, Hawaii 96740

NA ALA HELE
Hawai'i Trail & Access System

January 25, 1994

RMT		WES	
DK			
RYK			
REC'D JAN 2 . 19			RMTC
RDE			
RF			
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Mr. Chester T. Koga, Project Planner
R.M. Towill Corporation
489 Waiakamilo Road, #411
Honolulu, HI 96817-4941

Dear Mr. Koga:

SUBJECT: Queen Kaahumanu Highway Widening
Honokohau 1 & 2, North Kona, Hawaii

At the last Hawaii Island Na Ala Hele Advisory Council meeting on January 20, 1994, the council expressed interest in reviewing the project proposal to widen the Queen Kaahumanu Highway. The council has an inherent interest in the preservation of historic trails and it appears that a section of the Mamalahoa Trail is at risk.

We wish to acquire a copy of the proposal for review by the council.

Thank you for your cooperation.

Very truly yours,

RODNEY T. OSHIRO
Na Ala Hele - Hawaii

Division of Forestry & Wildlife • Dept. of Land & Natural Resources • P.O. Box 4849 • Hilo, Hawaii 96720-0849

NA ALA HELE
Hawai'i Trail & Access System

February 23, 1994

RMT		WES	
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RDE		DKK	
RS			
DKM			

Chester T. Koga, AICP
Project Planner
R.M. Towill Corporation
420 Waiakamilo Road, #411
Honolulu, HI 96817-4941

Dear Mr. Koga:

SUBJECT: Queen Kaahumanu Highway Widening, Honokohau 1 & 2 and Keahuolu, North Kona, Hawaii

The Na Ala Hele Advisory Council reviewed the correspondence provided in the Queen Kaahumanu Highway widening project during its monthly meeting on February 17, 1994. It appears that very little can be done to mitigate the "taking" of sections of the Mamalahoa Trail.

Please include Na Ala Hele as a consulting party to receive the environmental assessment for the project.

Very truly yours,

RODNEY T. OSHIRO
Na Ala Hele - Hawaii

Division of Forestry & Wildlife • Dept. of Land & Natural Resources • P.O. Box 4849 • Hilo, Hawaii 96720-0849

E MAU
NA ALA HELE
P.O. BOX 6384
KAMUELA, HAWAII 96743

December 26, 1993

Mr. Chester T. Koga, Project Planner
R.M. Towill Corporation
480 Waiakamilo Road, #411
Honolulu, Hawai'i 96817-4941

SUBJECT: Chapter 6E (HRS) Compliance--Queen Kaahumanu Highway Widening, Honokahau 1 & 2, North Kona, Island of Hawai'i

Dear Mr. Koga,

Last week I received the attached copy of letter to you from Don Hibbard. Our organization wishes to comment on your proposed plans, but we need some information that will help us locate the project and to make our comments more accurate:

1. An area map so we can locate the proposed project.

2. A drawing showing the location of your proposed improvements in relation to the Mamalahoa Trail, with areas proposed for destruction delineated.

3. Has construction already begun?

4. Will we need to get permission (and from whom) to walk the site?

Your prompt replay will be appreciated.

Sincerely,

Keith Wallis

Keith Wallis
Board of Directors

enclosure

cc: Rodney Oshiro, Na Ala Hele/DOFAW
Don Hibbard, Historic Preservation

JOHN WAIHEE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

KEITH AHUE, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCE

DEPUTIES
JOHN P. KEPPELER II
DONA L. HANAIKE

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

December 6, 1993

LOG NO: 8679
DOC NO: 9311ks07

Mr. Chester T. Koga, Project Planner
R.M. Towill Corporation
480 Waiakamilo Road, #411
Honolulu, Hawaii 96817-4941

Dear Mr. Koga:

SUBJECT: **Chapter 6E (HRS) Compliance--Queen Kaahumanu Highway Widening**
Honokahau 1 & 2, North Kona, Island of Hawaii

Thank you for submitting to our office your plans for the proposed widening of Queen Kaahumanu Highway in North Kona. A field inspection of the area was conducted by our Hawaii Island archaeologist, Kanalei Shun, on November 5, 1993. Our records were also checked for verification that the area was inventory surveyed archaeologically prior to the construction of Queen Kaahumanu Highway in the 1970s. Apparently, no such survey was undertaken in this portion of the highway corridor as our office has records of surveys only from Keahole and north to Kawaihae.

The field inspection of the proposed highway widening corridor was conducted in the company of Laura Carter Schuster, cultural specialist for the Kaloko-Honokahau National Historical Park whose property abuts the corridor to the west. The corridor contains a segment of the Mamalahoa Trail, a historic site determined to be eligible for nomination to the National Register of Historic Places. A previously unrecorded *mauka-makai* trail was observed crossing Mamalahoa Trail within the corridor. Other features types such as small leveled areas possibly representing small temporary rest/work stations were identified adjacent to the corridor in the National Park property. Whether these feature types extend into the proposed road widening corridor was not verified during the inspection. Thus, our office recommends that an archaeological inventory survey be undertaken to identify and record the section of Mamalahoa Trail and any other historic sites in the corridor. The findings of the survey must be submitted to our office in report format for adequacy review. A mitigation plan for the trail and any other significant historic sites present in the corridor must also be submitted to our office for review and concurrence.

Our office is very reluctant to approve of any plans that would entail destruction of the Mamalahoa Trail. The trail is significant under multiple criteria and represents the main coastal trail of this area in the mid-1800s. Much of its length from Keahole Airport to the QLT Lands has been preserved, as requirements of development. Having the State destroy part of this trail for highway widening, does not give the public the view that the State is attempting to preserve historic sites. Thus, we strongly suggest that other alternatives to the highway widening or other routes for the corridor that will not destroy the Mamalahoa Trail should be investigated and that the present plans be adopted only if all other options have been exhausted.

If Federal funds are involved, then a Memorandum of Agreement (MOA) will need to be drawn up for the significant historic sites that will be "adversely affected" by the road widening project. A signatory to the MOA will be the Advisory Council on Historic Preservation which is now requiring that native Hawaiian and local groups be also consulted for input on the MOA. Undoubtedly, these groups will also be concerned about the trail, as well as the Na Ala Hele trails program of our department. The Advisory Council is asking for written verification that native Hawaiians and local groups were consulted and given opportunities to comment on the MOA.

If you should require further assistance, please contact Kanalei Shun at 587-0007.

Sincerely,

DON HIBBARD, Administrator
State Historic Preservation Division

KS:amk

c: Ruby McDonald, Office of Hawaii Affairs (West Hawaii Office)
Na Ala Hele
Keith Wallis, E Mau Na Ala Hele
Leimana DaMate, Kona Hawaiian Civic Club
Cathy Cameron, Advisory Council, Colorado

Benjamin Cayetano
GOVERNOR

Kazu Hayashida
DIRECTOR
DEPUTY DIRECTORS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

HWY-PA
2.8321

DEC - 5 1995

SEE ATTACHED LIST

Subject: Queen Kaahumanu Highway Widening, North Kona, Hawaii

We are proposing to widen Queen Kaahumanu Highway from two lanes to a four lane, divided facility from Kailua-Kona to Keahole Airport. As part of the environmental review process and in accordance with the National Environmental Policy Act (NEPA), Chapter 343, Hawaii Revised Statutes (HRS), Section 106 of the National Historic Preservation Act, and Chapter 6E HRS (Island Burial Councils), we have conducted an archaeological inventory survey within the project area.

Since you have been identified as a person or agency with possible knowledge of archaeological resources in the area, we have enclosed a copy of the archaeological survey, An Archaeological Inventory Survey of the New Queen Kaahumanu Highway Right-of-Way between Palani Road and Keahole Airport, for your review and consideration. Specifically, we would appreciate any input you may have on the following points:

1. Are you aware of any other historic/archaeological properties within the road rights-of-way (including traditional cultural places) that were not recorded in the inventory survey report?

2. Do you have information on additional or different uses of the site(s) to supplement the information provided in the report, or for sites not identified in the report?

3. Do you have information regarding the history and cultural use of the project area to supplement the information in the report?

4. Are the historic interpretations in the report presented correctly?

5. Do you have any comments on the significance evaluation that has been assigned to each site?

6. Do you have any other comments?

Your concerns are important to us and will be addressed in the environmental process. Do not hesitate to call Mr. Ronald Tsuzuki, our Head Planning Engineer, at 587-1830 if you have any questions.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

Enclosure

DO:gm

✓c: HWY-PA

Similar letter sent to the following:

Ms. Ruby McDonald
Office of Hawaiian Affairs
75-5706 Hanama Place, Suite 107A
Kailua, Hawaii 96740

Mr. Clayton Hee, Chairman
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Na Ala Hele
Division of Forestry and Wildlife
P. O. Box 621
Honolulu, Hawaii 96809

Mr. Charles Nakoa
Queen Liliuokalani Children's Center
1300 Halona Street
Honolulu, Hawaii 96817

Ms. Phyllis Cayan, Chair
Hawaii Island Burial Council
c/o State Historic Preservation Division
Department of Land & Natural Resources
33 South King Street, 6th Floor
Honolulu, Hawaii 96813
Attn: Mr. Edward Ayau

Mr. Keith Wallis
E Mau Na Ala Hele
P. O. Box 6348 84
Kamuela, Hawaii 96743

Ms. Leimana Damate
Kona Hawaiian Civic Club
P. O. Box 4098
Kailua-Kona, Hawaii 96745

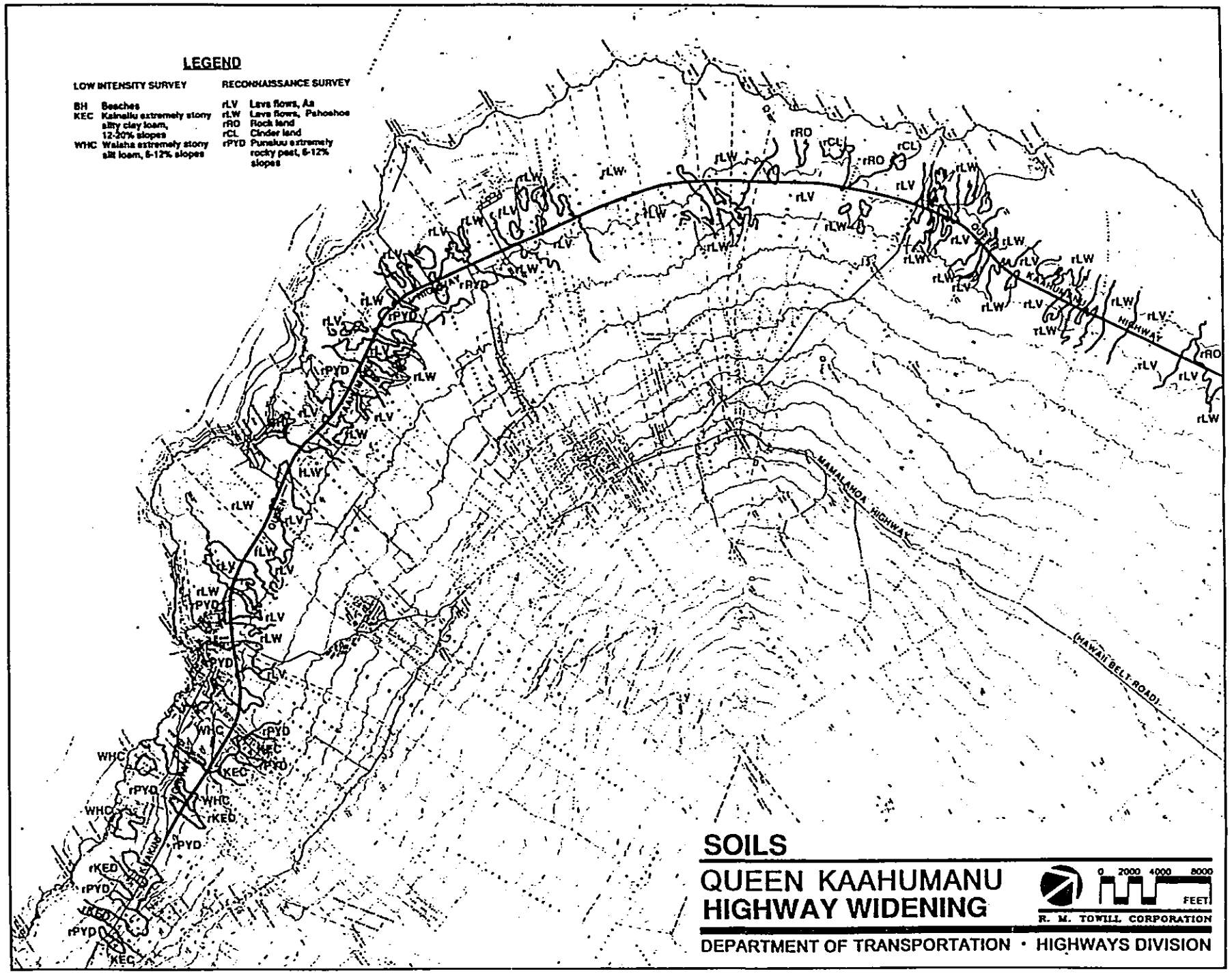

LEGEND
LOW INTENSITY SURVEY
BH Beaches
KEC Kainaliu extremely stony silty clay loam, 12-20% slopes
WHC Waiaha extremely stony silt loam, 6-12% slopes
RECONNAISSANCE SURVEY
rLV Lava flows, Aa
rLW Lava flows, Pahoehoe
rRO Rock land
rCL Cinder land
rPYD Punaluu extremely rocky peat, 6-12% slopes
QUEEN KAAHUMANU HIGHWAY
MAMALAHOA HIGHWAY
HAWAII BELT ROAD
SOILS
QUEEN KAAHUMANU HIGHWAY WIDENING
0 2000 4000 8000 FEET
R. M. TOWILL CORPORATION
DEPARTMENT OF TRANSPORTATION • HIGHWAYS DIVISION

FIGURE 4-1

Punaluu extremely rocky peat is the only actual soils and it is assigned a capability subclass of VII. This subclass has very severe limitations that make them unsuited to cultivation and restrict their use to pasture or range, woodland or wildlife. In general, lava flows (a'a and pahoehoe) and Rock Land have been mapped as miscellaneous soil types and are not really soils in the usual sense of the word they have a capability rating of VIII. 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.

Impacts and Mitigation Measures

No significant impacts are expected on the topography of the project areas. Any impacts occurring should be construction related and temporary. Grading will be required and erosion and siltation during construction will be kept to a minimum. Because there are no areas of soils with high erosion potential, the earthwork should not cause significant erosion by water or wind. Retaining walls or temporary measures such as berms, dikes, dams, sediment basins, fibermats, netting, gravel, and other control devices may be used to prevent erosion and siltation.

4.3 HYDROLOGICAL CHARACTERISTICS

Due to the expansiveness of the study area, there are many types of drainage features. These include streams, falls, ponds, fishponds, and gulches. Some of the major water features include Opaeula Pond, Waiakauhi Pond, Wainanalii Pond, Kaloko Fishpond, and Aimakapa Fishpond.

There are no perennial streams or major drainage features along the highway alignment. 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 underlaying the highway corridor is brackish basal water and is not suitable for potable water supply (Atlas of Hawaii, 1983).

Impacts and Mitigation Measures

No adverse impacts are anticipated on surface water or groundwater since the project is not expected to alter existing drainage patterns or have any long term water requirements. No alterations to any stream channels will be required. No dredging or filling will be required, and there should be no discharges that would violate any federal, State, or local water quality standards.

4.4 NATURAL HAZARDS

The potential natural hazards to which the project area could be subjected include earthquakes and volcanic eruptions. The proposed alignment does not lie within the special flood hazard area or tsunami boundary. Because of the nature of the land and soil types, floods due to rainwater surface runoff are unlikely to occur.

The Island of Hawaii is classified as Seismic Risk Zone 3 on a scale of 1 to 4 (4 being higher). "Since 1925, seven earthquakes with magnitude greater than 5.3 have occurred on the Big Island. In 1951 a magnitude 6.8 earthquake originated on the Kealakekua fault, just off the Kona Coast of Hawaii. The greatest Hawaiian earthquake of historic time occurred in April 1868. It was estimated to have had a magnitude of 7.25 to 7.75 on the Richter scale at its epicenter along the Kau District Coast" (Atlas of Hawaii, 1983).

Volcanoes Volcanic hazards in the area have been studied in detail (Mullineaux, et al, 1987). The last volcanic eruption of Hualalai that affected the project lands occurred in 1800-1801. Lava emerged from the northwest volcanic rift zone at about the 1,600-foot elevation (in the vicinity of the Puhi o Pele Cinder Cone, just makai of Mamalahoa Highway) creating a flow that entered the ocean north of Keahole Point.

The study area location on the flanks of Mauna Kea places the highway corridor in Lava Flow Risk Zone 8 for Mauna Kea and close to the edge of the boundary of Lava Flow Risk Zone 3 for Mauna Loa. Lava Flow Risk Zones 1 to 9 - 1 being highest risk - are based upon the probability of coverage by lava flows. The risk of damage from new lava flows from either volcano within the next 100 years is remote.

In addition to lava-flow hazard zones, hazard zones for tephra falls (ashfall) have also been defined for Hawaii (Mullineaux, et al, 1987). The project lands are located in ashfall-hazard Zone 4 (See Figure 4-2).

The project area is not included in the United States Geological Survey (USGS) hazard zone for pyroclastic surges. The single pyroclastic surge hazard zone on the island surrounds the Kilauea caldera, in Puna District, and extends to a distance of about 6 miles from its center. The highway corridor is more than 45 miles northwest of the Kilauea caldera.

Ground Subsidence. Other than faulting during seismic activity, ground subsidence is generally the result of either consolidation of soft or loose subsoils or of the collapse of voids in the subsurface.

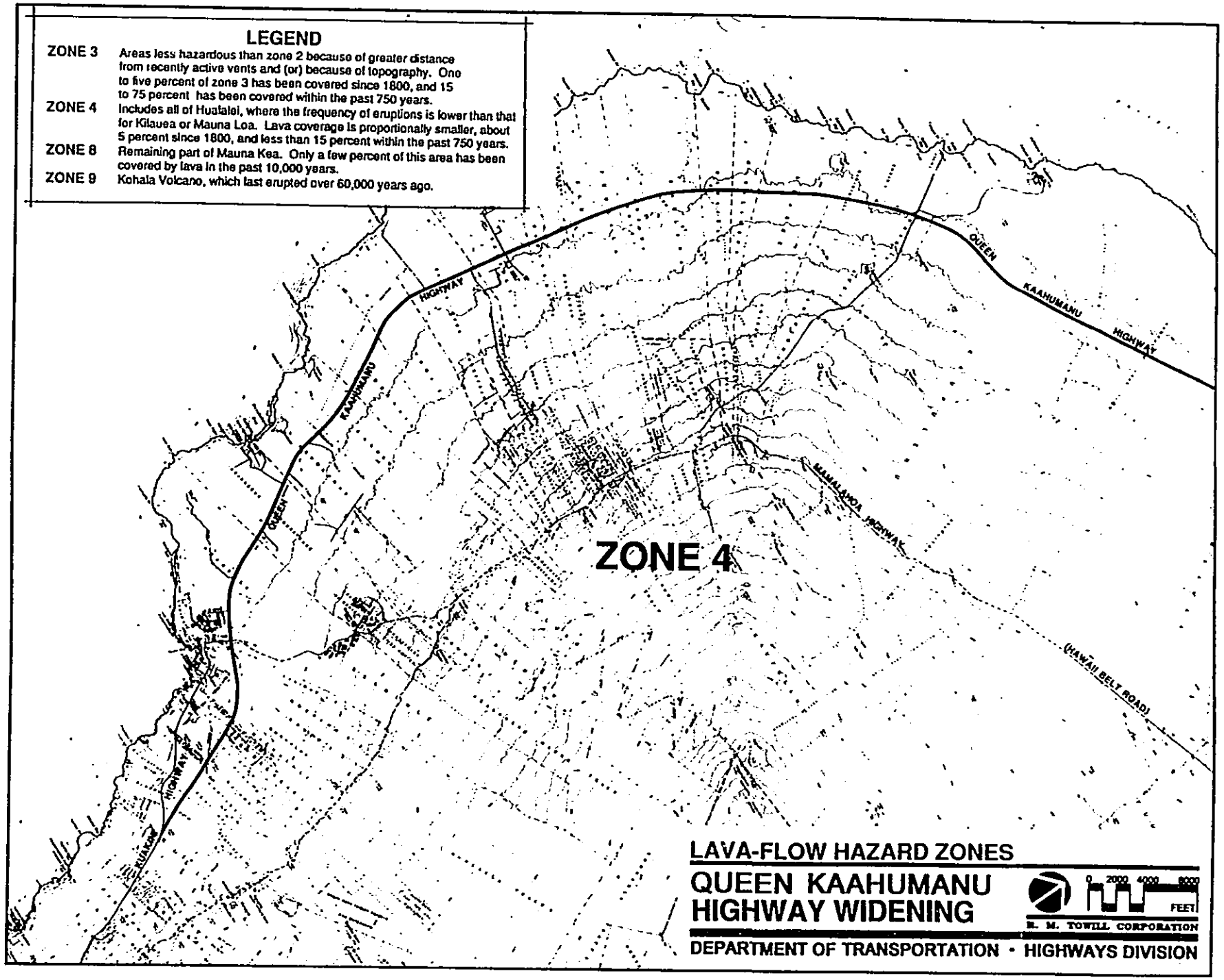

LEGEND
ZONE 3 Areas less hazardous than zone 2 because of greater distance from recently active vents and (or) because of topography. One to five percent of zone 3 has been covered since 1800, and 15 to 75 percent has been covered within the past 750 years.
ZONE 4 Includes all of Hualalai, where the frequency of eruptions is lower than that for Kilauea or Mauna Loa. Lava coverage is proportionally smaller, about 5 percent since 1800, and less than 15 percent within the past 750 years.
ZONE 8 Remaining part of Mauna Kea. Only a few percent of this area has been covered by lava in the past 10,000 years.
ZONE 9 Kohala Volcano, which last erupted over 60,000 years ago.
ZONE 4
QUEEN KAAHUMANU HIGHWAY
QUEEN KAAHUMANU HIGHWAY
MAMALAHOA HIGHWAY
(HAWAII BELT ROAD)
HIGHWAY
LAVA-FLOW HAZARD ZONES
QUEEN KAAHUMANU HIGHWAY WIDENING
0 2000 4000 8000 FEET
R. M. TOWILL CORPORATION
DEPARTMENT OF TRANSPORTATION • HIGHWAYS DIVISION

FIGURE 4-2

The project area is underlain by volcanic rock formation at the surface or at very shallow depths below the surface. This rock formation is highly competent material and is capable of supporting large structural loads. Thus, ground subsidence resulting from the consolidation of soft or loose subsoils is generally not a consideration for the subject project.

Voids, or lava tubes, are sometimes encountered in volcanic rock formation. However, it is common engineering practice to probe the subgrades of building foundations during construction to check for potential lava tubes below the building. If any lava tubes are encountered, they will be filled to reduce the potential of collapse of the foundations.

Impacts and Mitigation Measures

Seismic activity, volcanic activity, inundation and subsidence do not present any unusual problems for the project site relative to any other development in this are of West Hawaii.

4.5 FLORA AND FAUNA

Flora

A botanical study was conducted along the right-of-way (or within 150 feet of the center of the existing highway) of the Queen Kaahumanu Highway (see Appendix A). A sizable amount of the lands abutting the Queen Kaahumanu Highway are covered by a'a and pahoehoe lava. As a result, scrub vegetation is the primary type of flora found in the vicinity of the highway. A map of the plant communities found along the highway is shown in Figure 4-3. The most prevalent species found scattered throughout the region are kiawe trees (Prosopis pallida) and fountaingrass (Pennisetum setaceum). Also common in the region are small shrubs of ilima (Sida fallax), indigo (Indigofera suffruticosa), uhaloa (Waltheria indica), maia-pilo (Capparis sandwichiana), nehe (Lipochaeta lavarum), herbs and other grasses, such as pili grass (Heteropogan contortus). Koa-haole (Leucaena leucocephala), lantana (Lantana camara), and noni (Morinda citrifolia) can also be found in various regions along the highway route. Fern, lichen, and other mosses are found in damp caves and under rocks. The widening of the highway will entail minimal depletion of area plant species.

Fauna

The native black-crowned night heron (Nycticorax nycticorax) is a waterbird which occurs in the region abutting the Queen Kaahumanu Highway. A migratory species, the Pacific Golden Plover (Pluvalis fulva) is common and native to the region, preferring open areas such as mud flats, lawns, pastures, plowed fields, and road sides. Other migratory species such as the wandering tattler (Heteroscelus incanus) and the ruddy turnstone (Arenaria interpres) are found in the region. Resident exotic (introduced) bird species in the area include the zebra dove (Geopelia striata), the

LEGEND

= Fountain grass/Pahoehoe

= Fountain grass/Summer Deciduous Scrub

= Summer Deciduous Scrub

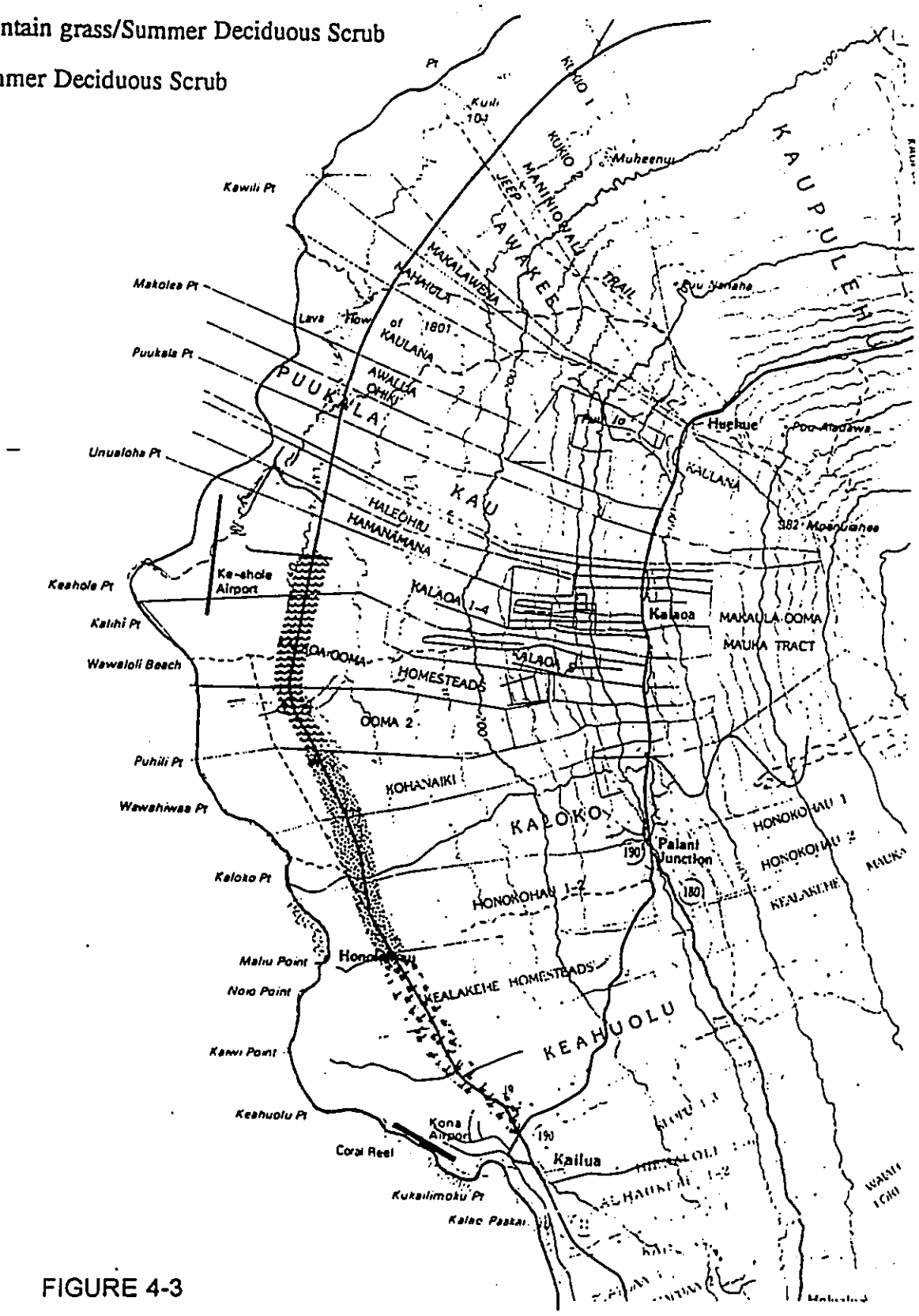


FIGURE 4-3

VEGETATION TYPES

Japanese white-eye (Zosterops japonica), the black francolin (Francolinus francolinus), the gray francolin (Francolinus pondicerianus), and the common myna (Acridotheres tristis).

Mammals known to be present in the region of the highway include mice, feral goat (Capra hircus), mongoose (Herpestes auropunctatus), feral donkey (Equus asinus), goats, cats and dogs. The native Hawaiian hoary bat (Lasiurus cinereus semotus) is listed on the Federal and State endangered species list and has been observed in the region.

Impacts and Mitigation Measures

There should be minimal impact on biological characteristics of the region for the areas surrounding the highway are sparsely populated by flora and fauna, thus the widening of the highway will not encroach on any major habitats for plant or animal species.

4.6 AMBIENT NOISE ENVIRONMENT

An acoustical study was conducted to identify noise sensitive areas and to ascertain future noise level along the highway. (See Appendix B). The major source of noise along the region of the Queen Kaahumanu Highway is vehicular traffic on the highway. The widening of the highway will allow higher traffic volumes to travel the highway, thus likely increasing noise levels to an extent along its route. However, the area along most of the highway is sparsely developed, with many developments in the region having relatively large setbacks from the highway. Noise sensitive land uses, such as residential districts, schools, churches, and hospitals are not located within a close proximity of the highway corridor.

Other sources of noise in the along the route of the highway are light industrial areas near Kailua, which are sources of relatively insignificant noise, and the Keahole Airport. Also, natural sources of noise include wind moving through vegetation in the region.

Impacts and Mitigation Measures

The widening of the Queen Kaahumanu Highway will increase noise levels in the region by increasing the number of vehicular traffic that may travel the highway. Traffic noise levels, however, have been predicted to be below levels which Federal agencies such as the Department of Housing and Urban Development (HUD) and the Federal Highway Administration (FHWA) require implementation of noise mitigation measures (see Appendix B).

4.7 AMBIENT AIR QUALITY

The present air quality in the project area is mostly affected by air pollutants from natural,

industrial, agricultural and/or vehicular sources. Natural sources than may affect the project area, but cannot be accurately quantified, include the ocean (salt spray), plants (aeroallergens), wind-blown dust and volcanoes. Of these natural sources, volcanoes are the most significant, especially since the latest eruption phase of Kilauea Volcano which began in 1983 and is continuing. Air pollution emissions from the volcano consist primarily of sulfur dioxide. After entering the atmosphere, these sulfur dioxide emissions are carried away by the wind and either washed out as acid rain or gradually transformed into particulate sulfates. Although emissions from Kilauea are vented more than 45 miles southeast of the project site, the prevailing wind patterns eventually carry the emissions into the Kona and South Kohala areas. These emissions can be seen in the form of volcanic haze (vog) which persistently hangs over the area. The American Lung Association is currently studying the character and concentrations of volcanic air pollution in the area, but to date no results are available.

The major industrial sources of air pollutants in the project area include the Keahole Power Plant, operated by Hawaii Electric Light Company (HELCO) and the Kailua Landfill, operated by the county. Air pollution from the power plant consists mostly of sulfur dioxide and oxides of nitrogen. Emissions from the landfill consists mostly of fugitive dust and noxious fumes from underground fires.

Vehicular traffic along the highway produces pollutants from exhaust fumes. The widening of the highway will allow for higher levels of vehicular traffic along its route, thus allowing for more sources from which exhaust fumes could be emitted into the environment.

Impacts and Mitigation Measures

There will be two types of short-term air quality impact from project construction: fugitive dust and on-site emissions from construction equipment. There will also be short-term indirect impacts from slow-moving construction equipment traveling to and from project work areas, traffic delays when work areas are in close proximity to existing traffic lanes forcing reduced speeds or detours, and a temporary increase in local traffic caused by commuting construction workers.

Fugitive dust emissions will arise from grading and dirt-moving activities within the project site and from any off-site dirt hauling as well. The quantitative emission rate for fugitive dust is almost impossible to estimate because the potential for its generation will vary greatly depending upon the exposed soil in work areas.

Adequate fugitive dust control can usually be accomplished by establishment of a frequent

watering program to keep bare-dirt surfaces in work areas from becoming significant dust generators. Control regulations also require that open-bodied trucks be covered at all times when in motion if they are transporting materials likely to give rise to airborne dust. Paving of work vehicle parking areas and establishment of landscaping as early in the construction process as possible can also lower the potential for fugitive dust emissions.

On-site mobile and stationary construction equipment will also emit some pollutants in the form of engine exhausts. Indirectly, slow-moving construction vehicles on the roadways could obstruct the normal flow of traffic to such an extent that overall vehicular emissions of carbon monoxide are increased, but this impact can be mitigated by moving heavy construction equipment during periods of low traffic volume.

Once construction is completed, the upgraded highway will not in itself constitute a major direct source of air pollutants and overall the main indirect impact of the project will be to significantly decrease air pollution levels along the current Queen Kaahumanu Highway route from Kailua to Keahole.

Motor vehicles, especially those equipped with gasoline-powered engines, are significant emitters of carbon monoxide. Motor vehicles also emit some nitrogen dioxide and those burning leaded gasoline can emit some lead particles as well. The major control measure limiting lead emissions is a Federal law requiring the use of unleaded fuel in most new automobiles. As older cars disappear from the vehicle fleet, lead levels have been falling sharply.

Federal control regulations also call for increased efficiency in removing carbon monoxide and nitrogen dioxide from vehicle exhausts. By the year 1997 carbon monoxide emissions from the vehicle fleet then operating should be about one third less than the amounts now emitted. At present, however, no further reduction in vehicular emissions have been mandated for years after 1997, and from that point increases in traffic levels will result in directly proportional increases in vehicle-related pollutant emissions. Present and projected levels of vehicular air pollutants, specifically carbon monoxide, can be investigated by looking for a selected potential "hot spots" along the proposed roadways using mathematical diffusion modeling techniques as is done in the next section of this report.

4.8 VIEWS

The Queen Kaahumanu Highway is a coastal highway which provides numerous vistas of the

Pacific Ocean to the west as well as of the Kohala Mountains, Mount Hualalai, Mauna Kea, and the slopes of Mauna Loa. The upper slopes of Mauna Kea are covered by snowfall during the winter and early spring. The vast areas along the highway covered by primarily pahoehoe lava flows allow virtually completely unobstructed view planes of the South Kohala and North Kona coastlines. Along the highway route views are offered of kiawe forests, recent and ancient pahoehoe and a'a lava flows, and grassy uplands.

Impacts and Mitigation Measures

As indicated elsewhere in this report, the proposed Queen Kaahumanu 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 300-foot right-of-way would be disturbed in the course of construction. The widening of the Queen Kaahumanu Highway will have minimal visual impacts, though it may reduce the aesthetic qualities of certain by increasing the amount of pavement.

4.9 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

The South Kohala/North Kona region is known for its rich historical and archaeological resources. Archaeological remains in the area reflect Hawaiian occupational adaptations and land use patterns, especially as they relate to mauka and makai of the corridor. Caves of refuge, dwelling caves, walled shelters, trails, and other artifacts attest to the habitation of the region by ancient Hawaiians.

An archaeological assessment and an archaeological inventory survey of the proposed Queen Kaahumanu Highway Widening Project, North Kona District, were prepared. An archaeological research of previous archaeological studies and archaeological survey of the right-of-way (ROW) for the proposed widening of the Queen Kaahumanu Highway were conducted by Cultural Surveys Hawaii.

A listing of 43 previous archaeological studies are shown in Appendix C. The location of the sites found are shown in Figure 4-4. Those portions of the ROW that were not adequately surveyed previously were ground surveyed at the inventory survey level. This includes approximately 13,200 feet along the makai (west) side and approximately 11,200 feet along the mauka (east) side of the Highway.

Table 2 is a listing of sites previously identified within 300 feet of the Queen Kaahumanu Highway (between Palani road and the Keahole Airport access road), listed by Ahupua'a from south to

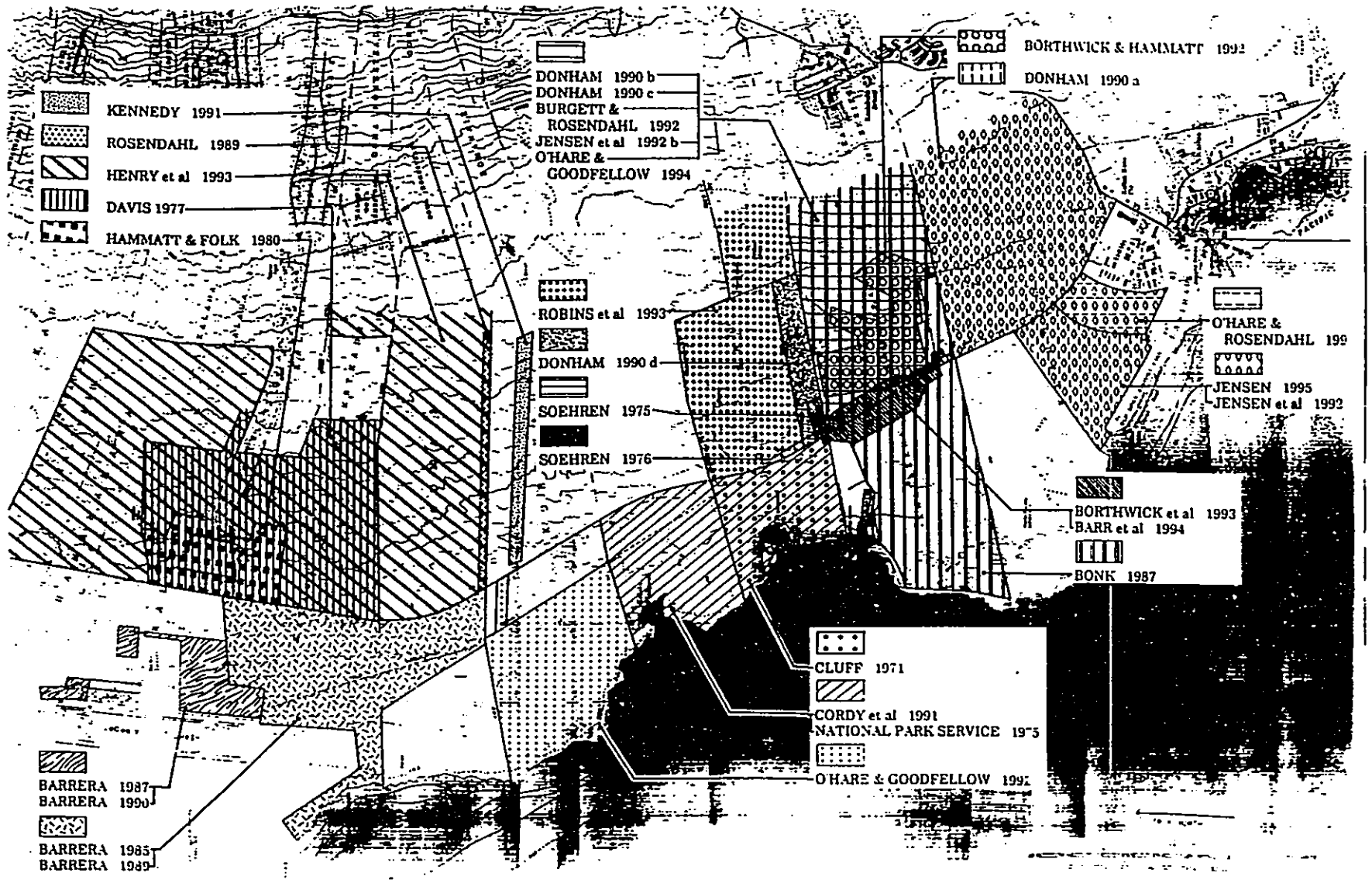


Figure 4-4. Map Showing Approximate Project Area Locations of Previous Archaeological Studies

TABLE 2
Sites Previously Identified Within 300 Feet of Queen Kaahumanu Highway
(between Palani Road and Keahole Airport Access Road)

Site #	Site Type	Ahupua'a	Level	References	Recommendation	Status
13341	Modified Outcrop Complex	Keahuolu	IS, DR	Donham 90a, Jensen 92a+	NFW	M
13340	Complex				FDC	M
13485	Mound				NFW	M
13486	Pahoehoe Excavation				NFW	M
13338	Complex				NFW	M
13484	Complex				FDC	M
13337	Complex				FDC	M
13336	Complex				FDC	M
13335	Complex				FDC	M
13334	Complex				FDC	M
13304	Pahoehoe Excavation				NFW	M
13312	Terrace				NFW	M
13481	Pahoehoe Excavation				NFW	M
13310	Alignment				NFW	M
13311	Complex				NFW	M
13313	Pecking Marks				NFW	M
13314	Pahoehoe Excavation				NFW	M
13315	Rubble Wall				FDC	M
00002*	Mamalahoa Trail				FDC, PID	P
18513	Complex			O'Hare 93, Jensen 92a+	FDC	M
18514	Wall				NFW	M
18515	Complex				FDC	M
18516	Complex				NFW	M
18517	Filled Depression				NFW	M
18518	Complex				FDC	M
00002	Mamalahoa Trail				FDC, PID	M
13194*	Trail	Kealakehe	IS, DR	Donham 90b+ Jensen 92b	P, I	P

13195	Ahu(s)				NFW	M
00002*	Mamalahoa Trail				P, I	P
18081	Petroglyphs	Honokohau	IS	Robins et al. 95	P	K
18083	Modified Outcrop				DR	K
18084	Rockshelter				DR	K
18085	Lava Tube				DR	K
18086	Pahoehoe Basin				NFR	K
18091	Petroglyph				NFR	K
18186	Wall Segment				NFR	K
00002*	Mamalahoa Trail				P	K
Not yet assigned*	Inland-heading Trail		R	National Park Service	None	K
Not yet assigned*	Inland-heading Trail		R	National Park Service	None	K
02199	Trail	Kaloko	S	Cordy et al. 91	None	K
BPM 90	Trail				None	K
02238*	Wall w/ midden				None	K
02233	Trail				None	K
02240	Trail				None	K
10154	Habitation Structure	O'oma 2	R, DR	Barrera 85, 89	Additional Recording Only	M
06432*	Boundary Wall	Kalaoa-O'oma	S	Davis 1977	None	K
18524	Pahoehoe Excavation		R	Henry et al 93	FDC	K

KEY

+	Indicates there are associated addendum reports or revision letters
IS	Inventory Survey
DR	Data Recovery
S	Survey (conducted prior to establishment of current IS standards)
NFW	No Further Work
NFR	No Further Research
FDC	Further Data Collection
PID	Preservation with Interpretive Development
P,I	Preservation with Interpretation
P	Preserved - Included in a preservation plan
M	Mitigated - Site adequately recorded
K	Known - Site has been identified but findings and recommended treatment have not been made and/or have not yet approved by DLNR-SHPD
*	Site included in present Inventory Survey

north.

Thirty-eight archaeological sites have been previously identified within 300 feet each site of the present Queen Kaahumanu Highway (see Figure 4-5). Twenty-six of these sites are considered by the State Historic Preservation Officer to have been adequately recorded and required not further mitigation work. Eight sites have been identified and recorded by recommendations for further treatment have not been submitted to the Historic Preservation Division for approval. Two sites have been incorporated into the boundaries of the Kaloko-Honokahau National Park. Two sites have been designated preserve sites. The archaeological ground survey identified seventeen sites (see Table 3 and Figure 4-6). Five of these sites include: Site 00002, 02238, 06432, 13194, and 15324. The remaining twelve sites are newly identified and include sites 19943 through 19954.

Of the seventeen sites, eight (Sites 02238, 19943, 19944, 19946, 19950, 19952, and 19945) are recommended to be preserved to the extent possible within the proposed highway widening plans, and those portions of these four sites that cannot be avoided by included in a program for data recovery.

No further work is recommended for the remaining five sites (Sites 0643, 19947, 19948, 19949, and 19951). The seventeen sites consists of 29 individual features as follows: nine single feature sites and eight sites with multiple features. Formal sites and feature type include: trails (7); modified outcrop (4); cairns (3); walls (2); mounds (3); petroglyphs (2); enclosures (2); road; terrace; alignment; ash deposit; midden scatter; and pahoehoe excavation. The functions of the sites identified include: transportation; temporary habitation; boundary; markers; special; quarry; agriculture and unknown. Location maps for the sites identified are included in Appendix C.

Along the Queen Kaahumanu Highway is located the Kaloko-Honokohau National Historical Park which contains a number of important archaeological sites and which has the purpose of preservation, interpretation, and perpetuation of traditional Native Hawaiian activities and culture. Mamalahoa Trail parallels the route between Kailua Industrial Park and the Keahole Airport.

The only archaeological site of significance that will be impacted by the proposed project is the Mamalahoa Trail. The Mamalahoa Trail has been determined by the State Historic Preservation Office to be significant for multiple criteria. It is considered significant because of its association with broad patterns of history (early historic transportation), because it is an excellent example of a site type (historic Kerbstone trail), because of its information content, and because of its significance to an ethnic group (Hawaiian).

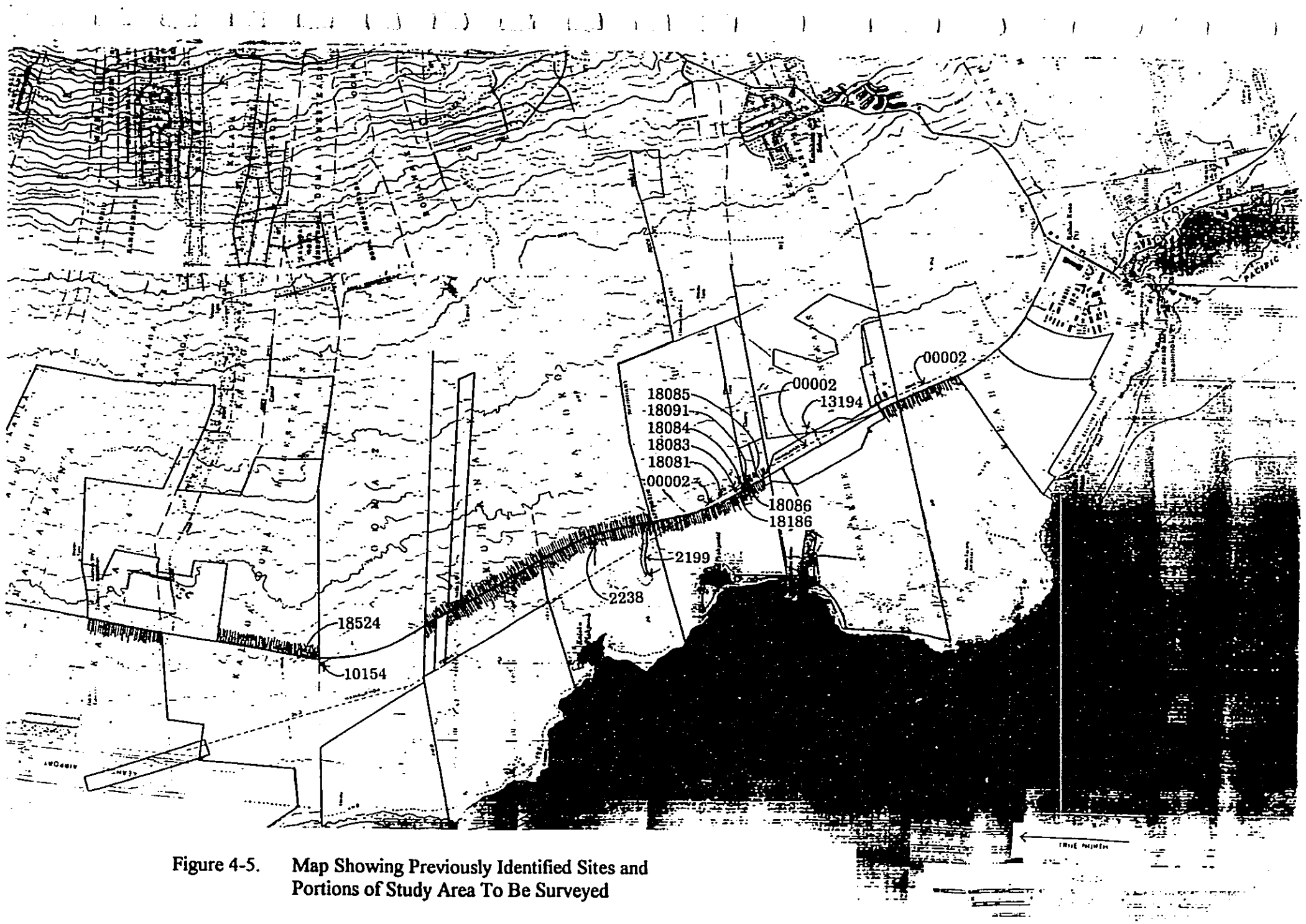


Figure 4-5. Map Showing Previously Identified Sites and Portions of Study Area To Be Surveyed

TABLE 3
Sites Included in the Present Inventory Survey

State Site #	CSH Site/ Feature #	Ahupua'a	Site/Feature Type	Probable Function	Preliminary Significance	Recommended Treatment
00002	--	Keahuolu, Kealakehe, Honokohau	Road (Mamalahoa Trail)	Transportation	A,C,D,*	DR, P[1]
02238	11	Kaloko	Complex	Temporary Habitation	D	DR
	11A		Terrace			
	11B		Enclosure			
06432	16	O'oma 2	Wall	Boundary, Ranching	D	NFW
13194	--	Kealakehe	Trail	Transportation	C,D,E,*	DR, P[1]
15324	6	Kohanaiki	Trail Network	Transportation	D,E,*	DR, P
	6A		Trail Branch			
	6B		Trail Branch			
(Newly Identified Sites)						
19943	1	Kalaoa 1-4	Utilized Lava Tube (with interior features)	Temporary Habitation	D	DR
	1A		Mound			
	1B		Alignment			
	1C		Ash Deposit			
	1D		Midden Scatter			
19944	3	Kalaoa 1-4	Mounds (2)	Markers	D	DR
	3A		Mound			
	3B		Mound			
19945	4	Kalaoa 1-4	Petroglyphs (2)	Special	D, E	DR, P
	4A		Petroglyph Figure			
	4B		Petroglyph Figure			
19946	5	Kohanaiki	Trail	Transportation	D	DR
19947	7	Kohanaiki	Cairns (3)	Boundary markers	D	NFW

State Site #	CSH Site/ Feature #	Ahupua'a	Site/Feature Type	Probable Function	Preliminary Significance	Recommended Treatment
	7A		Cairn			
	7B		Cairn			
	7C		Cairn			
19948	8	Kaloko	Pahoehoe Excavation	Quarry	D	NFW
19949	9	Kaloko	Enclosure	Unknown	D	NFW
19950	10	Kaloko	Modified Outcrop Complex	Agriculture	D	DR
	10A		Modified outcrop			
	10B		Modified outcrop			
	10C		Modified outcrop			
	10D		Modified outcrop			
19951	12	Kaloko	Wall	Boundary, Ranching	D	NFW
19952	13	Kaloko	Trail	Transportation	D	DR
19953	14	Honokohau	Trail	Transportation	D	DR
19954	15	Honokohau	Trail	Transportation	D	DR

KEY:
- A — Site reflects major trends or events in the history of the state or nation
- B — Site is associated with the lives of persons significant in our past
- C — Site is an excellent example of a site type
- D — Site may be likely to yield information important in prehistory and history
- E — Site has cultural significance; probable religious structures (shrines, *heiau*) and/or burials present
- DR — Data Recovery
- P — Preserve
- P[1] — Preserved - included in previous Preservation Plan(s)
- NFW — No Further Work
- * — Significance assessments of site (or portions of site) also determined in prior archaeological studies

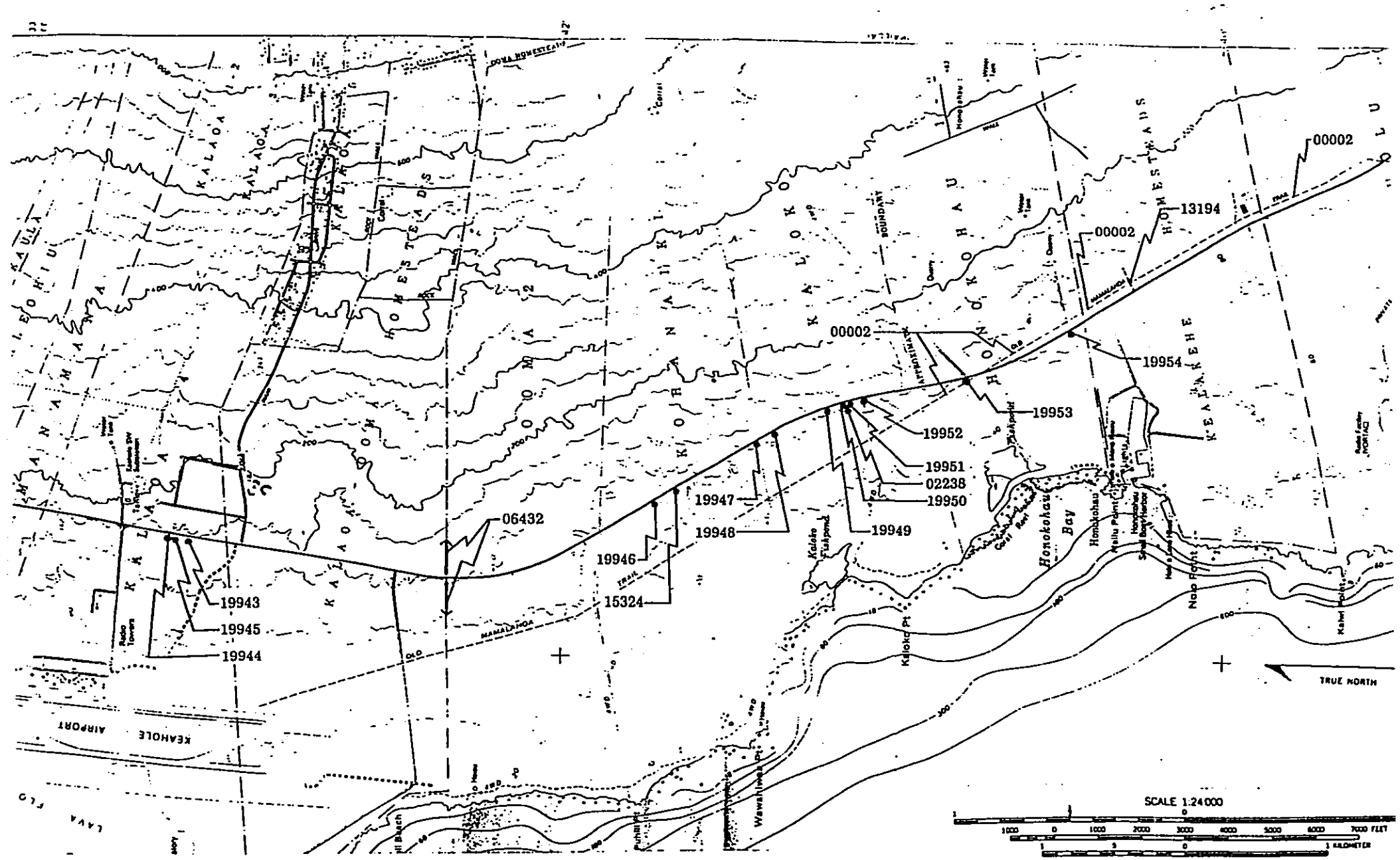


Figure 4-6. Project Area Map Showing Location of Archaeological Sites

Because Queen Kaahumanu Highway currently bisects Mamalahoa Trail at two locations (see Figure 4-7), the widening of the highway will require the removal of a portion of the trail adjacent to the existing roadway. Figures 4-8 and 4-9 show the impact at Kaloko and Keahuolu, respectively. The widening has been designed to minimize impacts on the trail without compromising the highway design and affecting adjacent developments. In the Kaloko area, the alignment will be shifted to the east (mauka) and the median width will be reduced to save a portion of the trail within the highway rights-of-way.

Alternatives that completely avoid the trail were considered but were found not prudent or feasible for the following reasons:

1) Relocation of the highway either eastward or westward would have a severe impact on adjacent *developments*;
2) Constructing a viaduct over the trail would adversely affect the adjacent access and would not be cost effective;
3) Constructing another highway in a different corridor (e.g. mid-level highway) would not meet the objective and purpose of this proposed action; and
4) Doing nothing will not meet the transportation needs of the area.

Mitigation proposed include the recordation of the trail that would be removed. Recordation to include: detailed mapping and photo-documenting the trail and it environs. In addition, consultation will include the State Historic Preservation Office, Office of Hawaiian Affairs, Na Ala Hele, Hawaii Burial Council, and Hawaiian Civic Clubs.

Impacts and Mitigation Measures

The widening of the highway will impact the Mamalahoa Trail by causing the removal of approximately 100 to 150 feet of the trail resulting from earth work. Approximately 350+ feet of the trail will remain intact within the Highway ROW. Because the Queen Kaahumanu Highway bisects the Mamalahoa Trail, complete avoidance is not possible without compromising the highway design. Mitigation proposed include the recordation of the trail that would be removed. Recordation to include: detailed mapping and photo-documenting the trail and it environs. A mitigation plan will be submitted to the Division of Historic Preservation prior to the commencement of any work. Further, a Memorandum of Agreement will be developed to codify the mitigation plan developed.

Section 4(f) of the Department of Transportation Act, 49 U.S.C. 303 and 23 U.S.C. 130 permits the use of archaeological sites eligible for the National Register which warrant in

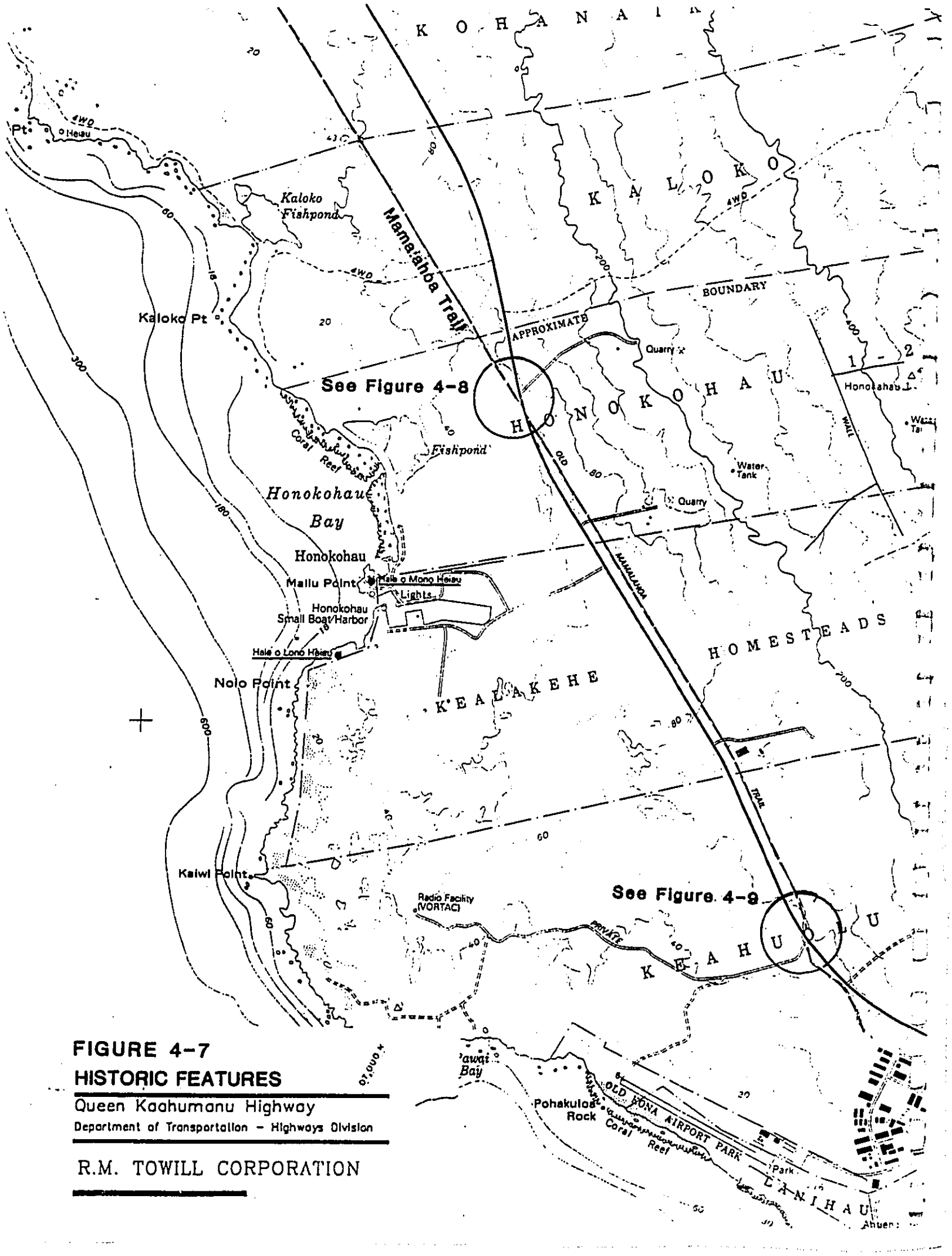


FIGURE 4-7

HISTORIC FEATURES

Queen Kaahumanu Highway

Department of Transportation – Highways Division

R.M. TOWILL CORPORATION

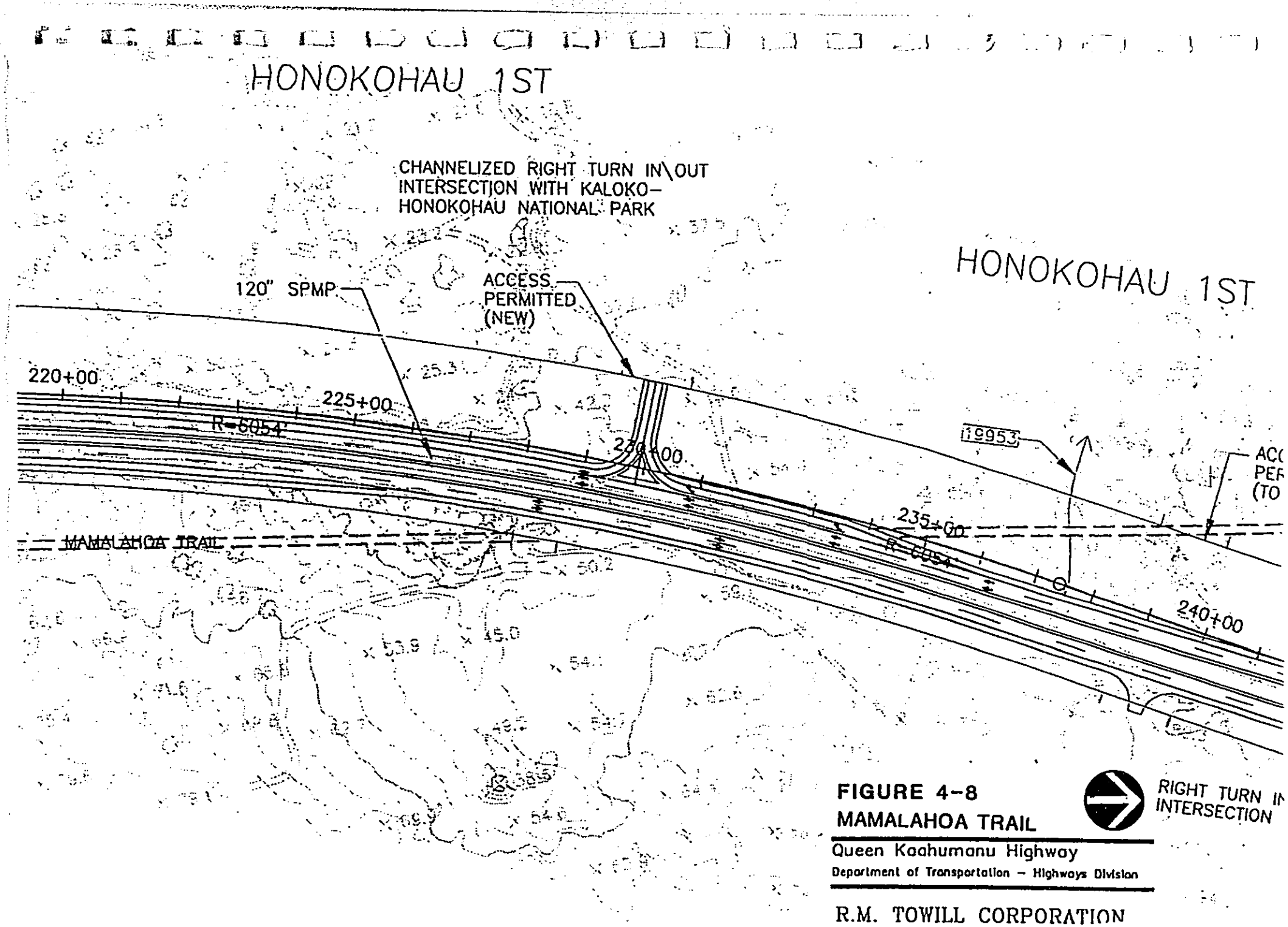


FIGURE 4-8
MAMALAHOA TRAIL

Queen Kaahumanu Highway
Department of Transportation – Highways Division

R.M. TOWILL CORPORATION

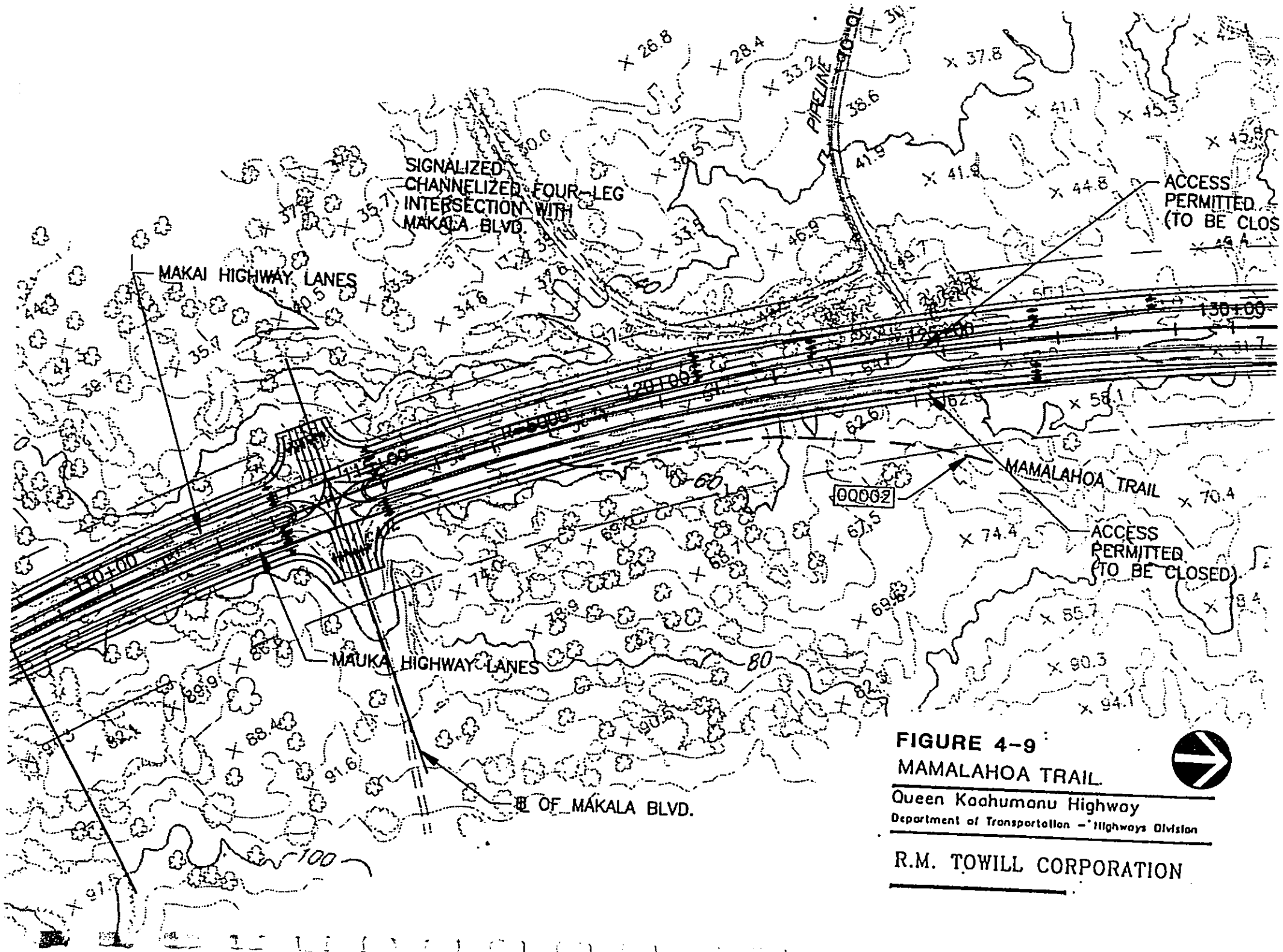


FIGURE 4-9

MAMALAHOA TRAIL

Queen Kaahumanu Highway

Department of Transportation – Highways Division

R.M. TOWILL CORPORATION

place preservation only when there is no feasible and prudent alternatives to such use and the project includes all possible planning to minimize harm to the property resulting from such use. The Mamalahoa Trail is considered a Section 4(f) resource. Therefore, a 4(f) evaluation has been prepared for the trail in accordance with the applicability criteria set forth in the Nationwide Programmatic Section 4(f) Evaluation and Approval.

SECTION 5
SOCIO-ECONOMIC ENVIRONMENT

5.1 POPULATION

The County of Hawaii is the southernmost and largest island of the Hawaiian Archipelago. The land area of the County is approximately twice that of all the other islands of the State combined.

Within the past twenty-five years, tourism has emerged as the primary economic activity on the island. Much of the economic growth experienced during this period can be linked with the expansion of the visitor industry.

In 1970, just prior to the adoption of the County General Plan, the population in the County of Hawaii numbered 63,468. The 1970 census count was the first to show an increase since 1930. Population peaked at 73,325, largely as a result of the importation of labor for the sugar industry.

Since 1970, the county's population has continued to grow. The 1980 census registered an island-wide population of 92,053 people representing a growth of 28,585 residents for a 45% increase over the 1970 census. Estimates prepared in the 1991 Hawaii State Data Book suggest a population of 120,317 in 1990.

The study area lies within the districts of South Kohala and North Kona. The total population of these two districts was determined to be 31,424 by the 1990 Census. From 1980 to 1990, South Kohala experienced the highest percentage of change in population of any district in the State of Hawaii (98.4%).

Three sets of population projections were developed for the County's comprehensive planning review program, series A, B, and C. The major variable in each of these projections is the rate of growth of the visitor industry.

Series A is the most conservative projection. It assumes the demise of the sugar industry and modest expansion in the visitor industry. The overall 1985-2005 rate of growth for series A of 2.0 % per annum is less than the 2.9% rate of employment growth in the County during the last five years.

Series B projections were developed as a medium series. Sugar employment is maintained and

the overall per annum employment growth rate is 3.7%.

Series C reflects an optimistic outlook of the County's future. It is assumed that 17,800 hotel rooms plus additional condominium units will be built in the County by 2004. The average annual growth rate of employment is 3.7%.

The proportion of 1980 residential population in East Hawaii was 67 percent to 33 percent, respectively. County projections for the year 2005 indicate a shift in population from East Hawaii to West Hawaii. The county projects that by the year 2005, 44.5% of the residential population will be living in West Hawaii.

Patterns and population settlement and growth are defined for the most part by an area's economic opportunities and its energy resources. The West Hawaii region has many opportunities to sustain a stable and diversified economy supported by energy resources, high technology research and development, aquaculture, diversified agriculture, commercial and sport fishing, seafood marketing and ocean research.

Impacts

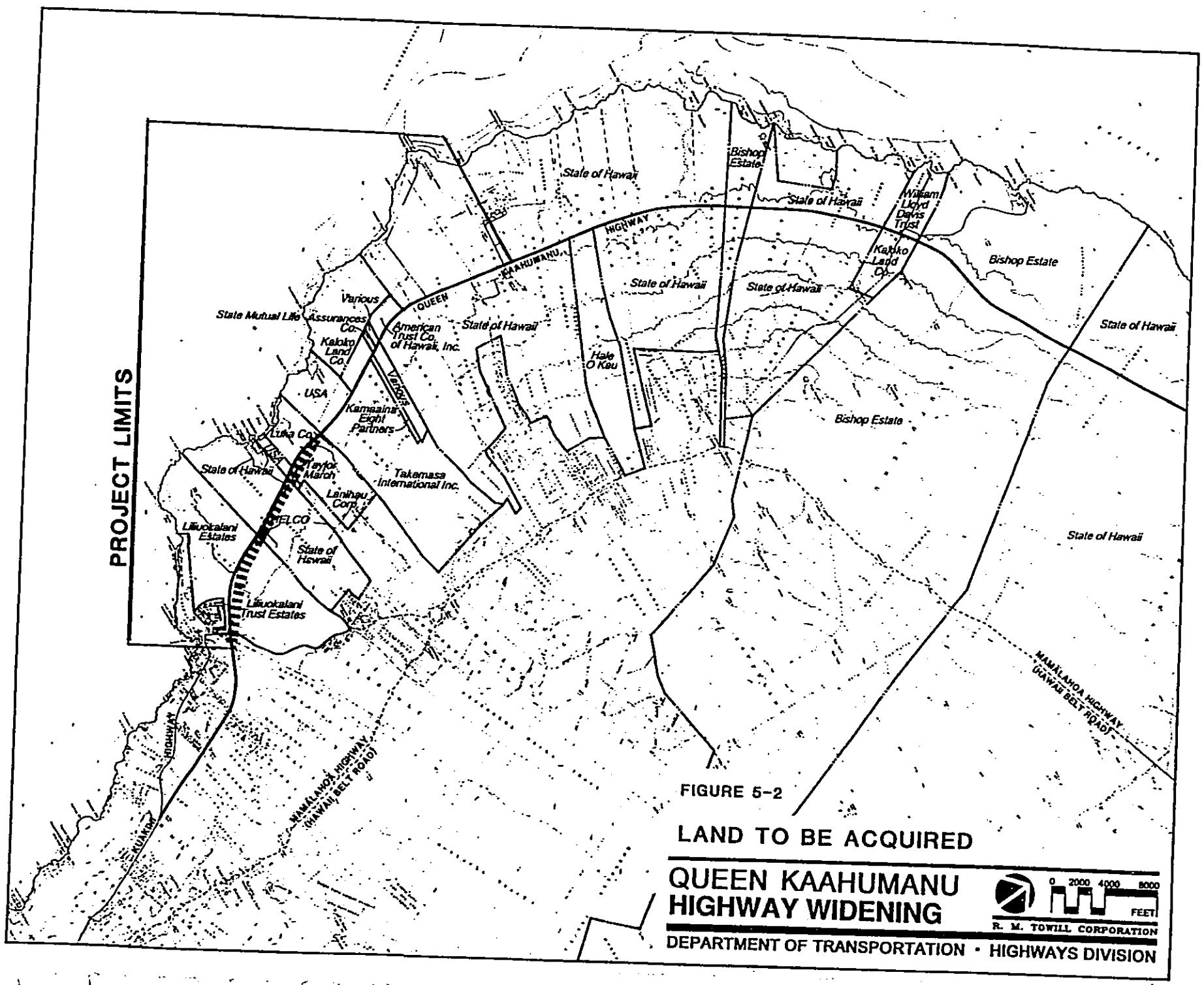
Expansion of the Queen Kaahumanu will have a positive impact on the population of the region, by meeting current demands and fulfilling future demands upon the highway infrastructure of the South Kohala and North Kona region.

5.2 EXISTING LANDOWNERS

Major existing landowners along the highway right-of-way include the following: (See Figure 5-1)

- State of Hawaii
- Queen Liliuokalani Trust
- Department of the Interior, National Park Service
- Kaloko Land Company
- American Trust Companies
- Various Small Land Owners

Impacts and Mitigation. Approximately 50 acres of land will be acquired for this project to increase the highway right-of-way. The areas where acquisition will take place is shown in Figure 5-2. The major private landowner impacted is the Queen Liliuokalani


PROJECT LIMITS
State of Hawaii
Bishop Estate
William Lloyd Davis Trust
Kaiko Land Co.
HIGHWAY
KAAHUMANU
QUEEN
Various
State Mutual Life Assurance Co.
Kaloko Land Co.
American Trust Co. of Hawaii, Inc.
Hale O Kau
USA
Kamaaina Eight Partners
Luna Co.
Taylor Mann
Takemasa International Inc.
Lanihau Corp.
HELCO
Liliuokalani Estates
Liliuokalani Trust Estates
MAMALAHOA HIGHWAY (HAWAII BELT ROAD)
KUAKINI HIGHWAY
FIGURE 5-2
LAND TO BE ACQUIRED
QUEEN KAAHUMANU HIGHWAY WIDENING
0 2000 4000 8000 FEET
R. M. TOWILL CORPORATION
DEPARTMENT OF TRANSPORTATION · HIGHWAYS DIVISION

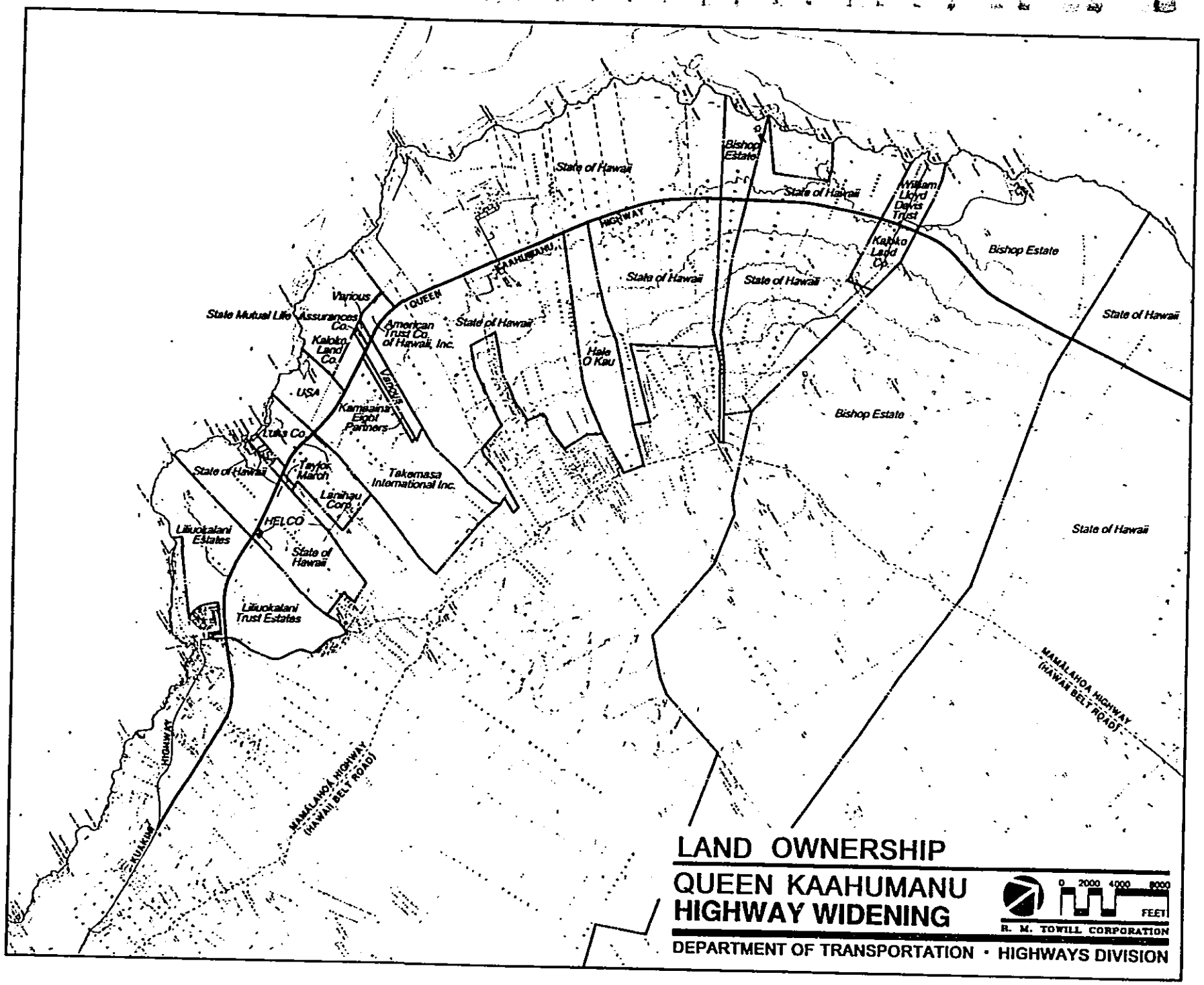

State of Hawaii
Bishop Estate
William Lloyd Dakis Trust
Kaiko Land Co.
HIGHWAY
QUEEN KAAHUMANU
Various
State Mutual Life Assurances Co.
Kaiko Land Co.
American Trust Co. of Hawaii, Inc.
Hale O Kau
USA
Kamaaina Ekol Partners
Luka Co.
Taylor Match
Takemasa International Inc.
Lanihau Corp.
HELCO
Liliuokalani Estates
Liliuokalani Trust Estates
HIGHWAY
KUAKINI
HAMĀLAHOA HIGHWAY (HAWAII BELT ROAD)
LAND OWNERSHIP
QUEEN KAAHUMANU
HIGHWAY WIDENING
0 2000 4000 8000
FEET
R. M. TOWILL CORPORATION
DEPARTMENT OF TRANSPORTATION • HIGHWAYS DIVISION

FIGURE 5-1

Trust. Where land acquisition is required the land owners will be compensated for the land. No residential and business relocation are anticipated. The acquisition program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

5.3 SURROUNDING LAND USE

The lands in the South Kohala and North Kona districts in the vicinity of the Queen Kaahumanu Highway are primarily developed as resorts, residential areas, limited industrial areas, parks, agricultural areas, the Honokohau Small Boat Harbor, and the Keahole Airport. (See Figures 5-3)

According to the West Hawaii Regional Plan there is one major cluster of resorts in the project area, which they term as "Resort Destination Node". It is as follows:

Keahole-Keauhou Node
O'oma II
Kohanaiki
Kailua-Kona

Impacts and Mitigation Measures

There should be minimal impact on land uses in the region for virtually no current land uses will be displaced by the widening of the highway.

5.4 TRANSPORTATION FACILITIES

The Queen Kaahumanu Highway is a two-lane State highway which extends along the North Kona and South Kohala coast from Kailua-Kona to Kawaihae. The major intersections within the study area occur at Palani Road, Kaiwi Street, Honokahau Harbor, Kaiminani Road, NELH Access Road, and Keahole Airport access road. Figure 5-4 reflect projected future land uses for the region.

There are three other major roadways in the region: Mamalahoa Highway, a two-lane State highway which serves the upland areas of North Kona and South Kohala with major intersections at Kaiminani Road, and Palani Road; Akone Pule Highway a two-lane State highway which services the Kawaihae to Hawi area with major intersections at the Kohala Estates Road and the Kohala Ranch Road; and the Kohala Mountain Road, a two-lane State highway that links Waimea and Hawi.

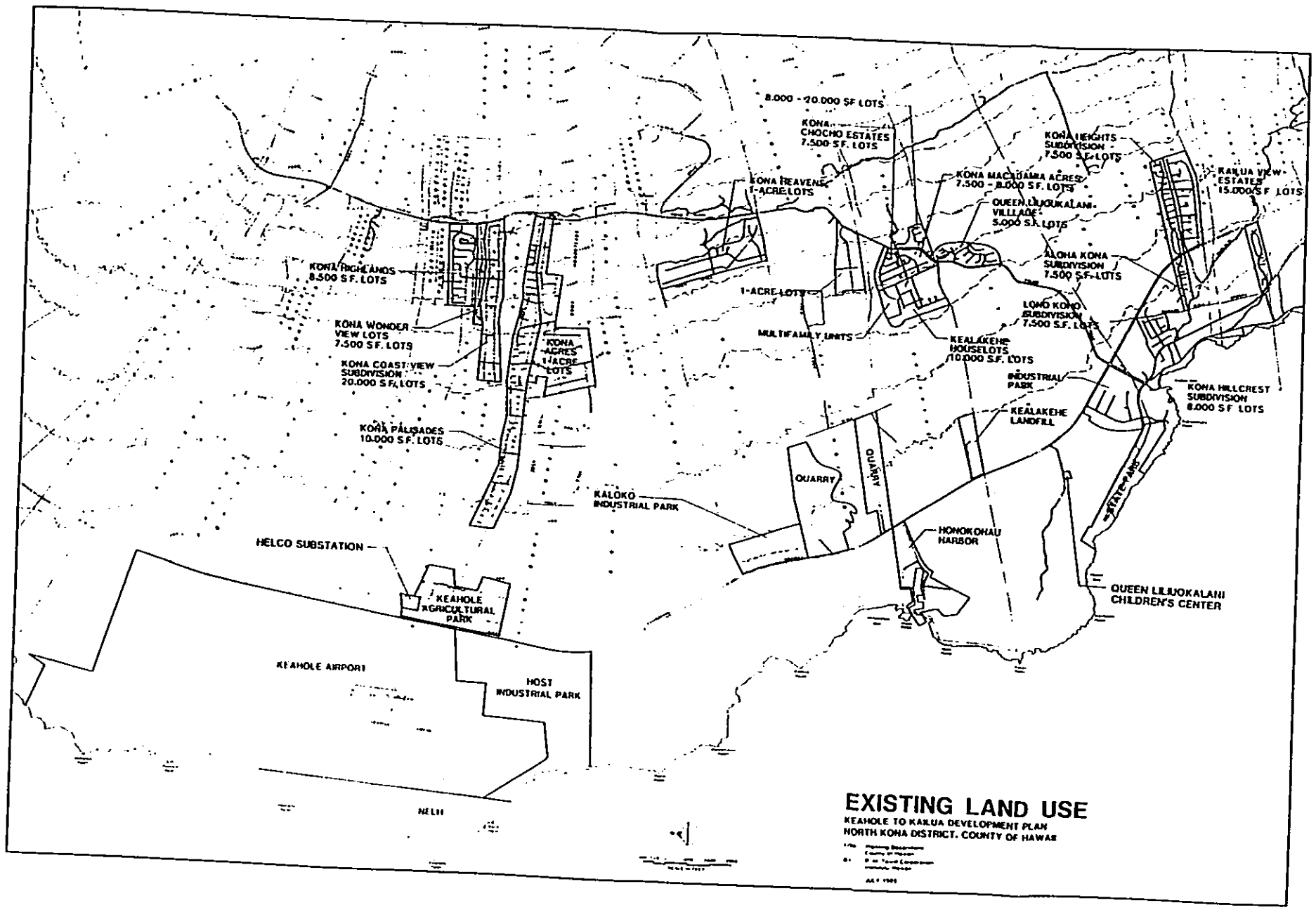

8,000 - 20,000 SF LOTS
KONA CHOCHO ESTATES 7,500 S.F. LOTS
KONA HEIGHTS SUBDIVISION 7,500 S.F. LOTS
KONA MACADAMIA ACRES 7,500 - 8,000 S.F. LOTS
KAILUA VIEW ESTATES 15,000 S.F. LOTS
KONA HEAVENS 1-ACRE LOTS
QUEEN LILIUOKALANI VILLAGE 5,000 S.F. LOTS
KONA HIGHLANDS 8,500 S.F. LOTS
ALOHA KONA SUBDIVISION 7,500 S.F. LOTS
1-ACRE LOTS
LONO KONO SUBDIVISION 7,500 S.F. LOTS
KONA WONDER VIEW LOTS 7,500 S.F. LOTS
MULTIFAMILY UNITS
KEALAKEHE HOUSE LOTS 10,000 S.F. LOTS
KONA ACRES 1-ACRE LOTS
KONA COAST VIEW SUBDIVISION 20,000 S.F. LOTS
INDUSTRIAL PARK
KONA HILLCREST SUBDIVISION 8,000 S.F. LOTS
KEALAKEHE LANDFILL
KONA PALISADES 10,000 S.F. LOTS
QUARRY
QUARRY
KALOKO INDUSTRIAL PARK
HONOKOHAU HARBOR
HELCO SUBSTATION
QUEEN LILIUOKALANI CHILDREN'S CENTER
KEAHOLE AGRICULTURAL PARK
KEAHOLE AIRPORT
HOST INDUSTRIAL PARK
NELH
EXISTING LAND USE
KEAHOLE TO KAILUA DEVELOPMENT PLAN
NORTH KONA DISTRICT, COUNTY OF HAWAII

FIGURE 5-3

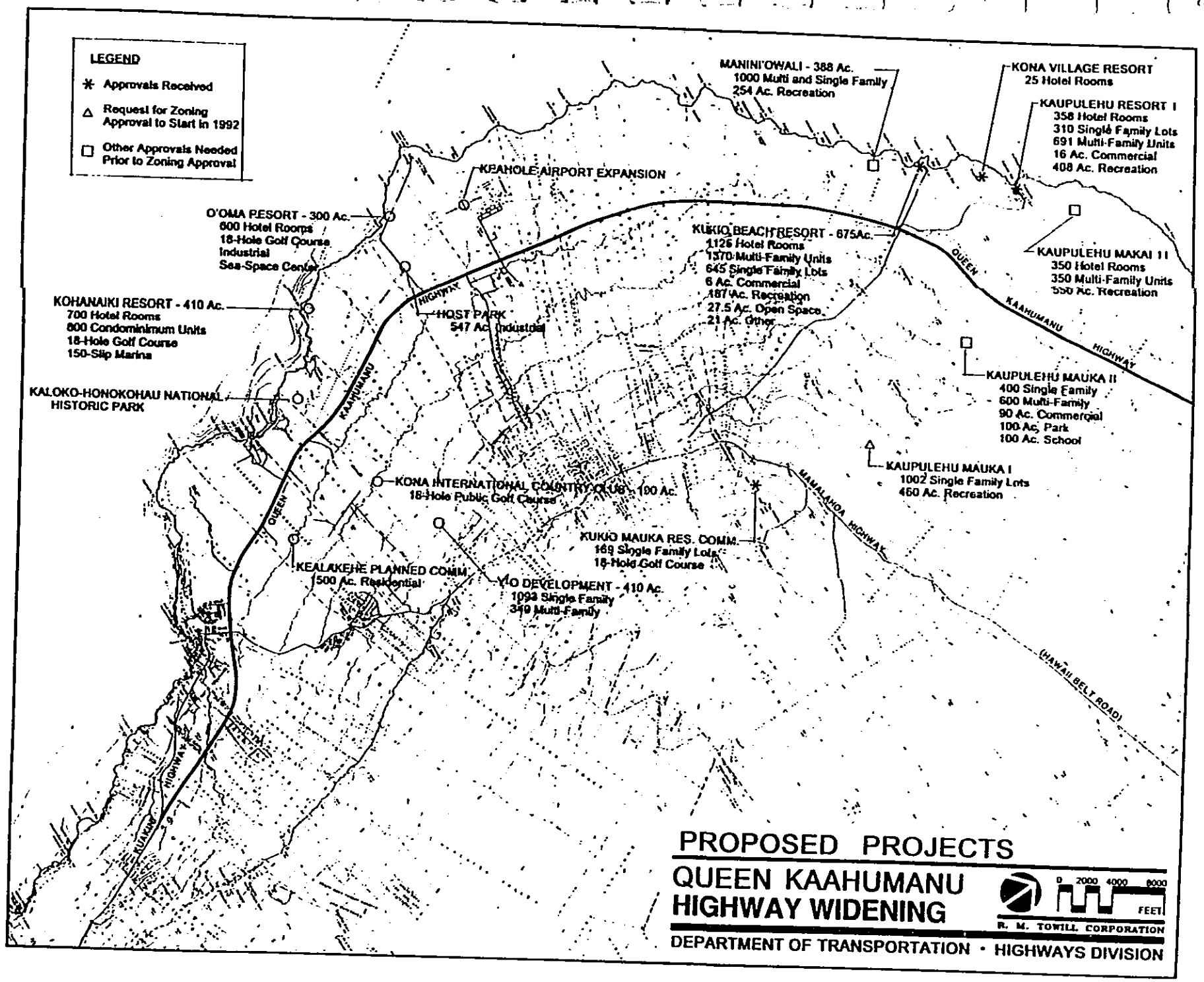

LEGEND
Approvals Received
Request for Zoning Approval to Start in 1992
Other Approvals Needed Prior to Zoning Approval
MANINI'OWALI - 388 Ac.
1000 Multi and Single Family
254 Ac. Recreation
KONA VILLAGE RESORT
25 Hotel Rooms
KAUPULEHU RESORT I
358 Hotel Rooms
310 Single Family Lots
691 Multi-Family Units
16 Ac. Commercial
408 Ac. Recreation
KEAHOLE AIRPORT EXPANSION
O'OMA RESORT - 300 Ac.
600 Hotel Roorps
18-Hole Golf Course
Industrial
Sea-Space Center
KUKIO BEACH RESORT - 675Ac.
1125 Hotel Rooms
1370 Multi-Family Units
645 Single Family Lots
6 Ac. Commercial
187 Ac. Recreation
27.5 Ac. Open Space
21 Ac. Other
KAUPULEHU MAKAI II
350 Hotel Rooms
350 Multi-Family Units
550 Ac. Recreation
KOHANAIKI RESORT - 410 Ac.
700 Hotel Rooms
800 Condominimum Units
18-Hole Golf Course
150-Slip Marina
HOST PARK
547 Ac. Industrial
KALOKO-HONOKOHAU NATIONAL HISTORIC PARK
KAUPULEHU MAUKA II
400 Single Family
600 Multi-Family
90 Ac. Commercial
100 Ac. Park
100 Ac. School
KAUPULEHU MAUKA I
1002 Single Family Lots
460 Ac. Recreation
KONA INTERNATIONAL COUNTRY CLUB - 190 Ac.
18-Hole Public Golf Course
KUKIO MAUKA RES. COMM.
169 Single Family Lots
18-Hold Golf Course
KEALAKEHE PLANNED COMM.
500 Ac. Residential
Y'O DEVELOPMENT - 410 Ac.
1093 Single Family
349 Multi-Family
QUEEN KAAHUMANU HIGHWAY
MAMALAHOA HIGHWAY
(HAWAII BELT ROAD)
PROPOSED PROJECTS
QUEEN KAAHUMANU HIGHWAY WIDENING
0 2000 4000 8000
FEET
R. M. TOWILL CORPORATION
DEPARTMENT OF TRANSPORTATION • HIGHWAYS DIVISION

FIGURE 5-4

5.5 POWER AND COMMUNICATION SYSTEM

Telephone and electrical lines are presently found overhead on utility service poles along the existing highway and along interior roads. Telephone service in the study area are provided by the Hawaiian Telephone Company, and electric service is provided by HELCO. The widening of the Queen Kaahumanu Highway may entail the relocation of utility lines.

Impacts and Mitigation Measures

Telephone and electrical line adjustments may be necessary. Coordination with Hawaiian Telephone and Hawaii Electric and Light Company, could be needed in transferring cables to new poles. The project will require water for landscaping purposes.

5.6 PUBLIC FACILITIES AND SERVICES

5.6.1 Fire

Fire protection service for the North Kona district is provided by the Kailua Fire Station. The station is equipped with a 1,500-gallons per minute (gpm) pumper, a 1,500 gpm ladder pumper, a 1,000 gpm tanker pumper, and an intensive care ambulance. Private protection may also be provided by the volunteer fire company located on the Kona Village Resort property.

5.6.2 Medical

The Island of Hawaii has five hospitals that provide a range of medical services. Medical and health care services to the North Kona district are provided by the State's Kona Hospital located in Kealakekua. It is a 75-bed acute care facility which provides a range of services including long-term care, skilled and interim nursing care, obstetrical, pediatrics, laboratory, CAT scan, physio- and occupational therapy, chemotherapy, and a 24-hour emergency room. All of the public sector health care facilities serving the West Hawaii area require upgrading and are being handled as such by the State Department of Health and private operations.

5.6.3 Police

Police services for North Kona areas are provided by the Kona Station.

Impacts and Mitigation Measures

No adverse impacts are expected on public services and facilities from the implementation of the design alignment. Response time for emergency services should actually be improved by faster or direct access provided by the alignment.

SECTION 6
RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

6.1 THE HAWAII STATE PLAN

The Hawaii State Plan (Chapter 226, Hawaii Revised Statutes) provides a guide for the future of Hawaii by setting forth a broad range of goals, objectives, and policies to serve as guidelines for growth and development of the State. The proposed project is generally consistent with the Hawaii State Plan. The following objectives of the State Plan are relevant to the proposed project:

Section 226-17: Transportation

The proposed project serves to assist in the State's objective of integrating a multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods. The proposed project will continue development and expansion of Hawaii's transportation system consistent with planned growth objectives throughout the State.

Section 226-14: Facility Systems - In General

The proposed project supports the State's goals for achieving transportation systems necessary for Statewide social, economic, and physical objectives.

Section 226-6: Economy

The proposed project will stimulate the economy to provide needed jobs for Hawaii's people without stimulating unnecessary in-migration.

6.2 STATE FUNCTIONAL PLANS

The Hawaii State Functional Plan (Chapter 226) provides a management program that allows judicious use of the State's natural resources to improve current conditions and attend to various societal issues and trends. The proposed project is generally consistent with the State Functional Plans. The following objectives of the State Functional Plans are relevant to the proposed project:

Transportation implementing Action A(1)(d):
The proposed project serves to continue a planning process for long-range transportation plans in Hawaii.

Transportation implementing Action B(3):
The proposed project will help to ensure adequate infrastructure are provided through a reasonable distribution of financial responsibilities between governmental and private parties.

6.3 WEST HAWAII REGIONAL PLAN

The West Hawaii Regional Plan was developed in 1989 by the Office of State Planing in response to the anticipated increased job opportunities and corresponding rise in population with the expanded economic growth in this geographic area of the Island of Hawaii. The West Hawaii regional planning effort is coordinated by the Office of State Planning. The plan addresses issues which require State attention in order to most effectively meet the region's present and emerging needs.

The State's interest in formulating and implementing a plan for the West Hawaii region are fourfold:

- to coordinate State activities in the region in order to respond more effectively to emerging needs and critical problems;
- to address areas of State concern;
- to coordinate the Capital Improvements Program within a regional planning framework; and
- to provide guidance in State land use decision-making processes.

The West Hawaii Regional Plan is intended to complement the County of Hawaii's General Plan and Community Development Plans. The Plan states that public infrastructure development has not kept pace with the growth in West Hawaii. The strategy is to anticipate and provide relief for traffic hazards and congestion on a timely basis. Hence, the Queen Kaahumanu Highway Expansion Project is consistent with the goals, strategies, and actions of the West Hawaii Regional Plan.

6.4 STATE LAND USE LAW

The State Land Use Commission classifies all lands in the State in one of four classifications:

Urban, Rural, Agricultural, and Conservation. The proposed project traverses Urban, and Conservation Land Use Districts, see Figure 6-1. The counties have jurisdiction over land uses within the State Urban District, and the Board of Land and Natural Resources regulates land use in the Conservation District.

The purpose of the Conservation District is to preserve and manage major open space and recreational lands, and land of scenic and other natural resource value. This permit will be applied for as part of this project. A State Land Use District Boundary Amendment will not be required.

6.5 HAWAII COUNTY GENERAL PLAN

The County's General Plan is the policy document for the long-range comprehensive development of the island of Hawaii. The General Plan provides the direction for balanced growth of the County in terms of economic activities, environmental quality, flood control and drainage, historic sites, housing, natural beauty, natural resources and shoreline, public facilities, public utilities, recreation, transportation, land use patterns, and energy.

The proposed project is consistent with the transportation "Goals and Policies" as outlined in the County General Plan. The "Goals and Policies" that are related to the proposed project are listed below:

* 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.

* The improvement of transportation service shall be encouraged.

The proposed Queen Kaahumanu Highway widening, from Kailua to Keahole, supports the above objectives and policies as it will help to meet current demands and fulfill future demands upon the highway infrastructure of the South Kohala and North Kona region of the island of Hawaii. It will also help to ensure a safe and efficient movement of people and goods between the South Kohala and North Kona regions.

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. Most of the alignment crosses areas that have been designated as

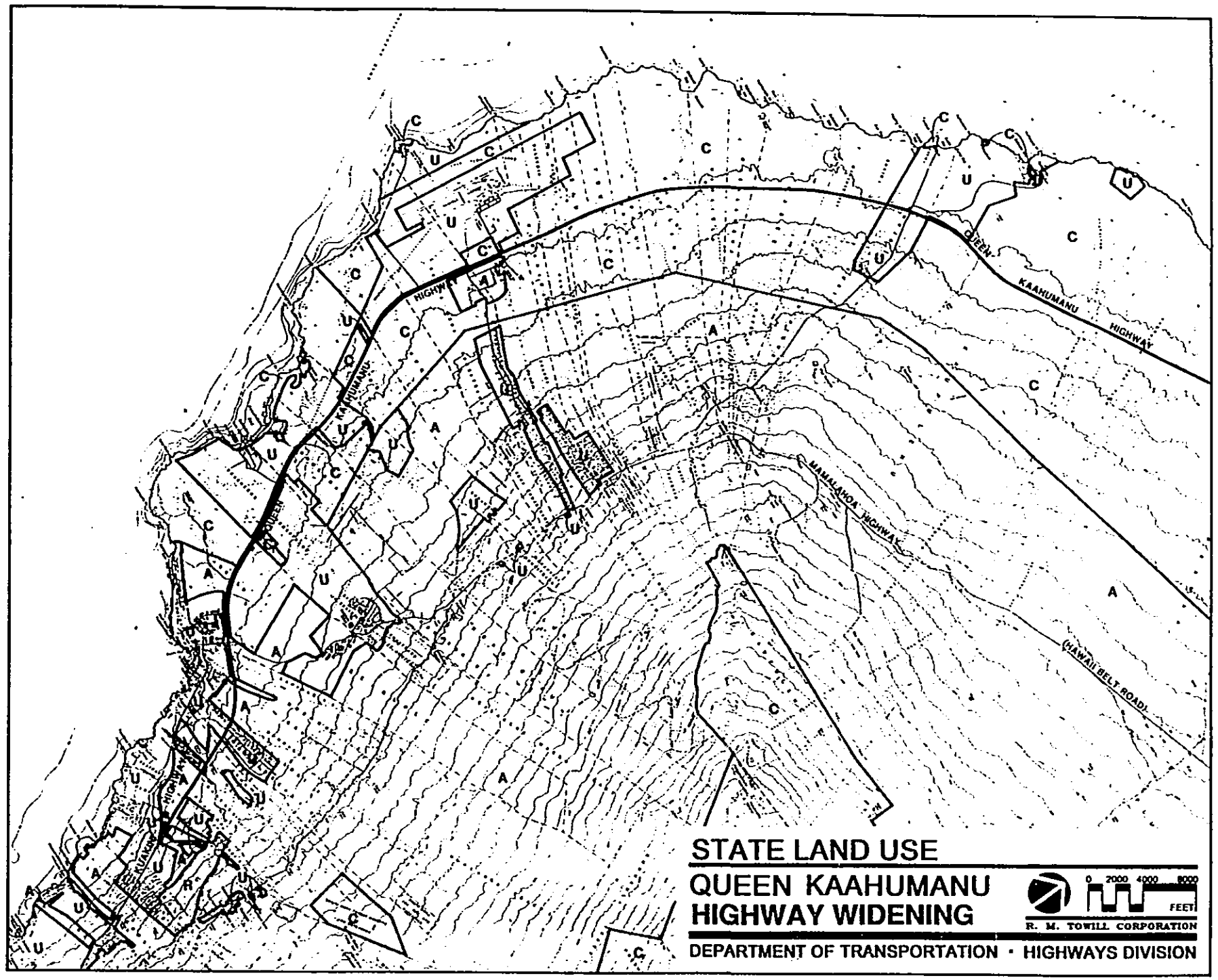

QUEEN KAAHUMANU HIGHWAY
MAMALAHOA HIGHWAY
HAWAII BELT ROAD
STATE LAND USE
QUEEN KAAHUMANU
HIGHWAY WIDENING
0 2000 4000 8000
FEET
R. M. TOWILL CORPORATION
DEPARTMENT OF TRANSPORTATION · HIGHWAYS DIVISION

FIGURE 6-1

Urban and Conservation (see Figure 6-2).

6.6 COUNTY OF HAWAII ZONING CODE

The County Zoning Code provides a physical planning and regulatory guideline for the development or intended uses of lands within Hawaii County. Figure 6-3 shows the County Zoning of land crossed by the alignment. Most of the alignment crosses Open, Industrial, and Residential.

6.7 KEAHOLE TO KAILUA DEVELOPMENT PLAN

The proposed project is consistent with the Keahole to Kailua Development Plan (K-K plan). The County of Hawaii initiated the Keahole to Kailua Development Plan study in July 1988. One of the objectives of the K-K plan is to, "develop during the next 10 years an efficient, safe, and pleasing road network, which operates at level of service C over the next 20 years, and which interconnects the various land uses within the planning area and accommodates various modes of travel. Queen Kaahumanu Highway is designated as the major arterial highway in the area, and proposed as a four to six-lane expressway. (See Figure 6-4). Expansion of the highway will require the acquisition of additional right-of-way lands for the section of the highway that lies within the Kealakehe and Keahuolu tracts. In accordance with State DOT plans, Queen Kaahumanu Highway will also have 2-lane frontage roads on both sides."

6.8 COASTAL ZONE MANAGEMENT SMA RULES & REGULATIONS

Chapter 205A, Hawaii Revised Statutes designates the entire State of Hawaii as being within the Coastal Zone Management (CZM) Area. Goals and objectives of the CZM Program include providing coastal recreational opportunities and public or private improvements important to the State's economy, preserving historic and scenic resources, protecting coastal ecosystems, reducing coastal hazards, and improving the development review process. The proposed project does not directly impact the coastal area, in that, it is setback from the coastline. Nonetheless, the portion of the project located makai of the existing Queen Kaahumanu Highway is situated entirely within the Special Management Area (see Figure 6-5) and is therefore subject to evaluation under the CZM objectives.

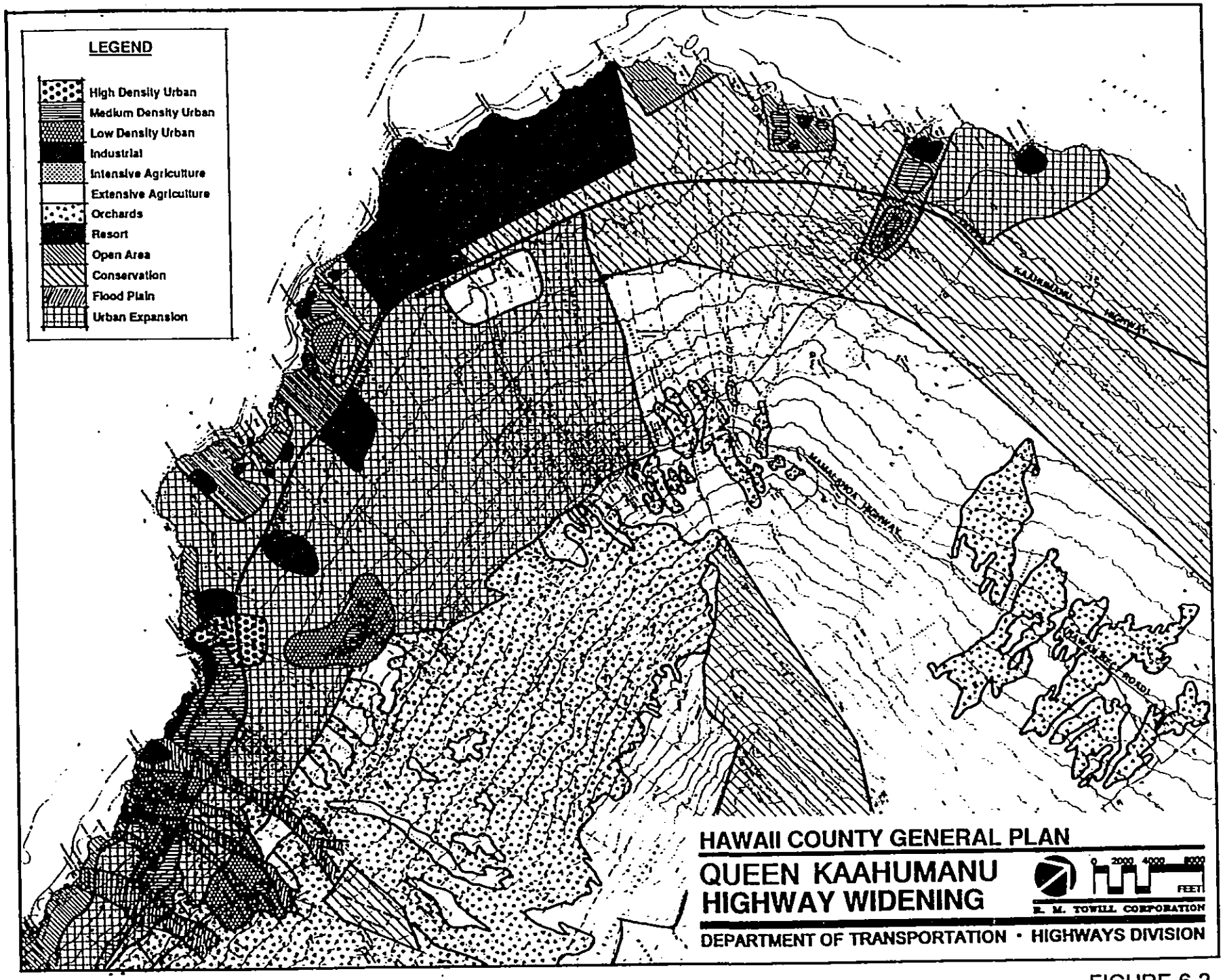

LEGEND
High Density Urban
Medium Density Urban
Low Density Urban
Industrial
Intensive Agriculture
Extensive Agriculture
Orchards
Resort
Open Area
Conservation
Flood Plain
Urban Expansion
HAWAII COUNTY GENERAL PLAN
QUEEN KAAHUMANU
HIGHWAY WIDENING
DEPARTMENT OF TRANSPORTATION • HIGHWAYS DIVISION
R. M. TOWILL CORPORATION
FEET

FIGURE 6-2

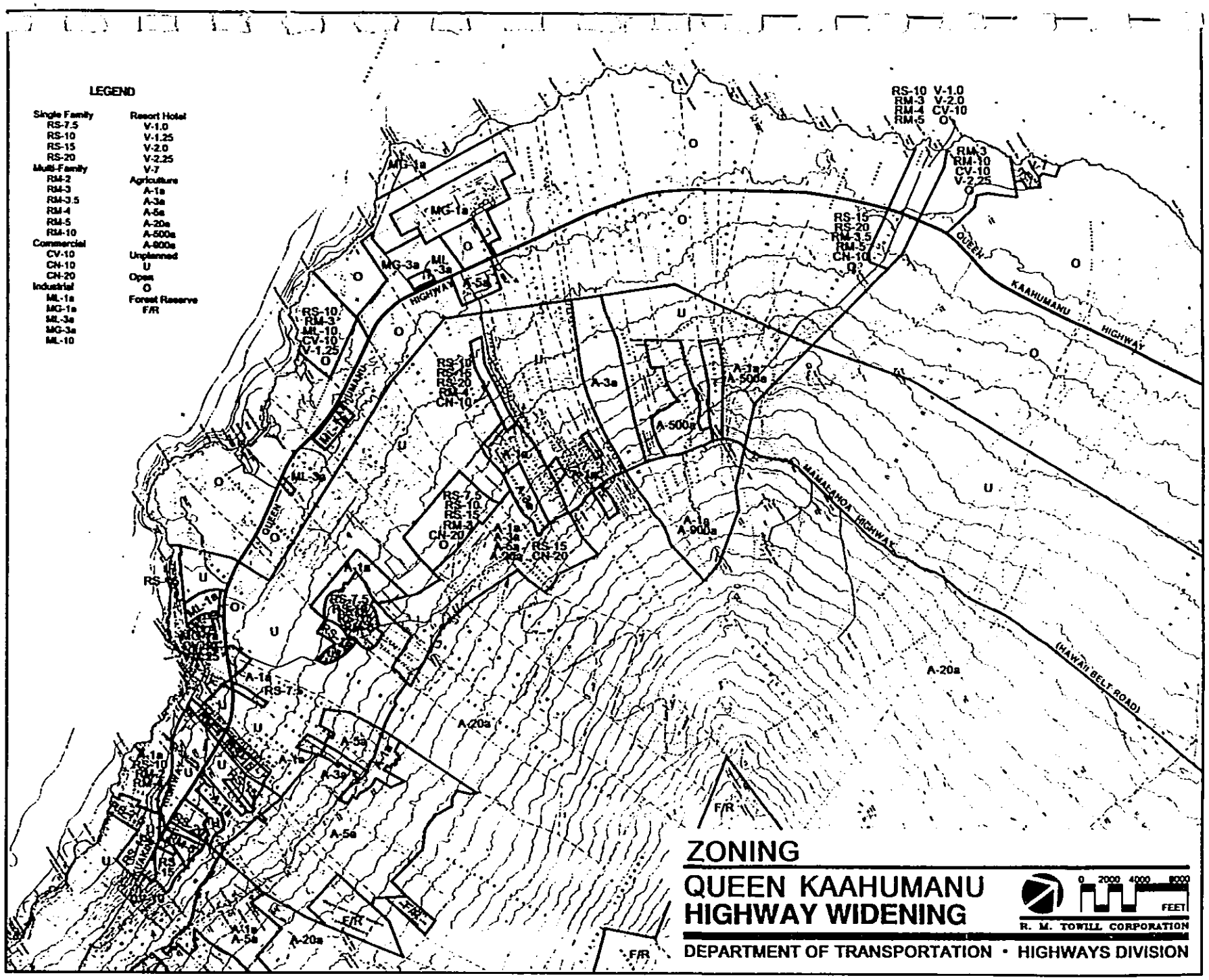
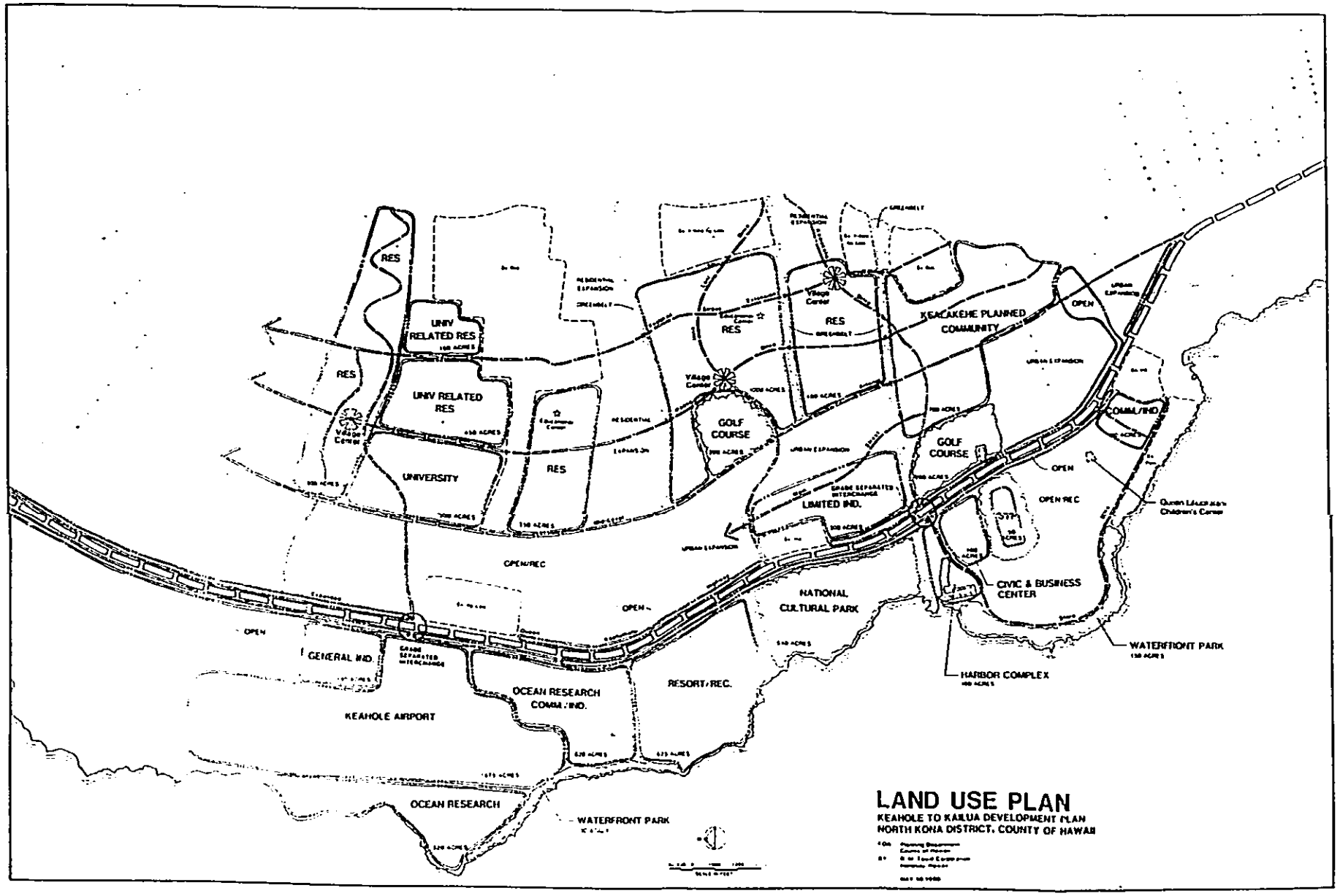

LEGEND
Single Family
RS-7.5
RS-10
RS-15
RS-20
Multi-Family
RM-2
RM-3
RM-3.5
RM-4
RM-5
RM-10
Commercial
CV-10
CN-10
CN-20
Industrial
ML-1a
MG-1a
ML-3a
MG-3a
ML-10
Resort Hotel
V-1.0
V-1.25
V-2.0
V-2.25
V-7
Agriculture
A-1a
A-3a
A-5a
A-20a
A-500a
A-900a
Unplanned
U
Open
O
Forest Reserve
F/R
QUEEN KAAHUMANU HIGHWAY
MAMALAHOA HIGHWAY
(HAWAII BELT ROAD)
ZONING
QUEEN KAAHUMANU
HIGHWAY WIDENING
0 2000 4000 8000
FEET
R. M. TOWILL CORPORATION
DEPARTMENT OF TRANSPORTATION • HIGHWAYS DIVISION

FIGURE 6-3



LAND USE PLAN
KEAHOLE TO KAILUA DEVELOPMENT PLAN
NORTH KONA DISTRICT, COUNTY OF HAWAII

FIGURE 6-4

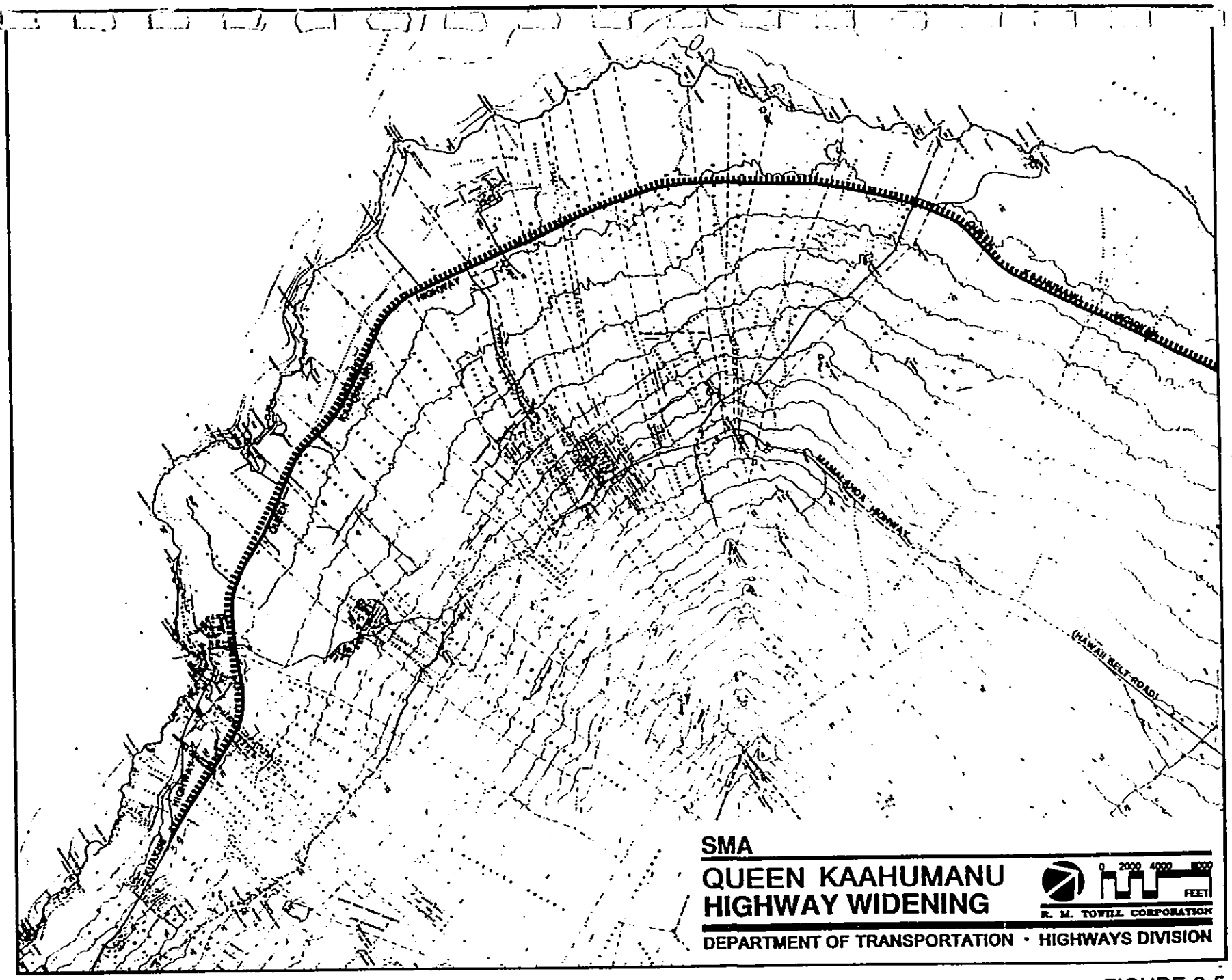

KUAKINI HIGHWAY
KUAKINI HIGHWAY
HAWAII BELT ROAD)
SMA
QUEEN KAAHUMANU
HIGHWAY WIDENING
0 2000 4000 8000
FEET
R. M. TOWILL CORPORATION
DEPARTMENT OF TRANSPORTATION • HIGHWAYS DIVISION

FIGURE 6-5

SECTION 7
NECESSARY PERMITS AND APPROVALS

The following is a preliminary list of development permits, approvals, certifications and reviews that may be required for this project.

7.1 STATE

Department of Land and Natural Resources
- Conservation District Use Permit
- Stream Channel Alteration Permit

Office of State Planning
- Coastal Zone Management Consistency Review

Department of Health
- Section 401, Clean Water Act Certification
- National Pollution Discharge Elimination System

7.2 COUNTY OF HAWAII

Department of Public Works
- Building Permit
- Grubbing, Grading, Excavation, and Stockpiling Permit
- Sign Permit

Department of Planning and Public Works
- Conformance with County Flood Control Ordinance

Planning Department
- Shoreline Management Area Permit

7.3 PRIVATE

- Land Acquisition

SECTION 8

CONSULTED AGENCIES IN THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT

8.1 FEDERAL

Dept. of the Interior, National Park Service
Federal Aviation Administration
Department of the Army
U.S. Fish and Wildlife Service

8.2 STATE

Office of State Planning
Department of Land and Natural Resources
- Division of State Parks
- Division of Land Management
- Division of Historic Preservation

Land Use Commissions
Office of Environmental Quality Control
Department of Health
Office of Hawaiian Affairs
Na Ala Hele
Hawaii Burial Council

8.3 COUNTY

Planning Department
Department of Public Works

8.4 PRIVATE

Nansay
Queen Liliuokalani Trust

8.5 PUBLIC INFORMATION MEETING

The State Highways Division conducted a public information meeting on June 22, 1994 for the

purpose of:

A. Informing the public of the Department of Transportation's plans;

B. Identifying those who may have specific inputs and/or particular perspectives of value to the planning process; and,

C. Receiving input and recommendations for evaluation in the development of the proposed project.

A summary of the meeting is provided in Appendix D of this document. Further, a list of organizations and individuals notified of this meeting is also included in the appendix along with a publication produced for the informational meeting.

8.6 COMMENTS AND COMMUNICATIONS

Comments and correspondence received on this project from individuals, community groups and organizations, and governmental agencies follow.

SECTION 9

ENVIRONMENTAL DETERMINATION

After completing an assessment of the potential environmental affects of the proposed project, it has been determined that the project would not have a significant impact on the environment and that an environmental impact statement is not required. This document constitutes a notice of a Negative Declaration pursuant to Chapter 343 (HRS). A Finding of No Significant Impact (FONSI) pursuant to 42 USC 4332 (2) (c) has been made separately. The following reasons are provided in support of the Negative Declaration and Finding of No Significant Impact:

* The proposed action will not present any change in the use of the project area.

* The proposed action will not adversely affect the physical or social environment. There will be no adverse impact on public facilities.

* There will be no permanent degradation of existing ambient air and noise levels. During construction operations, air quality and noise levels are expected to be affected, however, the impacts will be short-term.

* Temporary traffic inconveniences will occur as a result of construction activities; however, the inconveniences will be temporary and will improve as a result of this proposed action.

* No residences or business will be displace by the project.

* The project conforms to State and County plans and ordinances.

SECTION 10
REFERENCES

Soil Surveys of Island of Hawaii, State of Hawaii, United States Department of Agriculture, Soil Conservation Service, In Cooperation with the University of Hawaii Agricultural Experiment Station, August 1972.

West Hawaii Regional Plan, Office of State Planning, State of Hawaii, November 1989.

State Transportation Functional Plan, Department of Transportation, State of Hawaii, 1991

Data Book 1991: A Statistical Abstract, Department of Business and Economic Development, State of Hawaii, 1991.

County of Hawaii General Plan, Ordinance No. 89 142, November 1989, County of Hawaii.

Atlas of Hawaii, Second Edition, Department of Geography, University of Hawaii, 1983.

Hawaii State Plan, Chapter 226

Keahole To Kailua Development Plan, November 1990.

Northwest Hawaii Plan, (Draft 1992), County of Hawaii

Interim Selected Metric Values for Geometric Design, American Association of State Highway and Transportation Officials, 1993.

SECTION 11

COMMENTS RECEIVED DURING THE CONSULTATION PERIOD

U.S. Department of Transportation
Federal Aviation Administration

Western-Pacific Region
Airports District Office

300 Ala Moana Blvd., Rm. 7116
Honolulu, HI 96813
MAIL: Box 50244
Honolulu, HI 96850-0001
Telephone: (808) 541-1232
FAX: (808) 541-3462

March 7, 1996

Mr. Ronald Tsuzuki
State Department of Transportation
Highways Division, Planning Branch
600 Kapiolani Boulevard, Room 304
Honolulu, Hawaii 96813

Dear Mr. Tsuzuki:

We have reviewed the Draft Environmental Assessment for the Queen Kaahumanu Highway Widening from Kailua to Keahole in the County of Hawaii. We have no comments on this Draft EA; however, we suggest that the project limits be extended to beyond the Kailua-Kona International Airport access road. This would eliminate any impacts on the access road by any future highways widening.

We also recommend coordination with Airports Division on the location of the airport access road intersection. We note that the existing Airport Layout Plan (ALP) proposes a Future Highway Interchange as depicted on the enclosed portion of the ALP. We also note that the Airports Division is beginning an update to the Airport Master Plan which may revise the access road and intersection.

Sincerely,

Daniel S. Matsumoto

Daniel S. Matsumoto
Civil Engineer

Enclosure

cc: Owen Miyamoto, Airports Administrator
Chester Koga, R.M. Towill

HWY-PA
2.9827

APR 12 '96

Mr. Daniel S. Matsumoto
Civil Engineer
Federal Aviation Administration
U. S. Department of Transportation
300 Ala Moana Boulevard, Room 7116
Honolulu, Hawaii 96850

Dear Mr. Matsumoto:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of March 7, 1996, commenting on the proposed widening of Queen Kaahumanu Highway.

We will coordinate the design of the project with the Airports Division.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

DO:gm

c: HWY-PA

DIRECTOR'S OFFICE
DEPT. OF
TRANSPORTATION
MAR 12 10 59 AM '96

United States Department of the Interior

FISH AND WILDLIFE SERVICE

PACIFIC ISLANDS ECOREGION
300 ALA MOANA BOULEVARD, ROOM 3108
BOX 50088
HONOLULU, HAWAII 96850
PHONE: (808) 541-3441 FAX: (808) 541-3470

RECEIVED
STATE DEPARTMENT
OF TRANSPORTATION
Mar 15 11 10 AM '96
HIGHWAYS DIVISION
PLANNING BRANCH

MAR - 6 1996

In Reply Refer To: JMB

Kazu Hayashida, Director
State of Hawaii Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Re: Draft Environmental Assessment, Queen Ka'ahumanu Highway Widening, North Kona, Hawaii

Dear Mr. Hayashida:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft Environmental Assessment (DEA) for the Queen Ka'ahumanu Highway Widening project in North Kona, Hawaii. The project sponsors are the State of Hawaii Department of Transportation and the U.S. Department of Transportation. The proposed project would modify the existing right of way to a uniform width of 300 feet between Henry Street in Kailua-Kona and the Keahole Airport Access Road. The finished highway would consist of four travel lanes separated by a median and paved shoulders/bikeways. The Service offers the following comments for your consideration.

The DEA adequately addresses the effects of the project on fish and wildlife known to exist in the area. No significant adverse effects to fish and wildlife resources are expected to result from the proposed action. Therefore, based on the information presented in the DEA, the Service does not object to the proposed road improvements.

The Service appreciates the opportunity to provide comments on the proposed project, and we look forward to reviewing the final Environmental Assessment. If you have questions regarding these comments, please contact Fish and Wildlife Biologist Jeff Burgett at (808) 541-3441.

Sincerely,

Brooks Harper

Brooks Harper
Field Supervisor, Ecological Services

RECEIVED
MAR 14 2 04 PM '96
DEPT. OF TRANSPORTATION
HIGHWAYS DIVISION

cc: NPS, Kona
EPA, San Francisco
CZMP, Honolulu

HWY-PA
2.9828

Mr. Brooks Harper
Field Supervisor, Ecological Services
U. S. Fish and Wildlife Service
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3108
Honolulu, Hawaii 96850

Dear Mr. Harper:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of March 6, 1996, commenting on the proposed widening of Queen Kaahumanu Highway.

We appreciate your participation in the public hearing process.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

DO:gm

✓c: HWY-PA

DIR 0282
HWY-PA
2.9342

MAR -6 1996

Mr. Bryan Harry, Superintendent
Pacific Island System Support Office
U. S. Department of the Interior
National Park Service
300 Ala Moana Boulevard, Box 50165
Honolulu, Hawaii 96850

Dear Mr. Harry:

Subject: Queen Kaahumanu Highway Widening
Kailua to Kealahole

Thank you for your letter of February 14, 1996.

Current plans for the widening of Queen Kaahumanu Highway provides a U-turn prior to the Hina Lani intersection approximately a half-mile from the proposed access to Kaloko-Honokohau National Historical Park. U-turn locations are being planned to consolidate minor left-turn movements to selected locations.

We will evaluate your request for separate left-turn lanes for the Park based on your future visitor needs during our design phase of the project. If warranted, left-turn lanes will be included. We will continue to coordinate our design efforts with your office.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

DO:gm

bc: R. M. Towill

c: HWY-D, -PA

2pr

United States Department of the Interior

DIRECTOR'S OFFICE
DEPT. OF TRANSPORTATION

NATIONAL PARK SERVICE
Pacific Area Office
300 Ala Moana Blvd., Box 50165
Room 6503
Honolulu, Hawaii 96850

Feb 15 9 57 AM '96

IN REPLY REFER TO:

L7617(PISO)

February 14, 1996

Mr. Kazu Hayashida
Director of Transportation
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

I have reviewed the Draft Environmental Assessment (EA) for Queen Kaahumanu Widening (Kailua to Keahole). The following statement represents my views on the proposed upgrading of that highway from a two lane to a four lane divided highway as it relates to Kaloko-Honokohau National Historical Park. They are specific to the seeming lack of any intersection planned on that highway with respect to accessing Kaloko-Honokohau National Historical Park. For Kaloko-Honokohau, Table 1, "Intersection Configuration" (page 2-14) shows access restricted to right-turn only and no intersection or median break. The Draft EA states on page 2-10 that "left turns for access to properties will not be allowed except at intersections allowing left turns or at designated U-turns."

I am very concerned that the proposed highway widening project provides no means of access for those national park visitors coming from the Kailua direction. From my reading of the Draft EA, it appears that visitors would be forced to make an illegal left-turn from the median across two lanes of high-speed traffic. This is assuming they would somehow be able to drive a car across about 70 feet of unpaved median. The nearest U-turn appears to be at NEHL, located at least five miles to the north.

At your public informational meeting of June 22, 1994 on the proposed widening, Francis Kuailani, Superintendent at Kaloko-Honokohau, provided you with comments with respect to our needs for an intersection or U-turn. Your letter of July 25, 1994, responding to those comments, seemed to indicate that Kaloko-Honokohau would not be provided with an intersection, but that a separate U-turn would be provided prior to the Hina Lani Drive intersection. What happened to that provision?

In cooperation with your Hilo office, the National Park Service is now in the process of developing replacement access for Kaloko-Honokohau off the existing highway. This replacement access is at the site of our permitted access and, when completed, will allow us to close the existing temporary visitor access at Kaloko road. This replacement access is to serve national park visitors in the interim until the highway widening is completed. By that time, we expect that Kaloko-Honokohau will be receiving a fair amount of visitation.

We are not able to predict with any real degree of accuracy what future visitation levels will be, but since we began park operations at Kaloko-Honokohau about eight years ago visitation has gone from about 12,000 to nearly 50,000. Pu'uhonua O Honaunau National Historical Park in South Kona, a decidedly more remote location, presently receives about 450,000 visitors each year.

I believe it would make more sense to plan for the future access to Kaloko-Honokohau based on those kinds of visitor numbers.

Sincerely,

Bryan Harry
Superintendent
Pacific Island System Support Office

cc:
Congresswoman Mink
Abranam Wong, FHA, Honolulu
Supt., KAHO

BENJAMIN J. CAYETANO
GOVERNOR

DIRECTOR'S OFFICE
DEPT. OF
TRANSPORTATION

'96 MAR 15 2 01 PM

GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

March 12, 1996

'96 MAR 19 7 13 AM
HIGHWAYS DIVISION
PLANNING BRANCH
RECEIVED

Mr. Kazu Hayashida, Director
State Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Draft Environmental Assessment for Queen Kaahumanu Highway Widening, North Kona, Island of Hawaii

Thank you for the opportunity to review the subject document. We have the following comments.

1. Widening of the highway will allow for higher levels of vehicular traffic along its route, thus allowing for more sources from which exhaust fumes could be emitted into the environment. Please investigate present and future levels of vehicular air pollutants at critical segments along the affected roadway. Assess the impacts and mitigation measures associated with the vehicular air pollutants.

2. Queen Kaahumanu Highway bisects Mamalahoa Trail at two locations. The widening of the highway will require the removal of portions of the trail adjacent to the existing roadway. Please describe mitigation measures that would allow hikers to safely cross the highway and continue along the trail.

3. The affected portion of this highway is also the route for the Ironman Triathlon. How does this project impact the triathlon or similar athletic events?

Should you have any questions, please call Jeyan Thirugnanam at 586-4185. Mahalo.

Sincerely,

Gary Gill
Director

'96 MAR 19 11 21 AM
HIGHWAYS DIVISION
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STATE DEPARTMENT
OF TRANSPORTATION
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4/23/96

HWY-PA
2.9978

TO: GARY GILL, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: KAZU HAYASHIDA
DIRECTOR OF TRANSPORTATION

SUBJECT: QUEEN KAAHUMANU HIGHWAY WIDENING

Thank you for your letter of March 12, 1996, commenting on the proposed widening of Queen Kaahumanu Highway. We would like to offer the following in response to your comments:

1. Air Quality Impacts. A mesoscale analysis of the regional burdens of carbon monoxide and hydrocarbons was conducted based on proposed improvements for the major roadways in the study area. The analysis showed that the total regional emissions of the pollutants would slightly decrease under the improved roadway condition compared to the unimproved condition. This is due to decreased idle and travel times for the improved roadway condition. Section 161 of the Clean Air Act Amendments requires each State Implementation Plan (SIP) to contain emission limits and other measures to prevent significant deterioration of air quality in each region. Since the study area is currently classified "attainment" by the U. S. EPA, no implementation plan to limit emission levels exist. The mesoscale analysis, however demonstrates that the project will not cause a deterioration of air quality in the area.

2. Mamalahoa Trail Access. We have not made any special provisions for hikers to cross the highway other than at designated intersections. The Trail in its present condition does not lend itself to hiking because it is in poor condition in many locations and has been breached in other locations because of access roads.

3. Highway Use for Triathlon. We have not made any special accommodations for the use of the highway for activities such as the Ironman Triathlon other than those required for everyday safe usage by motorists, pedestrians and bikers. This includes wider paved shoulders (10 feet on average), inclusion of shoulders where there are none, and the provision of bike lanes where there are right-turn lanes. These improvements will have a beneficial impact on these events.

Thank you for your participation in the public hearing process.

DO:gm

c: HWY-PA

BENJAMIN J CAYETANO
GOVERNOR OF HAWAII

DIRECTOR'S OFFICE
DEPT. OF
TRANSPORTATION

'96 MAR 12 9 25 AM

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 621
HONOLULU, HAWAII 96809

MAR 5 1996

MICHAEL D WILSON
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
GILBERT S COLOMA-AGARAN

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT
WATER RESOURCE MANAGEMENT

REF:DOTEAH.DREA

LM-NV

Honorable Kazu Hayashida
Director of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

RECEIVED
DEPARTMENT OF
TRANSPORTATION
'96 MAR 11 2 09 PM
HIGHWAYS DIVISION
PLANNING BRANCH

Dear Mr. Hayashida:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR QUEEN KAAHUMANU HIGHWAY WIDENING, KAILUA TO KEAHOLE, COUNTY OF HAWAII

We have received your department's transmittal relevant to the subject matter.

The informational materials were distributed to our divisions for their review and comments. As a result, the following comments were received by our Division of land Management:

1. **Forestry and Wildlife:**

   "No objections to the proposed project"

2. **Natural Area Reserve System:**

   "No objections to the proposed project"

3. **State Parks:**

   "No objections to the proposed project"

We received no other comments within the suspense date. May we suggest that the Department of Transportation consult directly with the following Department of Land and Natural Resources Divisions:

1. Historic Preservation (Possible Impact to Historical and Archaeological Sites)

2. Commission on Water Resource Management (Stream Channel Alteration Permits)

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HIGHWAYS DIVISION
PLANNING BRANCH

3. Land Management Planning Branch (State Conservation District Use Permit)

4. Land Management, Hawaii District Land Office (Disposition of State-Owned Lands)

Should you or your staff have any questions, please feel free to contact Mr. Nicholas A. Vaccaro of the Land Division at 587-0438.

Aloha,

for MICHAEL D. WILSON
Chairperson

Attachment(s)

C: Michael H. Nekoba
Colbert M. Matsumoto
Hawaii District Land Office

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

February 29, 1996

Mr. Ronald Tsuzuki
Department of Transportation
600 Kapiolani Blvd., Suite 304
Honolulu, Hawaii 96813

LOG NO: 16532
DOC NO: 9602PM16

Dear Mr. Tsuzuki:

SUBJECT: Draft Environmental Assessment for Queen Ka'ahumanu Highway Widening North Kona, Hawaii Island

The Draft EA for the proposed widening of Queen Ka'ahumanu Highway was sent to our office.

We have just a few comments to offer. As you know, our office has already reviewed and accepted an archaeological inventory survey report for the project area. The report identified all of the significant historic sites in the project area and outlined mitigation treatments for all sites that would be adversely affected by the widening of the highway.

Because the proposed project will involve the use of Federal funds it was necessary to consult with Native Hawaiian organizations and individuals on the possible existence of traditional cultural places. The Draft EA presents the results of the consultation process, which consisted of a a series of questions outlined in a letter dated December 6, 1995 that was mailed to a number of organizations. According to what is presented in the Draft EA there was only one response to the questionnaire, a letter from Kali Watson, Chairman of the Hawaiian Homes Commission. We would like to know if this was the only response and if any attempt was made to contact any other organizations or individuals at a later date. The results of the consultation process should also be clearly summarized in the EA documents.

If you have any questions please contact either Patrick McCoy (587-0006) or Holly McEldowney (587-0008) if the question is about the consultation process.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

PM:amk

c: Chester Koga, R.M. Towill

HWY-PA
2.9829

TO: MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

FROM: KAZU HAYASHIDA
DIRECTOR OF TRANSPORTATION

SUBJECT: QUEEN KAAHUMANU HIGHWAY WIDENING

Thank you for your letter of March 5, 1996, commenting on the proposed widening of Queen Kaahumanu Highway. We also received comments from the Historic Preservation Division on February 29, 1996.

We would like to acknowledge "no comments" from the following: Forestry and Wildlife, Natural Area Reserve System, and State Parks.

In response to comments made by the Historic Preservation Division regarding comments from Native Hawaiian organizations, we would like to note that a second follow-up letter has been sent out and we are still awaiting replies. In addition, we have scheduled a meeting with the Office of Hawaiian Affairs to discuss their concerns.

Thank you for your participation in the public hearing process.

DO:gm

c: HWY-PA

HWY 1021

APR 1 . . :

HWY-PA
2.9768

Robert Shleser, Ph.D.
Executive Director
Natural Energy Laboratory of Hawaii
P. O. Box 1749
Kailua, Hawaii 96745

Dear Dr. Shleser:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of March 15, 1996 commenting on the proposed widening of Queen Kaahumanu Highway. In response to your letter we would like to offer the following:

We will be taking another look at the proposed development at the NELH and HOST Park at Keahole Point during the design phase to ascertain if a median break is warranted to allow left turn movements at that location. Based on our previous analysis, we did not find that the traffic counts at the NELH/HOST Park intersection warranted a separate intersection.

The locations of the U-turns have been placed at a distance to allow for a safe and easy merge and lane change to and from the NELH/HOST Park intersection. Movement any closer will compromise the design requirements for the highway.

As we stated at the public hearing, we do not currently anticipate the need to move toward a full limited access freeway with frontage roads at this time. We will continue to monitor development trends in the West Hawaii region to ascertain when the next increment of improvements will become necessary.

Thank you for your participation in the public hearing process.

Very truly yours,

for KAZU HAYASHIDA
Director of Transportation

DO:gf

NELH — HOST PARK

Natural Energy Laboratory of Hawaii — Hawaii Ocean Science and Technology Park

March 15, 1996

RECEIVED
STATE DEPARTMENT
OF TRANSPORTATION
Mar 20 11 00 AM '96
HIGHWAYS DIVISION
PLANNING BRANCH

Highways Division
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

SUBJECT: Comments on Environmental Assessment for Queen Kaahumanu Highway Widening Project

Dear Sirs:

The Natural Energy Laboratory of Hawaii Authority (NELHA), which operates the Natural Energy Laboratory (NELH) and the Hawaii Ocean Science and Technology (HOST) Park at Keahole Point has the following comments on the design presented in the subject Environmental Assessment:

1) NELHA and its lessees now have approximately 150 full time employees who drive in and out of the NELHA access road which runs makai at QK Highway STA 377, south of the airport interesection. Another 50+ contractor personnel are typically on site each day. In addition, NELHA hosted more than 7,000 visitors last year, and plans to double that number in the nest two years and every year thereafter. The access road is also heavily used for beach access, both to the NELHA beach park and to the adjacent O'oma and Kohanaiki beach front properties. We have no accurate count, but we estimate that more than 500 cars now traverse the road each day.

2) NELHA is planning significant expansion of its activities that will result in increased traffic in and out of the access road. A major component of this increase will be associated with the West Hawaii Research, Education and Development Center (WHREDC) that will be located below the first feeder road off the access road, approx. 500 ft from the QK Highway. This facility will include the University of Hawaii at Hilo West Hawaii Campus (or "Learning Center"), at which we expect daily traffic of more than 300 cars. Another component will be the expansion of the existing West Hawaii Explorations Academy, a Department of Education-sponsored branch of Konawaena High School. WHEA now has 55 students and several staff, and plans to double in size next year to expand further in the future. In addition, nearly all of the 547 acres in HOST Park is being negotiated for by a variety of projects. In addition to expanded aquaculture and other technical projects, many commercial entities are hoping to lease the lots along the highway for retail and other ventures which will entail significant public access.

3) In view of the present heavy use and the anticipated growth in the use of the NELHA access road, we feel that the proposed limitation to left turns only for the NELHA access road will present potentially serious problems which should at least be addressed in the EA. With the U-turns located as designed approximately 2,000 ft north and south of the NELHA entrance, every trip into the facility will entail approximately an extra mile of travel, unless the vehicle happens to arrive from the north and leave to the south, which is not the usual

Natural Energy Laboratory of Hawaii Authority
P.O. Box 1749 • Kailua-Kona • Hawaii 96745 Phone (808) 329-7341 FAX (808) 326-3262

case. In addition to the inconvenience to all concerned, there is a non-negligible environmental impact (emissions, fuel depletion, economic cost, etc.) from all of the required extra driving which ought to be addressed in the EA. This consideration also applies to all of the other present and future intersections along the road that will be similarly required to use designated U-turns across the median.

4) It appears that the design criteria call for traffic lights at all intersections that require both right and left turn access and egress to the highway. While this may be a necessary engineering practice for such a road, it appears that, in view of the anticipated heavy traffic on the State's NELHA access road, a traffic light may be necessary at the intersection.

5) If the anticipated traffic load is not sufficient to justify a traffic light, we ask you to consider a 500-ft spacing, for example that would dramatically reduce the extra distance required for each trip in and out of the facility.

6) Finally, it appears to us that it is a mistake to eliminate future consideration of a true limited access highway as has been proposed in previous plans. We understand that present analyses indicate that the full "freeway" design is not justified at the presently envisioned level of growth, however we and other establishments along the highway might be better served by eventual build-out which would utilize frontage roads for lateral access. NELHA had agreed to earlier queries about the acceptability of DOT-H plans based upon proposed access to our facility via a frontage road from the airport interchange, and our planning documents incorporate such a change. We do not see the presently proposed improvements as an acceptable long-term solution for NELHA or the businesses developing on our site. We would like to see the "freeway design" maintained as a future option for the Queen Kaahumanu Highway.

We thank you for the opportunity to respond to your Environmental Assessment. Please contact the undersigned or our Scientific/Technical Director, Dr. Thomas Daniel, if you require any amplification or clarification of our comments.

Sincerely,

for Robert Shleser, Ph.D.
Executive Director

BENJAMIN J. CAYETANO
GOVERNOR

SAM CALLEJO
COMPTROLLER

MARY PATRICIA WATERHOUSE
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P. O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P)1164.6

MAR 8 1996

Department of Transportation
600 Kapiolani Boulevard
Suite 304
Honolulu, Hawaii 96813

Attention: Mr. Ronald Tsuzuki

Gentlemen:

Subject: Queen Kaahumanu Highway Widening
North Kona, Hawaii
Draft Environmental Assessment

Thank you for the opportunity to review the subject document. We have no comments to offer.

If there are any questions, please have your staff contact Mr. Ralph Yukumoto of the Planning Branch at 586-0488.

Very truly yours,

GORDON MATSUOKA
State Public Works Engineer

RY:jy
cc: DOT
R.M. Towill

March 26, 1996

TO: Mr. Gordon Masuoka,
State Public Work Engineer
Department of Accounting and General Services

FROM: KAZU HAYASHIDA
Director of Transportation

SUBJECT: Queen Kaahumanu Highway Widening

Thank you for your letter of March 8, 1996 commenting on the proposed widening of Queen Kaahumanu Highway.

Thank you for your participation in the public hearing process.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

LAWRENCE MIKE
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU HAWAII 96801

In reply, please refer to

March 18, 1996 96-023/epo

State Department of Transportation
Highways Division
Planning Branch
600 Kapiolani Boulevard, Room 301
Honolulu, Hawaii 96813

Attention: Mr. Ronald Tsuzuki

Dear Mr. Tsuzuki:

Subject: Draft Environmental Assessment
Queen Kaahumanu Highway Widening
Kailua to Keahole
Hawaii

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

Water Pollution

A National Pollutant Discharge Elimination System (NPDES) permit is required for any discharge to waters of the State including the following:

1. Storm water discharges relating to construction activities for projects equal to or greater than five acres;

2. Storm water discharges from industrial activities;

3. Construction dewatering activities;

4. Cooling water discharges less than one million gallons;

5. Hydrotesting water.

Any person wishing to be covered by the NPDES permit for any of the above activities should file a Notice of Intent with the Department's Clean Water Branch at least 90 days prior to commencement of any discharge to waters of the State.

Any questions regarding this matter should be directed to Mr. Denis Lau of the Clean Water Branch at 586-4309.

Sincerely,

BRUCE S. ANDERSON, Ph.D.
Deputy Director for Environmental Health

c: CWB

April 15, 1996

TO: Dr. Bruce Anderson,
Deputy Director for Environmental Health
Department of Health

FORM: KAZU HAYASHIDA
Director of Transportation

SUBJECT: Queen Kaahumanu Highway Widening

Thank you for your letter of March 18, 1996 pointing out the potential need for NPDES permit(s) for the Queen Kaahumanu Highway Widening project.

Thank you for your participation in the public hearing process.

KEOLA CHILDS
Councilman

COUNTY COUNCIL
County of Hawaii
Hawaii County Building
25 Aupuni Street
Hilo, Hawaii 96720

Kona Phone: (808) 326 5684
Kona Fax: (808) 326 5697

March 29, 1996

Mr. Hugh Ono, Administrator
Highways Division
State Dept. of Transportation
869 Punchbowl St
Honolulu HI 96813

Re: Queen Kaahumanu / Kaiwi Street Intersection
North Kona

Dear ~~Mr. Ono~~ Hugh:

Councilman Jim Rath has introduced Resolution 299-96 for consideration by the County Council which recommends *against* DOT's proposed closure of the existing Kaiwi Street intersection as part of the improvements (widening) proposed for Queen Kaahumanu Hwy.; prior to this matter coming before the appropriate council committee, I would appreciate your office providing some facts to assist us in our consideration of this matter, so that we may make an informed decision:

1. The intended speed limit to be posted along this section of highway once its final phase of development is completed. The following information is to be based on such speed limit.

2. Confirmation that DOT expects/intends that this section of Queen K. highway will ultimately become a <u>six</u> lane divided highway;

3. Based on the intended speed limits, do DOT minimum standards allow for an unsignalized left turn across three lanes of oncoming traffic in any location in the State of Hawaii? What about for left turns across *two* lanes of traffic?

4. The distance between the Kaiwi Street intersection and the signalized intersections to its north and south (Makala Blvd. & Palani Rd.), vs. DOT's standard for minimum spacing of non-signalized, "right-in, right-out" intersections along divided four and six lane highways such as Queen K. is intended to become.

Also, because the existing intersection allows a left turn from Queen K. into Kaiwi St., it would be helpful to know whether this qualified left turn movement would increase the basic minimum spacing over what it would be for just a "'right-in, right-out" intersection;

I would appreciate knowing whether the standards asked for above have in fact been achieved and held to over the last 10 - 20 years.

4. Based on DOT standards and experience in Honolulu with 4 and 6 lane divided highways there, what is the desirable or <u>maximum</u> distance between signalized highway intersections to service the regional traffic demands on a particular commercial and industrial area?

(In the instant case, the distance between Queen K. highway crossings would have to be measured as the entire road distance between (i) Makala Blvd. to the north, and (ii) the Palani Rd/ Queen K. Junction to the south, by way of Kuakini Hwy., i.e., it would have to include the lengths of Kuakini Hwy. and Palani Road that lay between the lower end of Kaiwi and the Palani/Queen K. intersection, since that is the only way in and out to/from southerly trip destinations/origins. This total distance is over a mile).

I believe I understand the engineering problems that a retained Kaiwi Street intersection presents, however, I am having difficulty picturing an area of urban Honolulu where such long spacing between major highway crossings/arterial access points exists *for major commercial-industrial centers*. I can think of various areas like Mapunapuna and Salt Lake where frontage roads or intersecting arterials cross the commercial districts, but none where this extent of restricted access exists around a functional urban commercial-industrial setting.

If this is so, our community needs help from either or both the State DOT and County to determine what alternatives exist to allow the state's "throughput" needs to met, e.g., condemning land and buildings and putting through additional feeder roads to Palani Rd. from the "old industrial area," or simply increasing the carrying capacity of Kuakini Hwy. through the Village.

If DOT experiences in Honolulu show that the distances involved in Kona are functional in Honolulu, alongside 4 or 6 lane divided highways, it would be helpful to have specific examples we can point out to the concerned Kona residents and businessmen.

I would greatly appreciate your reply by April 15, if at all possible, as this matter may be initially considered that week (it has not yet been agendized). To facilitate committee handling and members consideration of your comments, please address your reply to me c/o **Brian DeLima, Chairman, Committee on Human Services and Public Works, and referencing Resolution No. 299-96.**

Please do not hesitate to call me at 326-5684 with any questions.

Sincerely,

Keola Childs
Councilmember, 7th District

HWY-1053
HWY-PA
2.9888

APR 23 1996

The Honorable Keola Childs
Councilmember
County of Hawaii
Hawaii County Building
25 Aupuni Street
Hilo, Hawaii 96720

Dear Councilmember Childs:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of March 29, 1996. We have reevaluated the need to completely close Kaiwi Street and have decided to provide right-turn-in and right-turn-out movements at Kaiwi Street as part of the proposed Queen Kaahumanu Highway Widening project. This will require the construction of an auxiliary lane from Makala Boulevard to Kaiwi Street and from Kaiwi Street to Palani Road. The posted speed limit which is currently between 45 to 35 mph will not change. Adequate rights-of-way will be acquired for possible future expansion to a 6-lane divided facility.

At this point in our analysis, we do not favor the inclusion of left-turns at Kaiwi Street. Left- turn movements crossing a multi-lane highway coupled with the lack of sight distance due to the steep down-grade of Kaiwi Street will become increasingly hazardous as traffic on Queen Kaahumanu Highway increases. Installation of traffic signals at Kaiwi Street is not warranted and will cause undue delay on Queen Kaahumanu Highway. The distance between Kaiwi Street and the signalized intersections at Makala Boulevard and Palani Road is not a problem. The Makala Boulevard intersection will be designed to accommodate the added left-turn movements, if the left-turn at Kaiwi Street is eliminated. This can be done by adjusting the signal phasing and/or constructing double left-turn lanes.

It is our goal and objective to provide a safe and efficient highway improvement which benefits the business community. We will continue to coordinate the design of the widening with the concerned residents and business of Kona. Please feel free to contact Ronald Tsuzuki, our Highways Division Head Planning Engineer, at 808-587-1835, if your have any questions.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

DO:gf

bc: HWY-PA , DEP-GO

APP . 1 '996

HWY-PA
2.9766

Ms. Virginia Goldstein
Director
Planning Department
County of Hawaii
25 Aupuni Street, Room 109
Hilo, Hawaii 96720-4252

Dear Ms. Goldstein:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of March 8, 1996 commenting on the proposed widening of Queen Kaahumanu Highway. In response to your specific comments, we offer the following:

1. Hawaii County General Plan. We will clarify section 6.5 of the draft environmental assessment to reflect the current LUPAG designation.

2. Special Management Area. We will correct the language in section 7.2 from "Special Management Area Permit" to "Special Manager Area review". We will further include the provisions for subdivision and consolidation for the lands to be acquired.

3. Historic and Archaeological Resources. To the extent that we are able, we will provide additional discussion on the mitigation proposed for the portions of the Mamalahoa Trail. We do not anticipate that the Memorandum of Agreement will be finalized prior to the publication of the final environmental assessment. We will forward a copy to your office when it have been developed.

4. Discussions with Landowners. As part of our planning process we have endeavored to discuss our plans with the various landowners along the highway corridor. We have also had specific discussions, particularly with the Queen Lilioukalani Trust, to discuss their plans for development. Where specific development plans were on file, we consulted the plans to ascertain the impact of the widening project on their proposal.

5. Final EA. We will submit two copies of the final EA to your office when it becomes available.

Thank you for your participation in the public hearing process.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

DO:gf

Stephen K. Yamashiro
Mayor

Virginia Goldstein
Director

Norman Olsen
Deputy Director

County of Hawaii
PLANNING DEPARTMENT
25 Aupuni Street, Room 109 • Hilo, Hawaii 96720-4252
(808) 961-8288 • Fax (808) 961-8615

March 8, 1996

Mr. Ronald Tsuzuki
Department of Transportation
600 Kapiolani Blvd., Suite 304
Honolulu, HI 96813

Dear Mr. Tsuzuki:

Draft Environmental Assessment for Queen Kaahumanu Highway Widening from Keahole to Kailua-Kona

We are in receipt of the above-described draft environmental assessment and have the following comments to offer for your consideration:

1. Section 6.5 Hawaii County General Plan should be clarified to specify the General Plan's Land Use Pattern Allocation Guide (LUPAG) map designation of Open for the existing Queen Kaahumanu Highway right-of-way from Keahole to Palani Road, while those certain lands located mauka of the highway and targeted for acquisition to expand the existing right-of-way are designated Urban Expansion, Industrial or High Density Urban. The LUPAG Map identifies that portion of Queen Kaahumanu Highway extending south from Palani Road to Henry Street as traversing over lands designated High Density Urban.

2. Section 7.2 County of Hawaii should include the following additional approvals and clarifications which may be required by the Planning Department to accommodate the proposed improvements:

   a. Special Management Area review - should replace "Shoreline Management Area Permit". Until the exact scope and location of the proposed highway improvements are known, we cannot determine the type of permits or approvals which may be required by the County's Special Management Area rules and regulations.

   b. Subdivision Approval - In order to accommodate the acquisition of lands mauka of the highway to expand the right-of-way, the consolidation and resubdivision of these lands must occur.

3. Section 4.9 Historical and Archaeological Resources should include, as part of the Final EIS, further discussion of issues surrounding the impacts which will be generated upon the Mamalahoa Trail by the proposed highway improvements. These issues will be disseminated from comments received by the general public as well as the applicant's on-going discussion with the DLNR-Historic Preservation Division. The memorandum of agreement, as discussed within the draft EA, should also be included within the Final EA. While not specific to the proposed improvements, we also have concerns regarding the future implementation of frontage roads along the Queen Kaahumanu Highway. Such frontage roads may further impact many portions of the Mamalahoa Trail.

4. On a general note, there needs to be greater discussion between the proposed highway widening improvements and it affect on adjacent landowners. What have been the extent of discussions between the applicant and those landowners whose parcels are located within the area to be acquired to accommodate the widening of the road right-of-way? A case-in-point are lands owned by the Queen Liliuokalani Trust (near Palani intersection) which are zoned to accommodate commercial and industrial developments. We are somewhat familiar with their conceptual development plans and are interested in how the proposed highway widening will compliment these future developments.

Finally, we would appreciate two copies of the Final EIS for our review and files.

Thank you for allowing our office the opportunity to comment. Should there be any questions regarding this matter, please feel free to contact Daryn Arai of this office.

Sincerely,

VIRGINIA GOLDSTEIN
Planning Director

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Stephen K. Yamashiro
Mayor

County of Hawaii
POLICE DEPARTMENT
349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-2702

Wayne G. Carvalho
Police Chief

James S. Correa
Deputy Police Chief

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March 15, 1996

Mr. Kazu Hayashida
Director of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR QUEEN KAAHUMANU HIGHWAY WIDENING

Staff has reviewed the draft environmental assessment and plans (conceptual scheme subject to change) for the proposed widening of the Queen Kaahumanu Highway and offer the following comments:

1. Egress of vehicular traffic from the Kealakehe Police Station access road without the assistance of signalization will be hazardous. Routine traffic at the police station, coupled with the continuous daytime traffic at the landfill, will create a potentially dangerous situation when vehicles attempt to cross the two northbound lanes to reach the safety of the southbound acceleration lane.

2. Speeding vehicles on the Queen Kaahumanu Highway will pose additional hazards to vehicles attempting egress from the Police Station access road.

3. There is no proposed left turn deceleration or stacking lane on Queen Kaahumanu Highway. We believe such a provision would be advantageous and provide additional safety to the motoring public and facilitate ingress and egress.

4. A full channelized light sequence with a timer pad to allow for stacking of four or more vehicles on Queen Kaahumanu Highway would also be helpful.

5. A partial signalized intersection for northbound traffic only with special yellow caution lights which can be activated for emergency response (similar to those used near fire stations) may be an alternative solution to consider.

Thank you for the opportunity to comment.

Sincerely,

Wayne G. Carvalho
WAYNE G. CARVALHO
POLICE CHIEF

JV:lk

Stephen K. Yamashiro
Mayor

Wayne G. Carvalho
Police Chief

James S. Correa
Deputy Police Chief

County of Hawaii
POLICE DEPARTMENT

349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-2702

February 20, 1996

Mr. Kazu Hayashida
Director of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR QUEEN KAAHUMANU HIGHWAY WIDENING

Prior to commenting on the above-subject, we would like to review the plans or drawings of the proposed intersection which will provide ingress/egress from the Kealakehe police station onto the new four-lane Queen Kaahumanu Highway.

Please have your staff direct their response to Captain John S. Vares, Commander of our Kona District, at 74-5221 Queen Kaahumanu Highway, Kailua-Kona, Hawaii 96740. If necessary, he may be contacted at (808) 326-4211.

Sincerely,

Wayne G. Carvalho

WAYNE G. CARVALHO
POLICE CHIEF

TJH:lk

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Mr. Wayne G. Carvalho, Chief
Police Department
County of Hawaii
349 Kapiolani Street
Hilo, Hawaii 96720

Dear Chief Carvalho:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letters of March 15 and March 20, 1996 commenting on the proposed widening of Queen Kaahumanu Highway.

We have reviewed your request for a signalized intersection at the entry to the Police Facilities at Kealakehe and will take it under advisement. In order to justify the need for a signalized intersection, certain warrants must be met, such as a high volume of cross traffic or if safety will be compromised without it.

In order to facilitate access to the Police facilities, we are providing acceleration and deceleration lanes for both ingress and egress from the Police facilities. The median will provide for stacking for those motorists wishing to make a left turn into the Police facilities.

We will forward plans for the widening project when they become available.

Thank you for your participation in the public hearing process.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

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PLANNING BRANCH

TO whom it may concern

Thank you for this opportunity to express my opposition to the proposed Widening of the Queen Kaahumanu Highway project in Kona. My opposition is based upon the following facts:

① The highway will produce toxic urban runoff which will pollute the underground drinking water and the ocean there by degrading Class AAA waters causing unkown but possible harm to marine diatoms and other life forms.

② Contrary to the EIS that this project is justified to relieve traffic congestion; increased highway construction does not relieve congestion. It is axiomatic that peak-hour traffic increases to fill maximum capacity.

③ Construction will incourage unwise and harmful land use especially urban sprawl. Half the land in an average american city is used for cars replacing trees and wild life habitat with urban development which contributes to the Air and water pollution problem worsening results in harm to ocean and land life forms. Even with some care in management urban and industrial development pollute air and water and is destructive in other ways. These land use trends will also undermine attempts to cut traffic fatality rates.

④ Increased auto traffic and volume will cause increased emission of Nitrogen dioxide contributing to the acid rain problem, carbon dioxide contributing to the global warming problem, Benzene, carbon monoxide, and hydro carbons which cause health problems and harm to humans and animals.

⑤ The largest cause of violent death is usually traffic fatalities. In North America they kill twice as many people as homicides. More over young people have more car crashes than almost any other age group.

The most effective way to prevent these deaths is to drive less. In the U.S. with relatively safe cars and roads, the mortality rate is high because many people drive every day.

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V. SITE SIGNIFICANCE AND RECOMMENDED TREATMENT

A. Significance Evaluations

A total of seventeen sites with varied archaeological significance are present in the project area (see Table 1). Individual site significance was evaluated according to the broad criteria established for the National and State Registers of Historic Places. The five criteria are:

A	Site reflects major trends or events in the history of the state or nation
B	Site is associated with the lives of persons significant in our past
C	Site is an excellent example of a site
D	Site may be likely to yield information important in prehistory and history
E	Site has cultural significance; probable religious structures (shrines, *heiau*) and/or burials present

Federal significance assessments do no include criterion E as a cultural significance (state Criterion E) it comes under criterion A, thus all sites evaluated with State Criterion E are also assessed under criterion A in the federal system.

Thirteen of the sites (Sites 02238, 06432, 19943, 19944, and 19946 through 19954) are considered significant solely to yield information important in prehistory and history (Criterion D). Two sites (Sites 15324 and 19945) are considered to have cultural significance (Criterion E) in addition to being considered likely to yield information important in prehistory and history (Criterion D). One site (Site 13194) is considered to be an excellent example of a site type (Criterion C) in addition to being considered having cultural significance and likely to yield information important in prehistory and history (Criteria E and D). One site (Site 00002-Mamalahoa Trail) is considered to reflect major trends in the history of the state (Criterion A), as well as being considered an excellent example of a site type (selected portion of the site) and likely to yield information important in prehistory and history (Criteria C and D).

These significance assessments are summarized here:

Criterion D only:	02238, 06432, 19943, 19944, 19946, 19947, 19948, 19949, 19950, 19951, 19952, 19953, 19954
Criteria D and E:	15324, 19945
Criteria C, D and E:	13194
Criteria A, C, D and E:	00002

B. Recommended Treatment

It is recommended that eight of the sites (Sites 02238, 19943, 19944, 19946, 19950, 19952, 19953, and 19954) be subjected to a program of data recovery to address scientific and informational concerns and to mitigate the impact of future construction. It is recommended that four sites (Sites 00002, 13194, 15324 and 19945) be preserved to the extent possible within the proposed highway widening plans, and those portions of these four sites that cannot be avoided be included in a program of data recovery. No further work is recommended for the remaining five sites (Sites 06432, 19947, 19948, 19949, and 19951).

Table 6: Sites Included in the Present Inventory Survey (same as Table 1)

(Previously Identified Sites)

State Site #	CSH Site/ Feature #	Ahupua'a	Site/Feature Type	Probable Function	Preliminary Significance	Recommended Treatment
00002	--	Keahuolu, Kealakehe, Honokohau	Road (Mamalahoa Trail)	Transportation	A,C,D,E,*	DR, P[1]
02238	11	Kaloko	Complex	Temporary Habitation	D	DR
	11A		Terrace			
	11B		Enclosure			
06432	16	O'oma 2	Wall	Boundary, Ranching	D	NFW
13194	--	Kealakehe	Trail	Transportation	C,D,E,*	DR, P[1]
15324	6	Kohanaiki	Trail Network	Transportation	D,E,*	DR, P
	6A		Trail Branch			
	6B		Trail Branch			

(Newly Identified Sites)

19943	1	Kalaoa 1-4	Utilized Lava Tube (with interior features)	Temporary Habitation	D	DR
	1A		Mound			
	1B		Alignment			
	1C		Ash Deposit			
	1D		Midden Scatter			
19944	3	Kalaoa 1-4	Mounds (2)	Markers	D	DR
	3A		Mound			
	3B		Mound			
19945	4	Kalaoa 1-4	Petroglyphs (2)	Symbolism	D, E	DR, P
	4A		Petroglyph Figure			
	4B		Petroglyph Figure			
19946	5	Kohanaiki	Trail	Transportation	D	DR
19947	7	Kohanaiki	Cairns (3)	Boundary markers	D	NFW

State Site #	CSH Site/ Feature #	Ahupua'a	Site/Feature Type	Probable Function	Preliminary Significance	Recommended Treatment
	7A		Cairn			
	7B		Cairn			
	7C		Cairn			
19948	8	Kaloko	Pahoehoe Excavation	Quarry	D	NFW
19949	9	Kaloko	Enclosure	Unknown	D	NFW
19950	10	Kaloko	Modified Outcrop Complex	Agriculture	D	DR
	10A		Modified outcrop			
	10B		Modified outcrop			
	10C		Modified outcrop			
	10D		Modified outcrop			
19951	12	Kaloko	Wall	Boundary, Ranching	D	NFW
19952	13	Kaloko	Trail	Transportation	D	DR
19953	14	Honokohau	Trail	Transportation	D	DR
19954	15	Honokohau	Trail	Transportation	D	DR

KEY:
- A — Site reflects major trends or events in the history of the state or nation
- B — Site is associated with the lives of persons significant in our past
- C — Site is an excellent example of a site type
- D — Site may be likely to yield information important in prehistory and history
- E — Site has cultural significance; probable religious structures (shrines, *heiau*) and/or burials present
- DR — Data Recovery
- P — Preserve
- P[1] — Preserved - included in previous Preservation Plan(s)
- NFW — No Further Work
- * — Significance assessments of site (or portions of site) also determined in prior archaeological studies

Data Recovery

The eight sites that are recommended for data recovery should be subjected to further documentation and, when appropriate, excavation to address scientific and informational concerns. Data recovery should proceed in accordance with a data recovery plan which is to be submitted to DLNR State Historic Preservation Division and Hawaii County for review and approval.

The sites selected for data recovery include four functional site types: trails (Sites 19946, 19952, 19953 and 19954); temporary habitation (Sites 02238 and 19943); marker (Site 19944); and agriculture (Site 19950). The following research objectives might be considered in the future study of these sites:

1. **Trails** - An attempt could be made to trace and record the full extent of each of the trails which extend through the project area. During the inventory survey fieldwork, each of the trails was followed only for several hundred feet outside of the project area, where possible. Future research might also include a search for historical documentation of the specific trails identified as well as an attempt to find linkages with trail sections identified in other archaeological studies both *mauka* and *makai* of the identified trail segments.

2. **Temporary Habitation Sites** - Additional excavation and/or surface collection could be made at the two sites interpreted as temporary habitation sites to gather additional evidence to assist in determining the nature and extent of activities which occurred there. An attempt might also be made to find evidence of a nearby trail, as is suggested by previous studies of habitation sites in the intermediate zone of Kekaha.

3. **Marker and Agricultural Sites** - Additional excavation might be conducted at these sites to accumulate additional evidence for site interpretation including collecting samples for radiocarbon and/or pollen analysis.

Preservation/Data Recovery

The four sites recommended for preservation and data recovery include three trails (Sites 00002, 13194, and 15324) and one petroglyph site (Site 19945). Because these sites are wholly or partially located along the outside boundary of the new highway right of way, it is hoped that an effort could be made to avoid all or portions of these four sites during the future construction associated with the highway widening. For those portions of these four sites (i.e. sections of trails) which cannot be avoided during construction, inclusion in a data recovery program is recommended.

It should also be noted that two of these sites (Sites 00002 and 13194) have been recommended for preservation in previous archaeological studies and have been included in interim and possibly long-term preservation plans that have been approved by DLNR-SHPD (e.g. Jensen 1995, Borthwick and Hammatt 1992).

No Further Work

No further work is recommended for the remaining five sites in the project area (Sites 06432, 19947, 19948, 19949, and 19951, as it is believed sufficient information has been obtained by the documentation of the sites completed during the inventory survey.

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APPENDIX A: ADDITIONAL SITE LOCATION INFORMATION

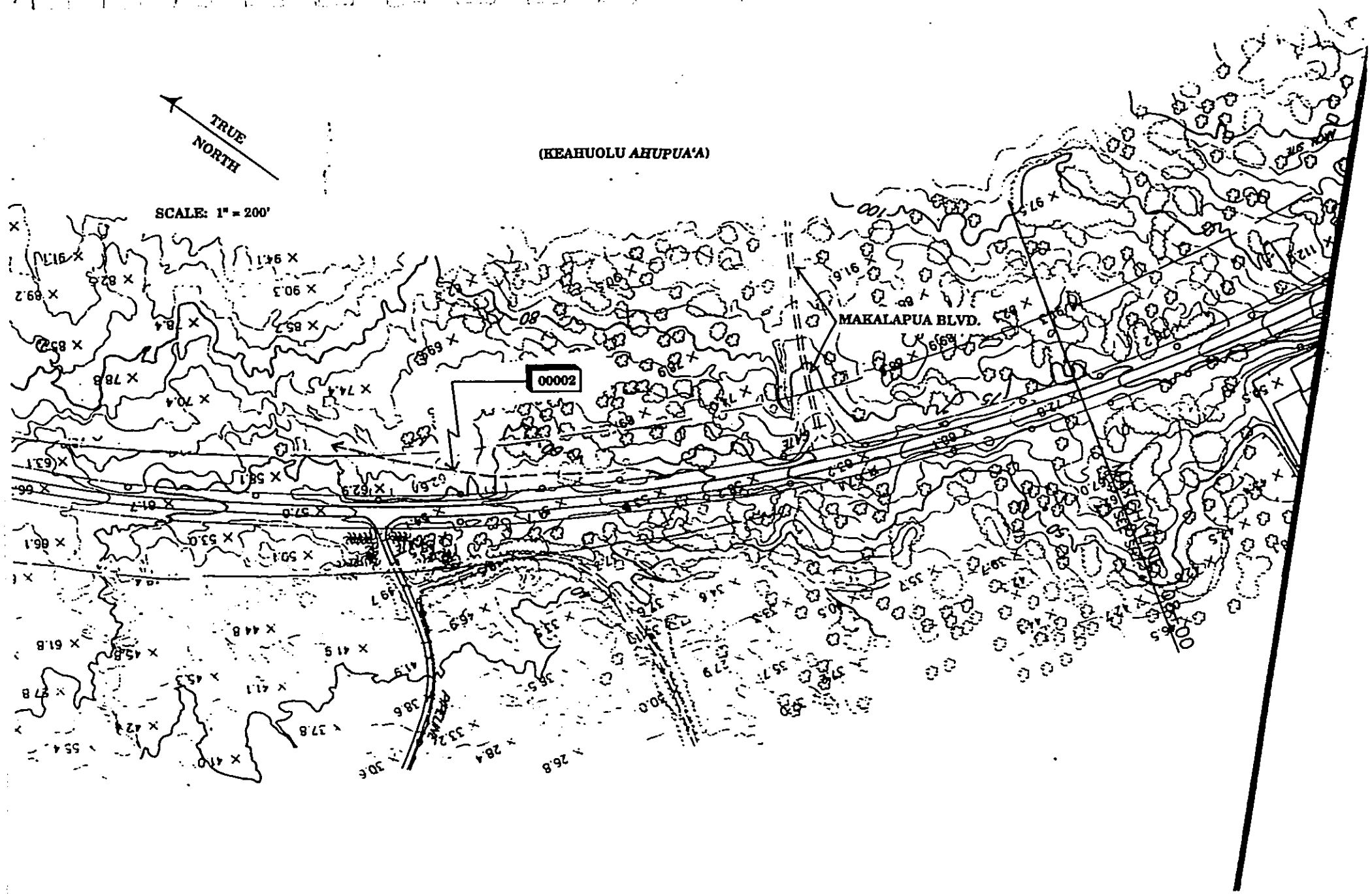
Table 7: Additional Site Location Information

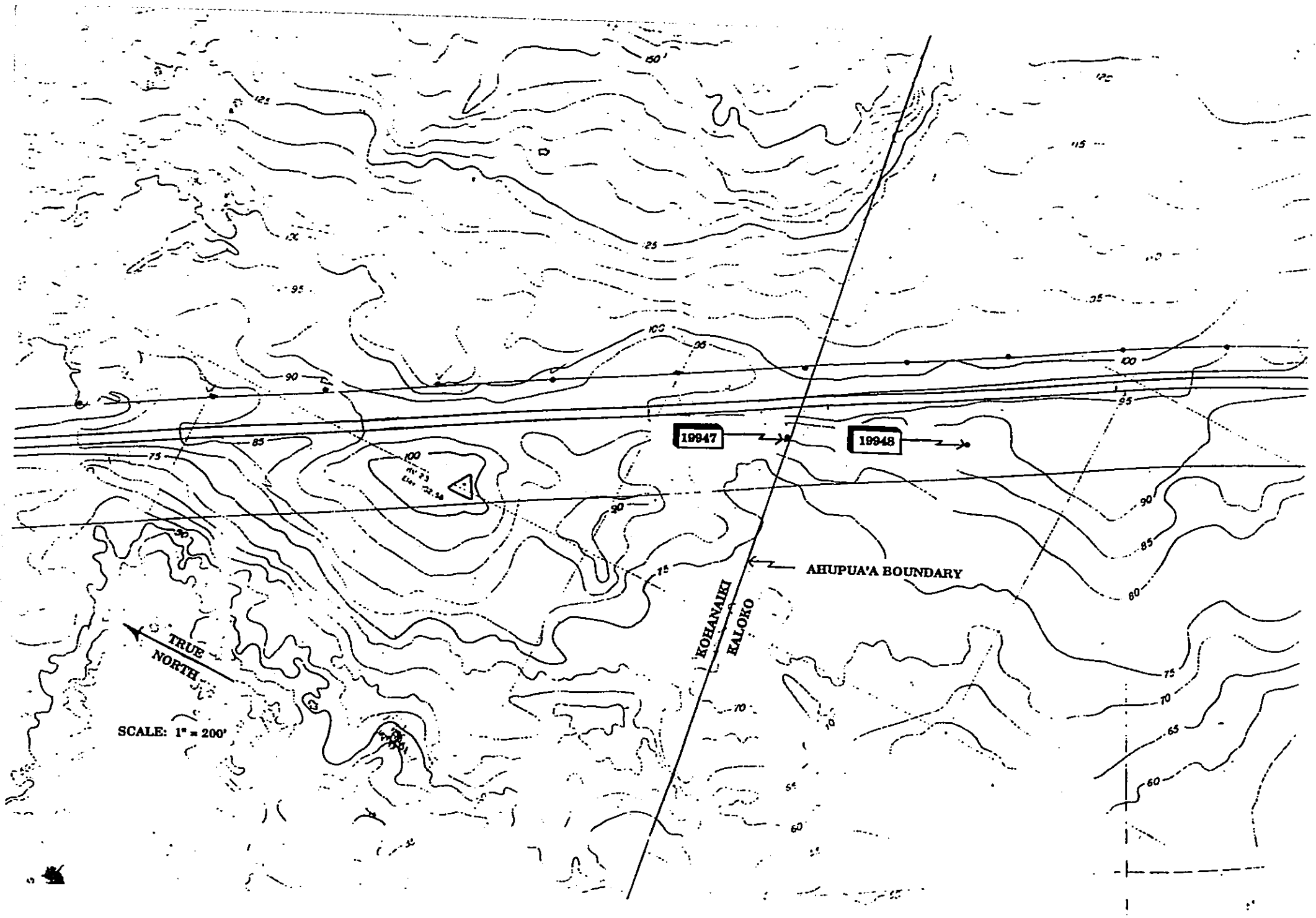
State Site #; Site Type	CSH Temp. Site #	Ahupua'a & Locational Info	Recommended Treatment
19943 Lava Tube	CSH 1 A-D	Kalaoa 1-4; 160' from *makai* pavement edge	DR
19944 Mounds	CSH 3 A-B	Kalaoa 1-4; 250' from *makai* pavement edge	DR
19945 Petroglyphs	CSH 4 A-B	Kalaoa 1-4; 150' from *makai* pavement edge	DR, P
19946 Trail	CSH 5	Kohanaiki; begins 150' from *makai* pavement edge - 60' section within new R/W	DR
15324 Trails	CSH 6 A-B	Kohanaiki; begins 160' from *makai* pavement edge - one 60' and one 40' section within new R/W	DR, P[1]
19947 Cairns	CSH 7 A-C	Kohanaiki; 70' from *makai* pavement edge	NFW
19948 Pahoehoe excavation	CSH 8	Kaloko; 110' from *makai* pavement edge	NFW
19949 Enclosure	CSH 9	Kaloko; 80' from *makai* pavement edge	NFW
19950 Modified outcrops	CSH 10 A-D	Kaloko; 140' from *makai* pavement edge	DR
02238 Platform, enclosure	CSH 11 A-B	Kaloko; 170' from *makai* pavement edge	DR
19951 Wall	CSH 12	Kaloko; begins 100' from *makai* pavement edge, 80' section within new R/W	NFW
19952 Trail	CSH 13	Kaloko; begins 125' from *makai* pavement edge, 70' section within new R/W	DR
19953 Trail	CSH 14	Honokohau; begins 53' from *makai* pavement edge, 150' section within new R/W (includes 20' section obscured by M. Trail)	DR
19954 Trail	CSH 15	Honokohau; begins 90' from *makai* pavement edge, 100' section within new R/W	DR
06432 Wall	CSH 16	Ooma 2/Kalaoa Ooma; begins 20' from *makai* pavement edge, 170' within new R/W; also begins 90' from *mauka* edge of pavement, 20' within new R/W (total 190')	NFW
00002 Mamalahoa Trail	None	Keahuolu: begins 30' from *mauka* edge, parallels highway - 700' section w/in new R/W Kealakehe: parallels highway 200' from *mauka* edge - 1800' section w/in new R/W Honokohau: one ramp section located 110' from *mauka* edge (directly beneath power line), 35' section w/in new R/W; also begins 30' from *makai* edge, 490' section w/in new R/W	DR, P[1]
13194 Trail	None	Kealakehe; begins 95' from *mauka* edge, discontinuous (obscured by M. Trail and B/D path), roughly 215' still intact w/in new R/W	P[1]

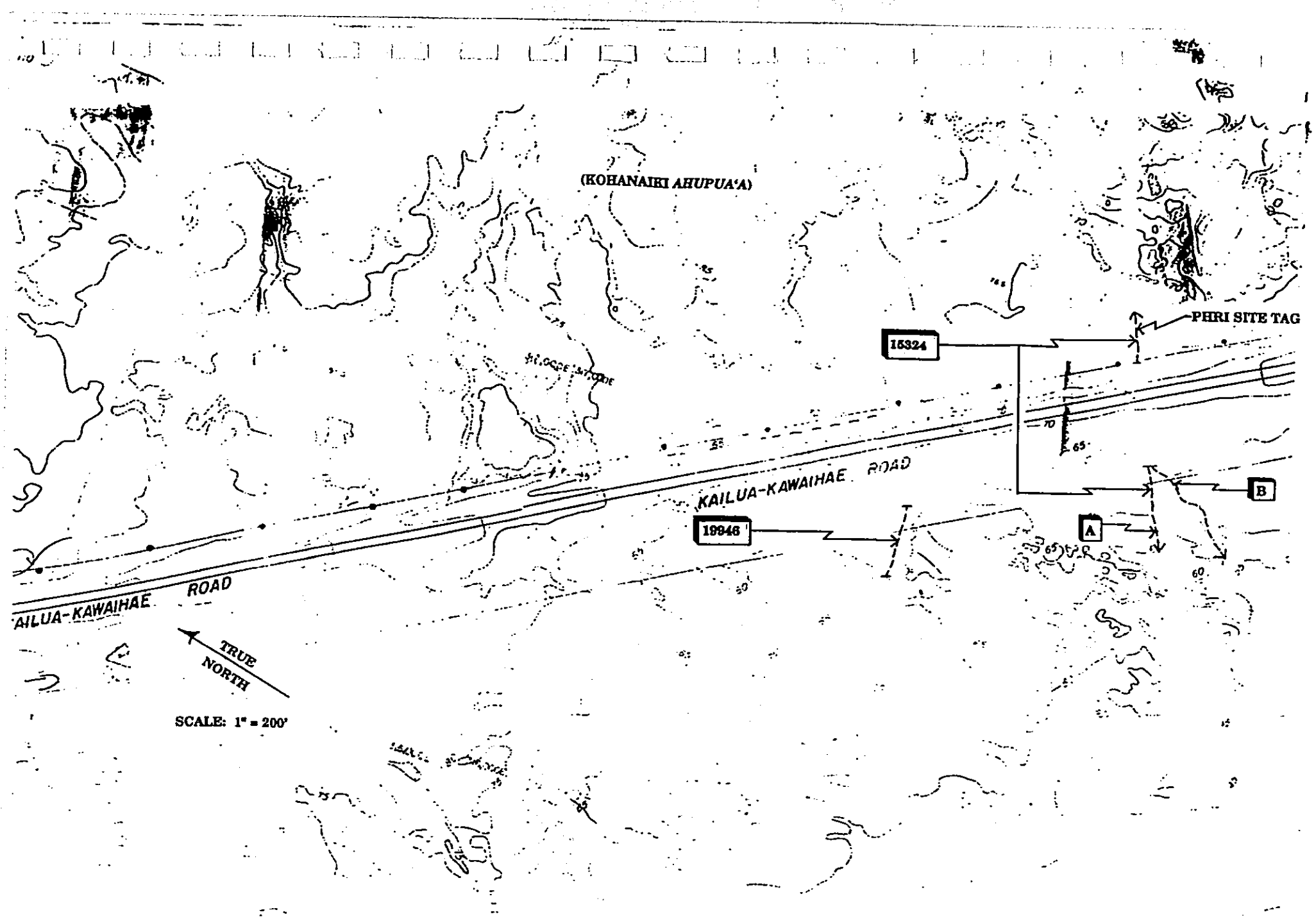
KEY:

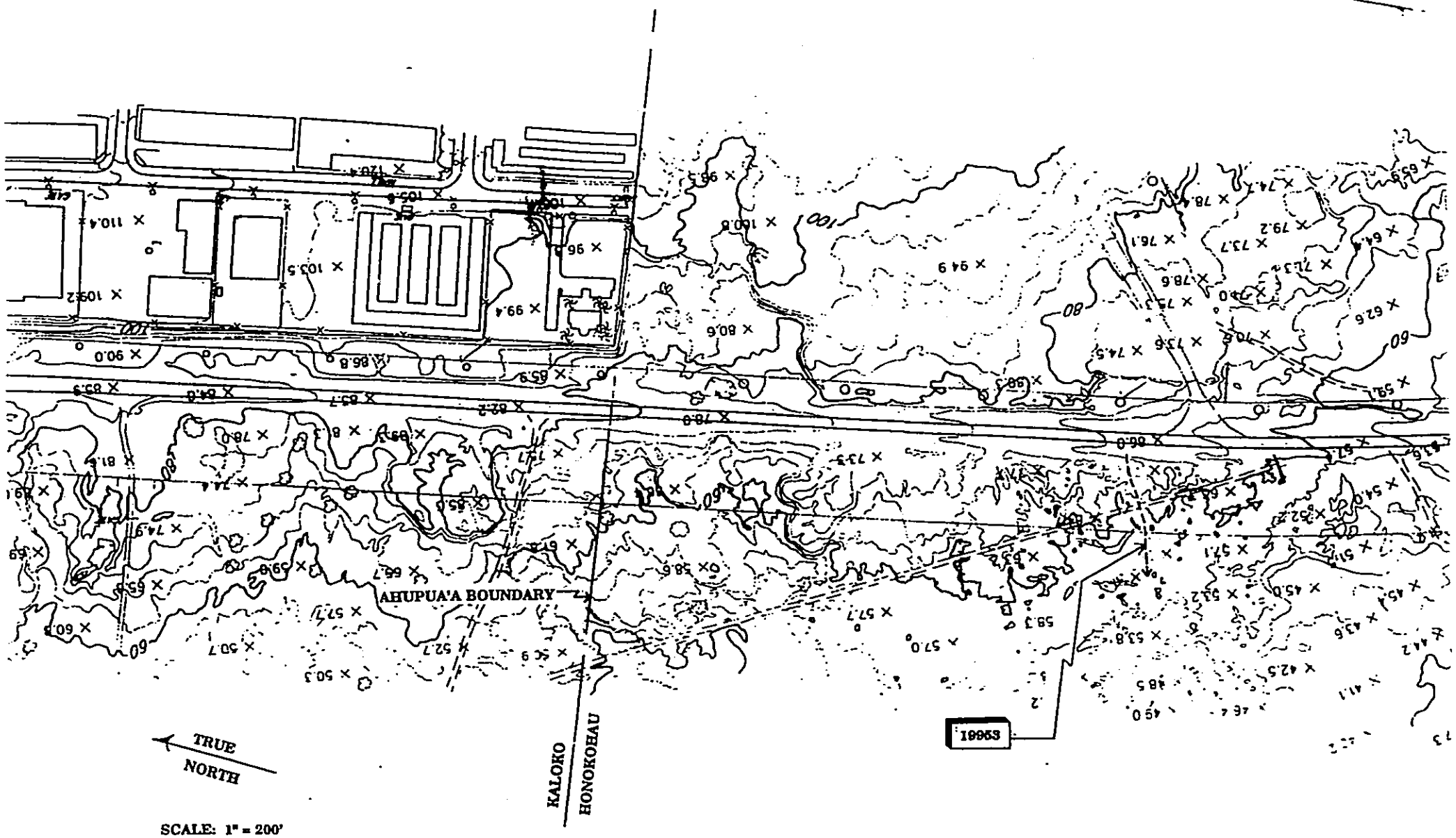
A	Site reflects major trends or events in the history of the state or nation
B	Site is associated with the lives of persons significant in our past
C	Site is an excellent example of a site type
D	Site may be likely to yield information important in prehistory and history
E	Site has cultural significance; probable religious structures (shrines, *heiau*) and/or burials present
DR	Data Recovery
P	Preserve
P[1]	Preserved - included in previous Preservation Plan
R/W	Highway Right-of-way
NFW	No Further Work

The following maps are portions of the 1"=200' scale topographic maps of the project area provided by R.M. Towill Corporation showing the location of the archaeological sites identified within the project area.


TRUE NORTH
SCALE: 1" = 200'
(KEAHUOLU AHUPUA'A)
MAKALAPUA BLVD.
00002

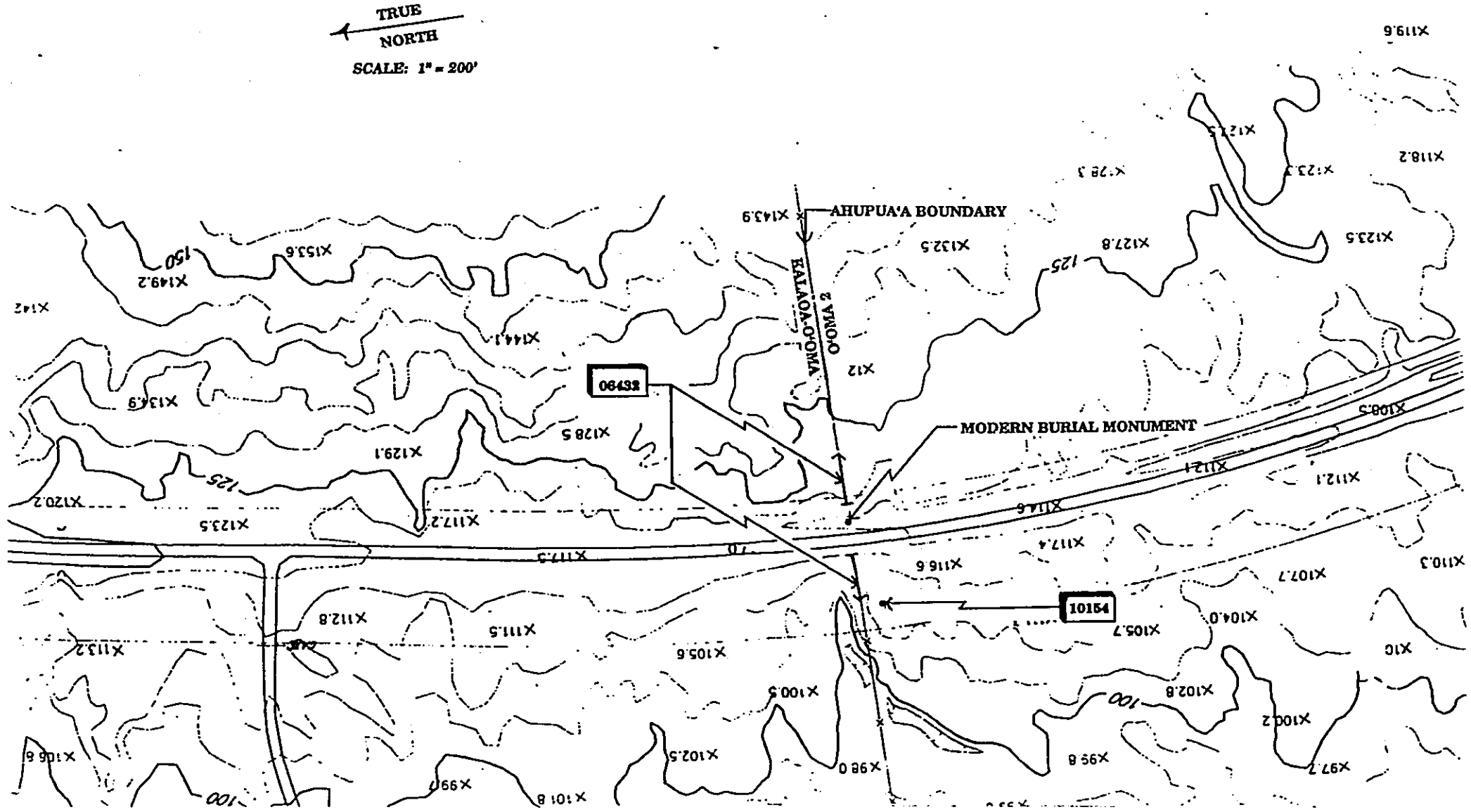

19947
19948
AHUPUA'A BOUNDARY
KOHANAIKI
KALOKO
TRUE NORTH
SCALE: 1" = 200'

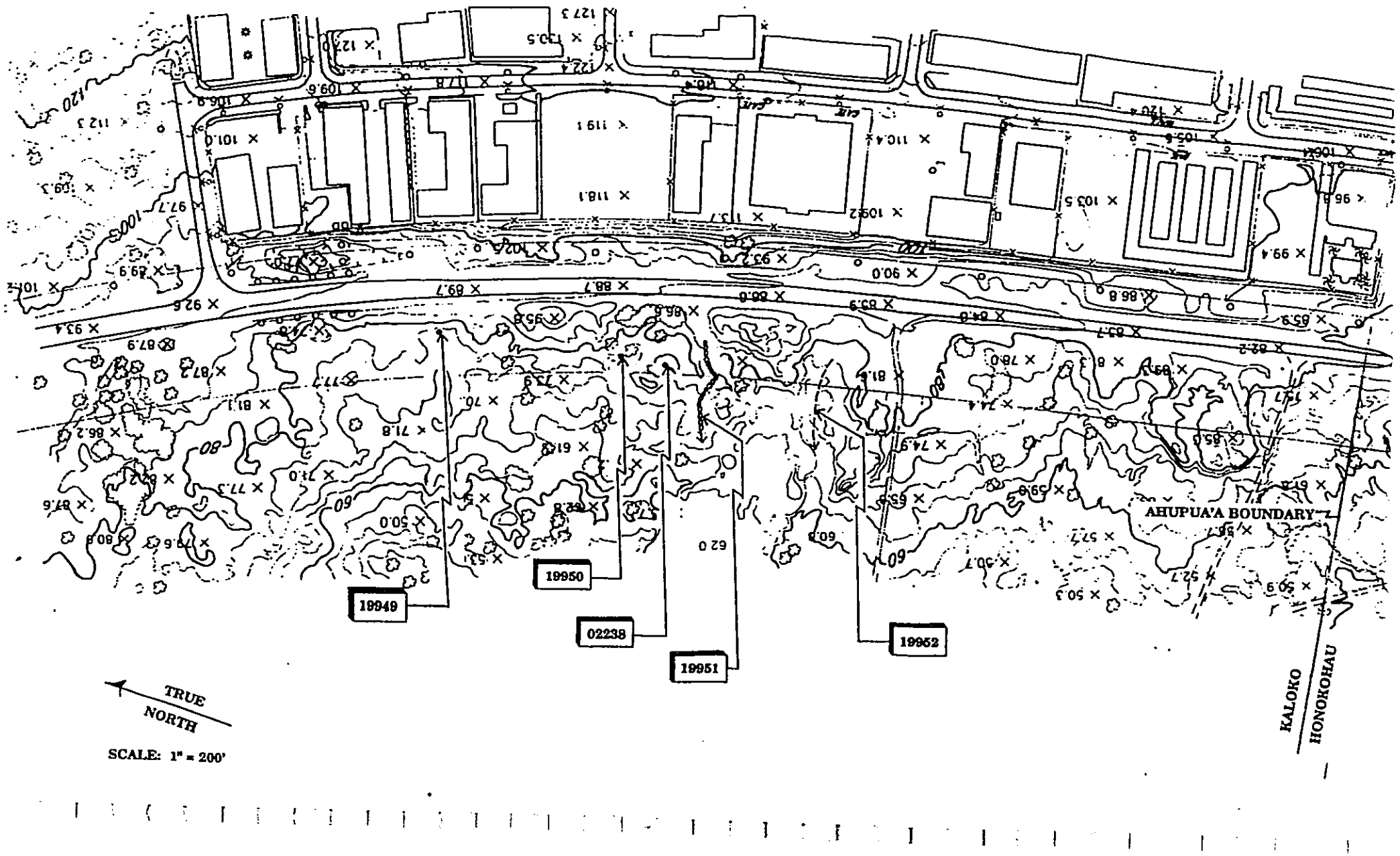

(KOHANAIKI AHUPUA'A)
PHRI SITE TAG
15324
19946
A
B
KAILUA-KAWAIHAE ROAD
AILUA-KAWAIHAE ROAD
TRUE NORTH
SCALE: 1" = 200'

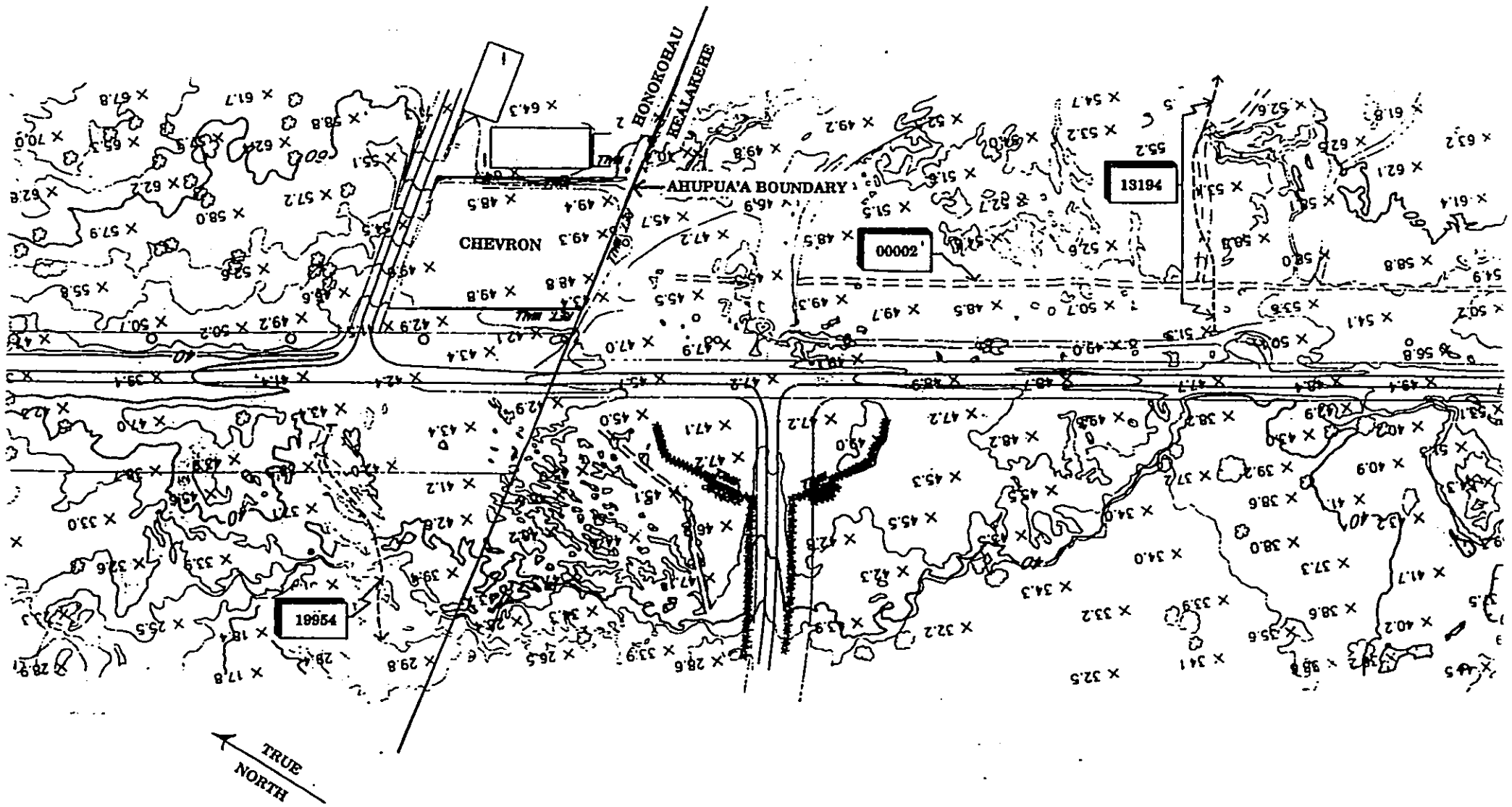

AHUPUA'A BOUNDARY
KALOKO
HONOKOHAU
TRUE
NORTH
SCALE: 1" = 200'
19953

TRUE
NORTH

SCALE: 1" = 200'




19949
19950
02238
19951
19952
AHUPUA'A BOUNDARY
KALOKO
HONOKOHAU
TRUE
NORTH
SCALE: 1" = 200'


HONOKOHAU
KEALAKEHE
AHUPUA'A BOUNDARY
CHEVRON
00002
13194
19954
TRUE
NORTH

SCALE: 1" = 200'

(KALAOA 1-4 *AHUPUA'A*)

19945

19944

19943

CSH 2

KEAHOLE AIRPORT ENTRANCE ROAD

TRUE NORTH

SCALE: 1" = 200'

SEE SHT 39

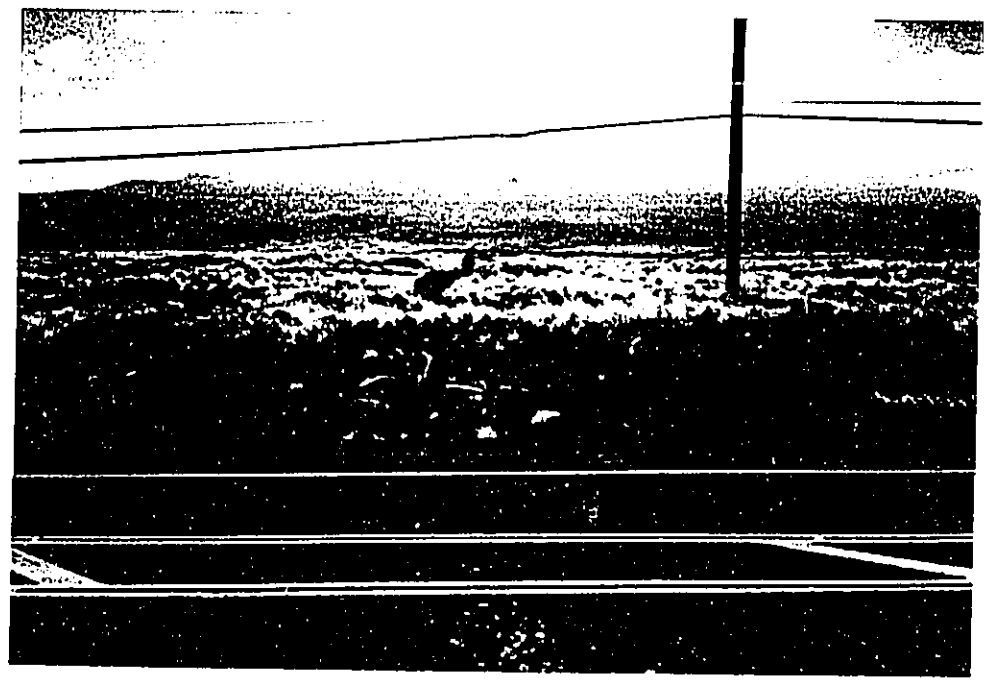


Figure 13 Site 06432 (Eastern Side of Highway) Photograph, View West

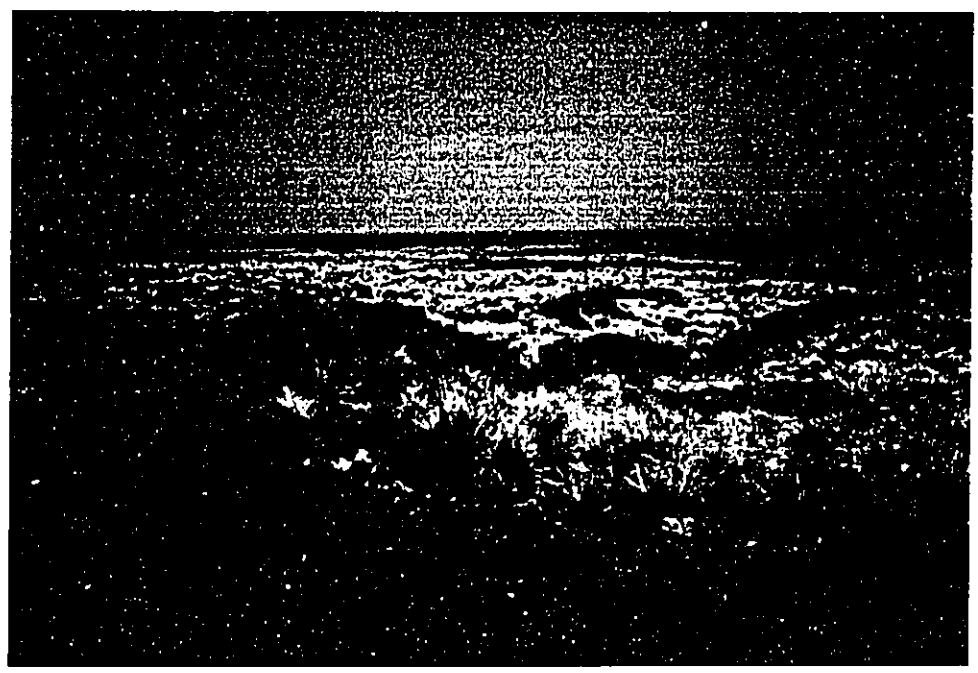


Figure 14 Site 06432 (Western Side of Highway), View East - Note Site 10154 in background

some level of interpretive development. No further work was recommended for site 13195.

O'Hare, Constance R. and Susan T. Goodfellow
1994 *Phased Archaeological Mitigation Program, Kealakehe Planned Community, Phase II: Archaeological Data Recovery, Land of Kealakehe, North Kona District, Island of Hawaii*, PHRI 1201-040794.

This report is on the data recovery work undertaken within the Kealakehe Planned Community Project Area and is currently under review by DLNR-SHPD. This report should include any final data collection on site 13195 as well as data recovery work on sites 00002 and 13194.

Borthwick, Douglas F. and Hallett H. Hammatt
1992 *Archaeological Field Inspection and Interim Preservation Plan for the Proposed Kealakehe Golf Center. Kealakehe, North Kona, Hawaii Island (TMK:7-1-8:por 17)*, CSH.

This project area lies within the Kealakehe Planned Community Project area previously surveyed. No newly identified sites were located within 300 feet (91 m.) of the highway. Recommended treatment for the three previously identified sites (00002, 13194 and 13195) was the same as that cited above.

Borthwick, Douglas F. et al.
1993 *Archaeological Planning Reconnaissance for the Proposed Kealakehe Parkway Extension*, CSH.

Barr, Timothy R. et al.
1994 *An Archaeological Inventory Survey and Limited Subsurface Testing of the Proposed Kealakehe Parkway Extension, Alternatives 10 and 11 (TMK 7-4-8: por.3,5,17,34)*, CSH.

A reconnaissance and inventory level survey of two parcels, one of which is an interchange area of the highway that includes 150 feet (46 m.) on either side of an approximately 2500 foot (762 m.) section of the highway. This project area adjoins and partially overlaps with the Kealakehe Planned Community project area previously surveyed. The three sites identified in prior surveys (sites 00002, 13194 and 13195) were re-identified in this survey, but no additional sites were found within 300 feet (91 m.) of the highway.

Kealakehe Summary

The highway extends approximately 4900 feet (1494 m.) through Kealakehe. Both sides of the highway for an approximately 4200 foot (1280 m.) long stretch on the northern end of the *ahupua'a* have been subjected to inventory level archaeological survey, and portions have also undergone additional data recovery work. The *mauka* side of the remaining 700 foot (213 m.) stretch of highway within Kealakehe has seemingly not undergone previous archaeological study, but has been at least partially developed

(presently the location of the police station). The *makai* side of the remaining 700 foot (213 m.) section apparently not been surveyed or developed.

Three sites have been identified within 300 feet (91 m.) of the present highway at Kealakehe. One site, Site 13195, *ahu*, has been subjected to data recovery level work, and two have been included in preservation plans approved by DLNR-SHPD; site 00002, the Mamalahoa Trail and Site 13194, a steppingstone trail.

Honokohau

Soehren, Lloyd
1975 *Archaeological Reconnaissance Honokohau II (TMK 7-4-08:26 por.)*, for K.M. Young & Associates, Inc.

Soehren, Lloyd
1976 *Archaeological Reconnaissance at Honokohau II*, Letter Report to Mr. Kenneth M. Young, 1 November 1976.

These reports are for two reconnaissance surveys conducted on adjoining parcels situated on the east side of the highway along the southern end of the *ahupua'a*. Two sites were identified within roughly 300 feet (91 m.) of the highway, the Mamalahoa Trail and a steppingstone trail (also mentioned by Bonk in his walk-through survey of Kealakehe, as this trail extends into that *ahupua'a*). The northernmost of these two parcels was subsequently included in the inventory survey by Robins et al. 1995.

Robins, Jennifer J. et al.
1995 *An Archaeological Inventory Survey of an Approximately 803 acre Subject Parcel in the Ahupua'a of Honokohau I and II, North Kona District, Island of Hawai'i (TMK:7-4-8:por.5,13,34)*, CSH.

This project area is situated on the east side of the highway between the two parcels surveyed by Soehren (above) and the northern *ahupua'a* boundary. Eight sites were identified within roughly 300 feet of the highway. From south to north these include 18085, 18086, 18091; 18084, 18186, 18083, 18081, and 00002. Recommended treatment includes preservation of 00002 (Mamalahoa Trail) and 18081 (petroglyphs), data recovery for 18083, 18084 and 18085, and no further research of 18086, 18186 and 18091. This report (and, consequently these recommendations) have not yet been submitted to DLNR-SHPD for review and approval.

Cluff, Deborah F.
1971 *An Archaeological Survey of the Seaward Portion of Honokohau #1 and #2 North Kona, Hawaii Island*, Report 69-5 Dept. of Anthropology, B.P. Bishop Museum.

A surface survey of the *ahupua'a* west of the highway. No sites were identified within 300 feet (91 m.) of the highway.

National Park Service
1975 *Draft Environmental Statement, Proposed Kaloko-Honokohau National Cultural Park/Hawaii*, Western Region National Park Service, Department of the Interior and the Honokohau Study Advisory Commission, DES 75-12.

Report on the cultural and historical resources within the park. This report indicates that the park boundaries conform to the current highway Right of Way which is 150 feet (46 m.) *makai* of the present highway centerline. One site is indicated as being within 300 feet (91 m.) of the highway, site 00002 the Mamalahoa Trail. The present highway crosses the Mamalahoa Trail in Honokohau, and therefore the trail is present on both sides of the highway.

Information on additional archaeological sites located within 300 feet (91 m.) of the highway was provided by National Park Service Archaeologist, Laura Schuster. In addition to the Mamalahoa Trail, recent archaeological surveys conducted by National Park archaeologists have identified two *mauka-makai* trails near the highway. It was also brought to our attention that within the park (but not necessarily within the present project area), human burials had been found beneath accretion boulders within the a'a lava flows. These burials had no associated archaeological surface features.

Although recent archaeological survey work has been carried out within the National Park, the area within 300 feet (91 m.) of the highway has not undergone a systematic inventory survey.

Johnson, Greg and Gary F. Somers
1991 *Kaloko-Honokohau National Historical Park Ruins Stabilization Projects 1990*, National Parks Service, Pacific Area Office, Honolulu.

This project included maintenance work at two sites within the park and at the Mamalahoa Trail (which is referred to by its name and not its state site number in this report). A portion of the trail was cleared and restored, but this portion does not lie within 300 feet (91 m.) of the highway.

Honokohau Summary

The highway extends approximately 4200 feet (1280 m.) through Honokohau *ahupua'a*. On the *mauka* side of the road, approximately 3800 feet (1158 m.) has been subjected to inventory level archaeological survey and the remaining 400 feet (122 m.) has undergone reconnaissance level survey only. The *makai* side of the road has been subjected to reconnaissance level survey only, including that portion of the project area that lies within the Kaloko-Honokohau National Park.

Eight sites have been identified within 300 feet (91 m.) of the highway (including two sections of the Mamalahoa Trail which are situated on both sides of the highway in Honokohau). The recommended treatment for these sites include preservation for two sites, data recovery for three, and no further work for three. These findings and recommendations have, however, not yet been reviewed and approved by DLNR-SHPD. Two additional sites, *mauka-makai* oriented trails, have also been noted as nearby the highway, although these sites have not yet been recorded.

Kaloko

Cordy, Ross et al.
1991 *An Ahupua'a Study: The 1971 Archaeological Work at Kaloko Ahupua'a North Kona, Hawai'i - Archaeology at Kaloko-Honokohau National Historical Park*, Western Archaeological and Conservation Center, Publications in Anthropology No. 58.

This report documents the archaeological survey and testing work undertaken in the *makai* portion of Kaloko (i.e. *makai* of the highway) in 1971. Based on the map of the seaward portion of Kaloko included in this study, five sites are located within 300 feet (91 m.) of the highway, from south to north these include: Site 2199 (BPM 46), an inland-heading trail; Site BPM 90 (no state site number assigned), an inland-heading trail; Site 2238 (BPM 86), a wall with midden; Site 2233 (BPM 81), an inland-heading trail; and Site 2240 (BPM 89A-B), an inland-heading trail. Survey work was also done on the eastern side of the highway, but the information on the locations and descriptions of specific sites is missing (see p. 339), so it is unknown if any sites were identified within 300 feet (91 m.) of the highway.

National Park Service
1975 *Draft Environmental Statement, Proposed Kaloko-Honokohau National Cultural Park/Hawaii*, Western Region National Park Service, Department of the Interior and the Honokohau Study Advisory Commission, DES 75-12.

Johnson, Greg and Gary F. Somers
1991 *Kaloko-Honokohau National Historical Park Ruins Stabilization Projects 1990*, National Parks Service, Pacific Area Office, Honolulu.

These two reports are also included in this section because the national park includes a portion of Kaloko within 300 feet (91 m.) of the highway as well. No additional archaeological sites were identified within 300 feet of the highway.

Kaloko Summary

The highway extends for approximately 3800 feet (1158 m.) through Kaloko. Both sides of the highway have been subjected to some degree of archaeological study, but it is likely that the archaeological work undertaken within these areas would not be considered adequate as an inventory level survey.

Five sites were identified within 300 feet (91 m.) of the highway, four inland heading trails (Sites BPM 90, 2199, 2233 and 2240) and one site described as a wall with midden (Site 2238). The survey in which these sites were identified was conducted in 1971, and the survey data was made available in 1991. The survey report does not include significance assessments or recommendations for future treatment.

Kohanaiki

Kennedy, Joseph
1991 *Surface Reconnaissance of the Proposed Industrial Development at Kohanaiki, North Kona, Hawaii, TMK:7-3-09:15)*, Letter report of 12 August, 1991 to Mr. James Leonard.

Reconnaissance survey of a 500 foot (152 m.) wide strip extending east from the highway for 7260 feet (2213 m.). No archaeological sites were identified within 300 feet (91 m.) of the highway.

O'Hare, Constance R. and Susan T. Goodfellow
1992 *Kohana-Iki Resort Phased Archaeological Mitigation Program Phase II - Data Recovery, Land of Kohana-iki, North Kona District, Island od Hawaii (TMK:3-7-3-09:3)*, PHRI 874-121391.

Data Recovery phase of the Kohana-iki Resort Project Area. While most of the project area is situated 1500 feet (457 m.) west of the highway there is an access road that extends to the highway. No archaeological sites were identified within 300 feet (91 m.) of the highway within the access road portion of the project area.

Kohanaiki Summary

The highway extends approximately 4300 feet (1311 m.) through Kohanaiki *ahupua'a*. One 500 foot (152 m.) wide section on the *mauka* side of the highway has been subjected to inventory level archaeological survey, and one approximately 200 foot (61 m.) wide section on the *makai* side of the highway has been included in both an inventory level survey and data recovery phase archaeological study. No sites were identified in either of these two portions of the present project area within Kohanaiki.

O'oma 2

Rosendahl, Margaret L.K.
1989 *Archaeological Inventory Survey - Kohana-iki Resort Water Development Project Area, Land of Ooma 2, District of North Kona, Island of Hawaii (TMK:3-7-3-09:5)*, PHRI 477-011589.

An inventory survey of a 200 foot (61 m.) wide corridor situated on the Ooma-Kohanaiki border extending east from the highway. No sites were identified within 300 feet (91 m.) of the highway.

Henry, Jack D. et al.
1993 *Archaeological Assessment Study, Kailua to Keahole Region State Lands LUC Project, Lands of Makaula, Hale'ohi'u, Kalaoa 1-4, Kalaoa-'O'oma, and 'O'oma 2, North Kona District Island of Hawaii*, PHRI 1275-071493.

Assessment of a 1260 acre parcel situated on the west side of the highway in the *ahupua'a* listed above. Within Ooma 2, no sites were identified within 300 feet (91 m.) of the highway.

Barrera, William, Jr.
1985 *Ke-ahole Point, Hawaii: Archaeological Reconnaissance (Revised Version)*, Chiniago, Inc.

Reconnaissance survey of a 450 acre project area situated on the west side of the highway in O'oma 2 and Kalaoa-O'oma (referred to as O'oma 1). One site was identified as being within 300 feet (91 m.) of the highway, Site 10154, a "habitation structure."

Barrera, William, Jr.
1989 *Archaeological Data Recovery at the Host Park and NELH, Kalaoa and O'oma Ahupua'a, North Kona, Hawaii Island: DLNR Submittal Version*, Chiniago, Inc.

Varying levels of data recovery work conducted on sites identified within a 450 acre project area situated on the western side of the highway within O'oma 2 and Kalaoa-Ooma (called Ooma 1 in this report).

Site 10154 is identified as having been one of the sites that "required additional recording only." This site is located on the project area map and briefly described. It is described as a well constructed shelter plus an adjacent short wall section - age and function unknown.

O'oma 2 Summary

The highway extends through O'oma 2 for approximately 3800 feet (1158 m.). The *mauka* side of the highway has been subjected to reconnaissance level study, and the *makai* side of the road has apparently been adequately surveyed and data recovery work was carried out on selected sites.

One site has been identified within 300 feet of the highway in O'oma 2, site 10154. This site was included in the data recovery project, and is presumed to have been adequately recorded.

Kalaoa-O'oma (O'oma 1)

Barrera, William, Jr.
1985 *Ke-ahole Point, Hawaii: Archaeological Reconnaissance (Revised Version)*, Chiniago, Inc.

Barrera, William, Jr.
1989 *Archaeological Data Recovery at the Host Park and NELH, Kalaoa and O'oma Ahupua'a, North Kona, Hawaii Island: DLNR Submittal Version*, Chiniago, Inc.

Reconnaissance and subsequent data recovery work (see above), no sites were identified within 300 feet of the highway at Kalaoa-Ooma.

Henry, Jack D. et al.
1993 *Archaeological Assessment Study, Kailua to Keahole Region State Lands LUC Project, Lands of Makaula, Hale'ohi'u, Kalaoa 1-4, Kalaoa-'O'oma, and 'O'oma 2, North Kona District Island of Hawaii*, PHRI 1275-071493.

This project area included the western side of the highway at Ooma 2 (see above). One site was identified as being within approximately 300 feet (91 m.) of the highway - Site 18524, identified as "pahoehoe excavation." Recommended treatment was "further data collection."

Davis, Bertell D.
1977 *Archaeological Survey of the Proposed Agricultural Park at Ke-ahole, North Kona, Hawaii Island*, ARCH Project 14-122.

Hammatt, Hallett H. and William H. Folk
1980 *Archaeological Excavations within the Proposed Keahole Agricultural Park, Kalaoa-Ooma, Kona, Hawaii Island*, ARCH Project 14-122 II.

These two reports record the survey and salvage excavations within the proposed Keahole Agricultural Park on the eastern side of the highway. One site was identified within 300 feet of the highway, Site 6432, the boundary wall. This is described as an historic-era wall that forms the boundary between Kalaoa-O'oma and O'oma 2 (see the Site Description section of this report).

Kalaoa-O'oma Summary

The highway extends approximately 5200 feet (1585 m.) through Kalaoa-O'oma. The *mauka* side of the road through the length of the *ahupua'a* has been subjected to varying degrees of archaeological survey including salvage excavations in some areas. The length of the *ahupua'a* along the *makai* side of the road was included in the reconnaissance and data recovery work conducted by Barrera. Two sites have been identified within 300 feet of the highway, Site 18524 Pahoehoe excavation, and Site 6432 Boundary wall.

Kalaoa 1-4

Barrera, William Jr.
1987 *Ke-ahole Airport, Hawaii: Archaeological Survey of Five Areas Proposed for Airport Expansion*, Chiniago, Inc.

1990 *Final Report: Kalaoa, North Kona, Hawaii Island: Archaeological Data Recovery for Keahole Airport Expansion*, Chiniago, Inc.

Survey and data recovery work at five areas within Kalaoa 1-4 in the vicinity of the Keahole airport (it appears that this project area did not include the area within 300 feet of the highway). No sites were identified within 300 feet of the highway.

Henry, Jack D. et al.
1993 *Archaeological Assessment Study Kailua to Keahole Region State Lands LUC Project, Lands of Makaula, Hale'ohi'u, Kalaoa 1-4, Kalaoa-'O'oma, and 'O'oma 2, North Kona District Island of Hawaii*, PHRI 1275-071493.

This project continues through Kalaoa 1-4, but no sites were identified within 300 feet of the highway in Kalaoa 1-4.

Davis, Bertell D.
1977 *Archaeological Survey of the Proposed Agricultural Park at Ke-ahole, North Kona, Hawaii Island*, ARCH Project 14-122.

Hammatt, Hallett H. and William H. Folk
1980 *Archaeological Excavations within the Proposed Keahole Agricultural Park, Kalaoa-Ooma, Kona, Hawaii Island*, ARCH Project 14-122 II.

Survey and salvage excavations within the proposed Keahole Ag Park (see above) also extends into Kalaoa 1-4. No sites were identified within 300 feet of the highway at Kalaoa 1-4.

Kalaoa 1-4 Summary

The portion of the highway within the present project area extends 2400 feet (732 m.) into Kalaoa 1-4, between the southern boundary of the *ahupua'a* and the Keahole Airport entrance road. Along the *mauka* side of this section of the highway, the area has been subjected to both an archaeological survey and salvage excavations. On the *makai* side of the road, survey and data recovery work has been undertaken in the vicinity of the airport, but apparently not within 300 feet of the highway.

Other Relevant Archaeological Studies

Ching, Francis, Jr. and Deborah Cluff and Thomas Riley
1968-9 *Preliminary Report of Archaeological Surface Survey and Salvage Operations at Keahole, North Kona, Hawaii Island: Section II Keahole Point Airport Kailua-Kawaihae Road*, DLNR.

Report is incomplete; missing section called "Kailua-Kawaihae Road Section II Survey and Salvage" pp.38-89. Contains a map of the Keahole region with site locations (site numbers 118 to 355) but no site descriptions of any specific sites.

Ching, Francis Jr. and Paul Rosendahl
1968 *Archaeological Surface Survey of the Kailua-Kawaihae Road (Section II, Honokohau to Keahole Point) and the Keahole Point Airport*, DLNR.

Surface survey of Section II of the highway (likely the same report that was to have been included in the report cited above). The map accompanying this report identifies a small number of sites within roughly 300 feet of the (proposed) highway: two sites in Honokohau (T2 and T3), one site in Ooma

2 (T1), one in Kalaoa-Ooma (T1), and one in Kalaoa 1-4 (T1). Minimal descriptions of these sites are provided, but the use of this data is highly problematic, see explanation by Cordy (1985:11-12).

Thompson, Kevin W. and Paul H. Rosendahl
1992 *Archaeological Sensitivity Study Keahole-Kailua and Keahole-Keamuku Transmission Line Sites: Districts of North and South Kona, and South Kohala, Island of Hawaii*, PHRI 1118-050192.

A study in which the locations of selected existing sites along two proposed transmission line routes were identified. The sites marked on the map were limited to "sites or features considered to be culturally significant or possibly significant" (Thompson 1992:4). One of these routes is essentially the same project area as the present highway widening.

Helber, Hastert & Kimura, Planners
1987 *Environmental Assessment: Easement Across Portion of the Mamalahoa Trail, Kohanaiki, North Kona, Hawaii*, Prepared for Hawaii County Planning Dept. and DLNR.

A study related to the request for an easement across a portion of the Mamalahoa Trail. Although this report documents the Mamalahoa Trail, it is not considered an acceptable archaeological data recovery report.

Barrera, William Jr.
1993 *Kalaoa, North Kona, Hawaii Island: Archaeological Documentation of Mamalahoa Trail and Immediate Vicinity at Keahole Airport*, Chiniago, Inc.

An archaeological documentation of a portion of the Mamalahoa Trail in Kalaoa 1-4.

Table 2: Sites Previously Identified Within 300 feet of Queen Kaahumanu Highway (between Palani Road and Keahole Airport Entrance Road)
Listed by *ahupua'a* from South to North

Site #	Site Type	Ahupua'a	Level	References	Recommendation	Status
13341	Modified Outcrop Complex	Keahuolu	IS, DR	Donham 90a, Jensen 92a+	NFW	M
13340	Complex				FDC	M
13485	Mound				NFW	M
13486	Pahoehoe Excavation				NFW	M
13338	Complex				NFW	M
13484	Complex				FDC	M
13337	Complex				FDC	M
13336	Complex				FDC	M
13335	Complex				FDC	M
13334	Complex				FDC	M
13304	Pahoehoe Excavation				NFW	M
13312	Terrace				NFW	M
13481	Pahoehoe Excavation				NFW	M
13310	Alignment				NFW	M
13311	Complex				NFW	M
13313	Pecking Marks				NFW	M
13314	Pahoehoe Excavation				NFW	M
13315	Rubble Wall				FDC	M
00002*	Mamalahoa Trail				FDC, PID	P
18513	Complex			O'Hare 93, Jensen 92a+	FDC	M
18514	Wall				NFW	M
18515	Complex				FDC	M
18516	Complex				NFW	M
18517	Filled Depression				NFW	M
18518	Complex				FDC	M
00002	Mamalahoa Trail				FDC, PID	M
13194*	Trail	Kealakehe	IS, DR	Donham 90b+ Jensen 92b	P, I	P

13195	Ahu(s)				NFW	M
00002*	Mamalahoa Trail				P, I	P
18081	Petroglyphs	Honokohau	IS	Robins et al. 95	P	K
18083	Modified Outcrop				DR	K
18084	Rockshelter				DR	K
18085	Lava Tube				DR	K
18086	Pahoehoe Basin				NFR	K
18091	Petroglyph				NFR	K
18186	Wall Segment				NFR	K
00002*	Mamalahoa Trail				P	K
Not yet assigned*	Inland-heading Trail		R	National Park Service	None	K
Not yet assigned*	Inland-heading Trail		R	National Park Service	None	K
02199	Trail	Kaloko	S	Cordy et al. 91	None	K
BPM 90	Trail				None	K
02238*	Wall w/ midden				None	K
02233	Trail				None	K
02240	Trail				None	K
10154	Habitation Structure	O'oma 2	R, DR	Barrera 85, 89	Additional Recording Only	M
06432*	Boundary Wall	Kalaoa-O'oma	S	Davis 1977	None	K
18524	Pahoehoe Excavation		R	Henry et al 93	FDC	K

KEY

+	Indicates there are associated addendum reports or revision letters
IS	Inventory Survey
DR	Data Recovery
S	Survey (conducted prior to establishment of current IS standards)
NFW	No Further Work
NFR	No Further Research
FDC	Further Data Collection
PID	Preservation with Interpretive Development
P,I	Preservation with Interpretation
P	Preserved - Included in a preservation plan
M	Mitigated - Site adequately recorded
K	Known - Site has been identified but findings and recommended treatment have not been made and/or have not yet approved by DLNR-SHPD
*	Site included in present Inventory Survey

C. Anticipated Findings for the Present Project Area

The eight *ahupua'a* through which the present project area extends have been subjected to a considerable amount of archaeological survey and research including, and in addition to the studies listed above. Based on these archaeological and historical studies, numerous models of traditional and historic land use and settlement have been developed. In an archaeological assessment study of a project area that spanned multiple *ahupua'a* in the Kekaha region, PHRI presented and synthesized five of these models, providing the most current model to date (Henry et al. 1993:50-56). The five models analyzed by PHRI were those presented originally by Rosendahl (1973:60-61, 65-66); Davis (1977:19-21); Cordy (1985); Hammatt (1987:69-71); and Barrera (1987). These models were summarized as follows:

> The preceding models, though varying in detail, have several common elements. First, there is a general agreement on separation of the region into three basic environmental zones: the coastal zone, the barren or intermediate zone, and the upland zone. Second, all five models associate the coastal zone with marine exploitation and the upland zone with dryland cultivation. Depending on their proximity to the coast or uplands, sites within the barren zone are considered extensions of the two major patterns into marginal areas, or as sites related to travel between the two poles (e.g. trails, shelters, etc.). Third, and finally, all of the models posit some level of interaction between the coast and the uplands, although there is little agreement concerning the nature and intensity of this interaction. (Henry et al. 1993:55)

The following table (Table 3) summarizes some of the major characteristics of the three-zone model for the Kekaha region. It is based upon the most recent model posited by PHRI in which the five previous models are synthesized (Henry et al. 1993:55-56), with additional details from Cordy (Cordy et al. 1991:11-16) and other sources.

The present project area lies within the intermediate zone and, as such, was expected to exhibit the same range of characteristics as those outlined in the intermediate zone row of the following table.

Table 3: Summary of Zone Model Characteristics

Zone	Elevation	Topography	Climate	Present Vegetation	Occupation Activities (Traditional and Historic)	Site/Feature Types	Site Density/ Distribution
Coastal	Coastline to 300 m. inland; 0 to 9 m. contour (0 to 30 feet)	Relatively flat to gradual slope (5-10%), undissected lavas, rocky, little or no soils; includes isolated bays, inland ponds	Central Kona patterns; Avg. Temp. range 67-83 F; Rainfall 10 inches/yr	Strand, pond & Kiawe thicket communities	Primary traditional use: permanent and temporary occupance & marine resource exploitation. Other uses: limited agriculture, quarrying, transportation, burials, art/communication	caves, cairns, enclosures, trails, midden scatters, modified outcrops, overhangs, pahoehoe excavations, petroglyphs, platforms, sinkholes, terraces, lava tubes, pavements	Moderate, concentrated along the shoreline and around inland ponds
Inter-mediate (Barren or Middle)	300-600 m. inland; 9-12m. contour (30-39 ft) to 130 m. contour (425 ft)	Gradual slope, undissected lavas, little or no soils	Central Kona Patterns; Rainfall 10-30 in./yr	Grasses dominate, some shrubs	Primary traditional use: temporary or transitory occupance. Other uses: habitation (mostly temporary or recurrent), transportation, quarrying, limited agriculture, burials art/communication, ranching	trails, pahoehoe excavations, cairns, midden scatters, platforms, terraces, enclosures, caves, mounds, walls	Very low and scattered, some concen-trations along inland heading trails
Upland	Extends up to 6 km. inland from shore; 130 m. contour (425 ft) to 1030 m. contour (3379 ft)	Gradual slope, minimal soils below 800 ft-moderate to strong soil development above	Central Kona patterns; Rainfall 40-50+ in./yr	Non-native secondary forest dominates	Primary traditional use: permanent and temporary occupance & intensive dryland agriculture. Other uses: forest resource exploitation, ranching, commercial agriculture	upland agricultural features, platforms, mounds, walls, enclosures, cairns, terraces, trails, lava tubes, pahoehoe excavations	Medium to high, very high around 2000 ft elevation and 25 in/yr rainfall area

III. SURVEY RESULTS

A total of seventeen sites were identified within the project area during the inventory survey. Five of these sites had been previously identified and were assigned state site numbers prior to this survey. Those sites include: Sites 00002, 02238, 06432, 13194 and 15324. The remaining twelve sites are newly identified and include Sites 19943 through 19954.

The seventeen sites included in this inventory survey consist of a total of 29 individual features: nine single feature sites and eight sites with multiple features. Formal site and feature types include: trails (seven); modified outcrop (four); cairns (three); walls (two); mounds (three); petroglyphs (two); enclosures (two); road; terrace; alignment; ash deposit; midden scatter; and pahoehoe excavation. Assigned functional categories include: transportation; temporary habitation; boundary/ranching; markers; special; quarry; agriculture; and unknown.

Subsurface testing was conducted at three features within the project area to determine the presence or absence of human remains. These features include: Site 02238 Feature A Terrace; Site 19943 Feature A Mound; Site 19944 Feature A Mound.

In addition to the general project area map showing the locations of these archaeological sites (Figure 4), portions of the 1"=200' scale topographic project area maps showing more precise site and feature locations and orientations (particularly for the trails and walls) are provided in Appendix A of this report.

A. Site Descriptions and Testing Results

State Site #: 00002
Site Type: Road (Mamalahoa Trail)
Function: Transportation
Features (#): 1

Description: Site 00002 is an historic cross-*ahupua'a* road commonly referred to as the Mamalahoa Trail. The construction of the road is dated to 1836-1855. It is considered to have been the major seaward road through the region between its construction and 1888, when use of the road became infrequent (Cordy 1991:403,406). The road, in general, is described as a remarkably straight curb-lined path - typically 2.0 to 3.0 m. wide. In some areas the road surface is raised, with low points in the terrain filled in and leveled with stone.

The trail has been used sporadically in late historic and modern times and some parts of the road show evidence of vehicular use. The road has been breached in numerous places between Kailua-Kona and the Keahole Airport in modern times. As a result, the trail exists as a series of discontinuous segments in varying conditions. The following segments are within the present project area:

Keahuolu — An approximately 700 foot (213 m.) section which begins 370 feet (113 m.) north of Makalapua Blvd. (centerline) and 30 feet (9 m.) east from the highway pavement edge (Figure 6). The road extends at 321 degrees T.N. and continues at this angle beyond the project area boundary. This segment of the road was included in the PHRI inventory survey of Queen Liliokolani

Figure 6 Site 00002 Mamalahoa Trail at Keahuolu, View South

Figure 7 Site 00002 at Honokohau (Eastern side of Highway), View northwest

Trust Lands (Donham 1990a), and was included in a subsequent preservation plan (Jensen 1995).

Kealakehe — An approximately 1800 foot (549 m.) section of the road lies within the present project area in the vicinity of the Kealakehe Parkway Interchange. The road roughly parallels Queen Kaahumanu Highway at 200 feet (61 m.) east of the present pavement edge. This segment of the road was included in the PHRI inventory survey of the Kealakehe Planned Community (Donham 1990b) and was included in two subsequent preservation plans (Jensen 1992b, Borthwick and Hammatt 1992).

Honokohau — At Honokohau, Queen Kaahumanu Highway breaches the Mamalahoa Trail and two sections lie within the present project area. On the eastern side of the highway, one 30-40 foot (10 m.) section remains within the project area. It consists of a short ramp section below the present power line. The area surrounding this section has been cleared, presumably during the construction of the present highway. On the western side of the highway, an approximately 490 foot (149 m.) section lies within the project area (Figure 7). This section begins 30 feet (9 m.) west of the present highway pavement edge and extends through the project area at 147 degrees T.N. The road continues at this angle beyond the project area boundary and into the Kaloko-Honokohau National Park. This section does not appear to have been previously recorded.

State Site #: 02238 **CSH Site #:** 11
Site Type: Complex (previously identified as "wall w/ midden" [Renger 1970])
Function: Temporary Habitation
Features (#): 2

Description: Site 02238 is a complex consisting of a terrace and an adjoining enclosure, designated Features A and B respectively (Figure 8). This site is located on a small, prominent, dome-shaped pahoehoe bluff. Feature A, terrace, is constructed on top of the bluff, and Feature B, enclosure, utilizes the northern side of the bluff as southern interior wall of the enclosure.

Feature A is a terrace constructed of small boulders and cobbles placed within a natural crevice on the surface of a dome-shaped pahoehoe bluff (Figure 9). The modified, or "filled in" portion of the bluff extends 8.0 m. NW/SE by 1.0 to 2.2 m. NE/SW, and stands 1.8 m. above the surrounding ground surface. The northwestern edge of the terrace is a vertical outcrop face, 1.8 m. high (which also forms the southeastern edge of the enclosure Feature B), and the southeastern edge of the terrace is outcrop that gradually slopes 1.5 m. to the surrounding ground surface. The northern and southern ends of the terrace both become increasingly narrow and slope downward to the surrounding ground surface.

Feature B is a U-shaped enclosure constructed of a free-standing wall segment which adjoins a vertical outcrop face (Figure 10). The free-standing wall that forms the northwestern and northeastern walls of the enclosure is approximately 4.2 m. long and reaches a maximum of 1.2 m. high and 0.9 m. wide. It is constructed of cobbles, small boulders and medium boulders, 4-6 courses high, and is well faced on the interior except for the eastern end where it is partially collapsed. The vertical outcrop face that forms the

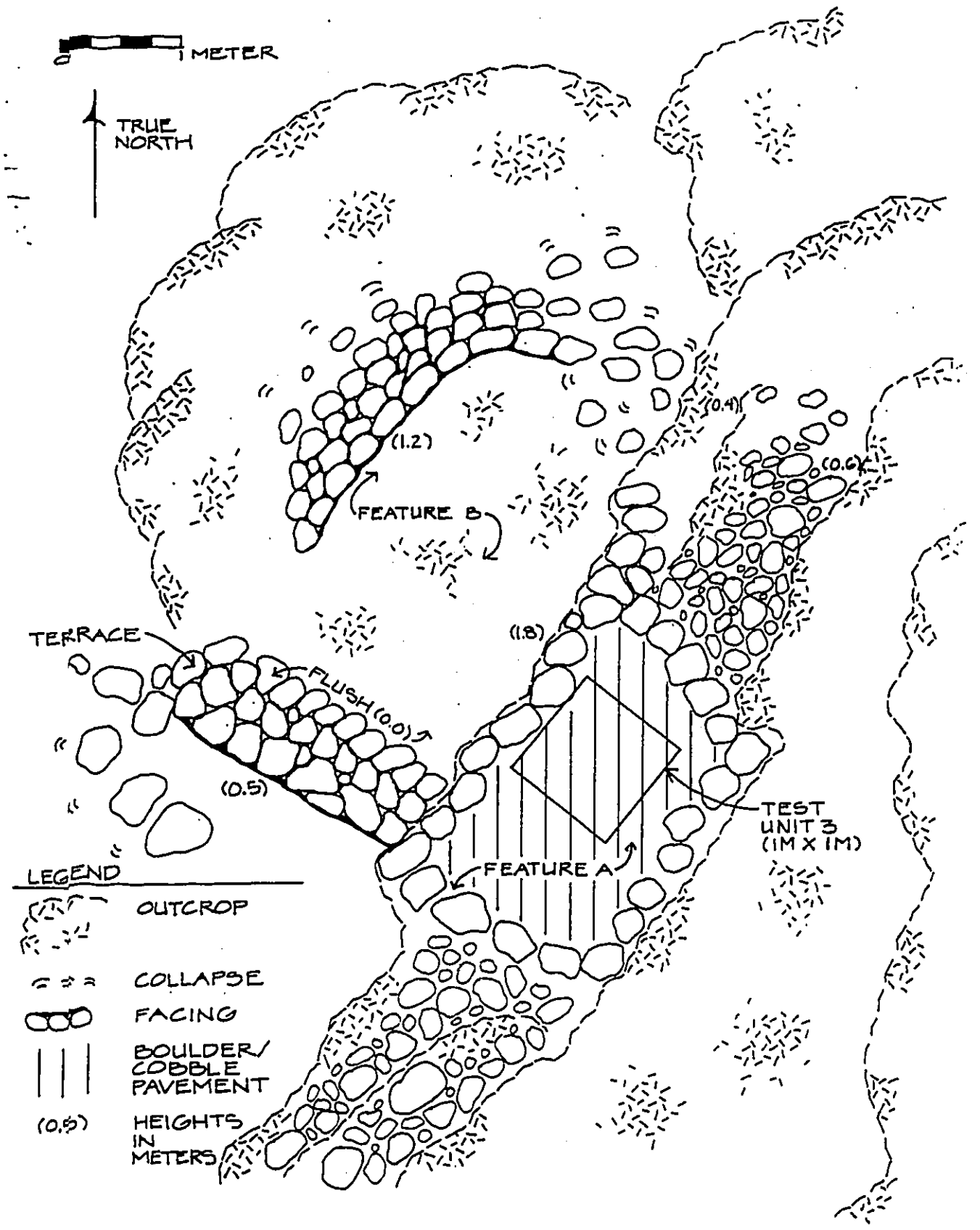


Figure 8 Site 02238 Plan View, also showing location of Test Unit 3

Figure 9 Site 02238 Feature A Photograph, View East

Figure 10 Site 02238 Feature B Photograph, View North

southern wall of the enclosure is 1.8 m. high. The floor of the enclosure is mostly level bedrock, but the southwestern end has been extended by a small terrace. The terraced portion of the floor is constructed of small boulders and cobbles and the southwestern edge is 0.5 m. high and faced. The resulting interior dimensions of the enclosure are 4.3 m. NE/SW by 2.1 m. NW/SE.

This site has been interpreted as a temporary habitation site and is presumed to be associated with the agricultural features of site 19950 located approximately 40 feet (12 m.) to the northeast. Both features are in good condition. While the site is considered to be a temporary habitation site, subsurface testing was conducted at Feature A to determine the presence or absence of human remains.

This site appears to correlate with site BPM D13-86 previously identified by Renger in 1970 (1970:29), and subsequently assigned state site number 02238. The site was described as a "wall with midden" and the levelled portion of the pahoehoe dome was noted. It is believed that the "wall with midden" is the free-standing portion of Feature B enclosure (although no midden was observed during the present survey), and the levelled area is Feature A terrace.

Testing Results

A single 1.0 m^2 test unit, designated Test Unit 3, was excavated from the center of Feature A-terrace to determine the presence or absence of human remains (see Figure *). Excavation consisted of demarcating a 1.0 m. by 1.0 m. area on the terrace surface and removing the terrace fill until bedrock was reached.

The terrace fill consisted of small pahoehoe boulders and cobbles that had been placed within the natural crevice on the top of the pahoehoe dome. No human remains were encountered within or below the terrace fill. The terrace fill contained no artifacts or midden, but several pieces of partially burnt wood (1.3 gms.) were recovered for possible future identification. At the base of the terrace fill, the undulating pahoehoe bedrock was encountered at 0.4 m. below the terrace surface with no soil deposits present. Within the bedrock several narrow cracks continued downward, these cracks were not filled and no soil deposits were present.

Subsurface testing at this site has confirmed that the terrace is not a burial feature and that the interpretation of this site as a temporary habitation site may be the most appropriate. Although no artifacts or midden were observed; the feature types, the assumed association with nearby agricultural features, and previous identification of this site as "wall with midden" supports a temporary habitation interpretation.

Figure 11 Site 02238 Feature A Test Unit 3 Post-Excavation Photograph

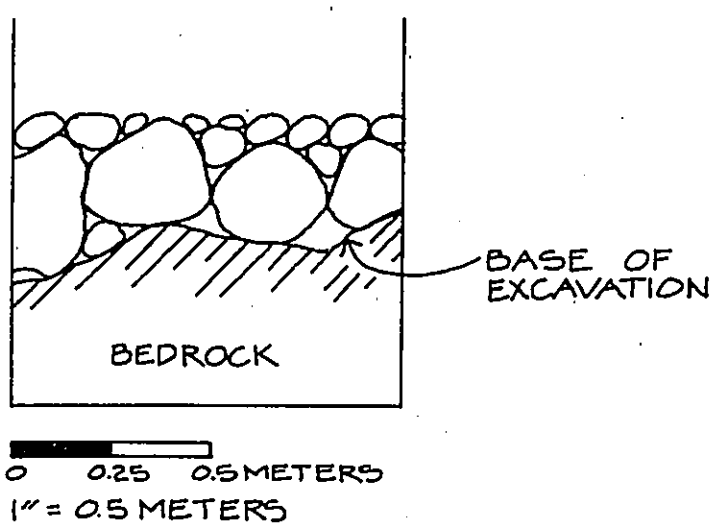


Figure 12 Site 02238 Feature A Test Unit 3 Profile, South Face

AUGUSTINE REALTY

March 8, 1996

Highways Division
Department off Transportation
869 Punchbowl Street
Honolulu, HI 96813

Re: Queen Ka'ahumanu Highway Widening Project - Island of Hawaii

Gentlemen:

I am writing you not only for myself, but on behalf of the property owners that own the B & K Commerical Park and the Crown Building in the "old industrial park" located in Kailua-Kona. As the Managing Agent for these properties, although we favor the road widening project, we respectfully request that you reconsider your decision to close the mauka end of Kaiwi Street. At the very minimum, perhaps it could remain open with a right in and right out only. The closing of Kaiwi Street will change the traffic patterns in the area and impact the tenants of both of these properties.

We also ask that you be sensitive to those of us that live in the area, particularly in the area of lighting. The two most recent roadways built in the area, Hina Lani and Kealakehe Parkway are examples of lighting "overkill" and do not need to be repeated.

If you have any questions, please do not hesitate to contact me. I maybe reached at (808) 326-7170.

Sincerely,

Katherine J.H. Augustine, CPM®, CCIM

cc: B & K Partners
Crown Building Partners

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POST OFFICE BOX 2002 • KAILUA-KONA, HAWAII 96745 • (808) 326-7170 FAX (808) 326-7150

March 13, 1996

D & N Health Foods
74-5543 Kaiwi St.
Kailua-Kona, HI. 96740

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HIGHWAYS DIVISION

State of Hawaii
Department of Transportation
869 Punchbowl St.
Honolulu, Hi. 96813

To Whom It May Concern:

This letter is in response to the proposed closing of Kaiwi St. in Kailua-Kona. As the owner of a small business located on Kaiwi St., please be aware that I am strongly opposed to this closing. Many small businesses have moved to this area in the past 5 years because it offered an inexpensive alternative to high-priced shopping malls, making it possible for them to operate profitably and make a living.

With economic conditions deteriorating, especially on the Big Island, over the last few years, those of us who have been fortunate enough to survive, have endured increased rents and CAM charges to pay for construction, remodeling and improvements made to our buildings and common areas to make this part of Kona more appealing to retail customers. It has taken some time, but we are finally beginning to see some increase in shoppers, and we are hopeful that things may finally be turning around.

Kaiwi Street is the only road which goes through our section of town from both Queen K Hwy. and Kuakini Hwy. To reroute motorists and make them backtrack just to get to our stores would easily deter most of them from shopping in our area. It would just be too much trouble for them. In addition, it would likely increase the traffic congestion at the Kuakini end of Kaiwi St., which already suffers from traffic congestion in the late afternoon.

The bottom line is that my business and many others have struggled and just barely made it through the sagging economy in recent years, and just as we are hoping to turn the corner, this road closure would put most of us out of business. I don't think that is the goal of the State or County. I would hope that any action taken by our local government is for the good of the communities' businesses and residents. This proposal doesn't serve the interests of either.

Thank you for your consideration.

Respectfully,

Toni P. Ortiz
Owner

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The Commercial Group, Ltd.

Commercial Real Estate & Property Management

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MAR 18 1 05 PM '96
HIGHWAY DIVISION
PLANNING BRANCH

TO: Department of Transportation
FROM: Rolf L. Vossen (PB)
RE: Kaiwi St., Kailua-Kona, HI
DATE: March 12, 1996

The undersigned Rolf L. Vossen, owner and principal broker of The Commercial Group, Ltd., urges you to **not close off Kaiwi St.** for traffic approaching from the Queen Kaahumanu Highway.

Discontinuing the **left in** for traffic entering from the Queen Kaahumanu Highway will have a negative impact on the businesses in the Kailua "Old" Industrial, but at a minimum the area needs to be accessible **right in/right out** from the highway.

We are property managers for the following properties in the Kailua "Old" Industrial and are representing their owners as well as approximately 60 businesses.

TMK	OWNER
(3) 7-4-15-03	Alapa No. 3 Partners
(3) 7-4-15-04	Marco International Partners
(3) 7-4-15-24	Fred Y.K. Yuen
(3) 7-4-10-25	Holualoa Management Corp.
(3) 7-4-15-20	Luhia Partners
(3) 7-4-15-21	Luhia Partners
(3) 7-4-15-16	Mauna Lei Partners

Please call me at (808) 329-1111 should you have any questions.

Rolf L. Vossen
The Commercial Group, Ltd.
owner/principal broker

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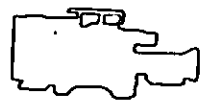
HIGHWAYS DIVISION

P. O. Box 908, Kailua-Kona, Hawaii 96745-0908
tel (808) 329-1111 fax (808) 334-0066

Multi Media PRODUCTIONS HAWAII



WAYNE BARKAS, PRES.
74-5467 KAIWI ST. #4B
KAILUA-KONA, HAWAII 96740
808-329-7667 TEL/FAX

DIRECTOR'S OFFICE
DEPT. OF
TRANSPORTATION
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HIGHWAYS DIVISION

DIRECTOR, DEPARTMENT OF TRANSPORTATION

869 PUNCHBOWL STREET

HONOLULU, HAWAII 96813

RE/ PROPOSED WIDENING OF QUEEN KAAHUMANU HIGHWAY
IN NORTH KONA DISTRICT

ALOHA SIR:

I AM WRITING YOU IN OPPOSITION TO THE CLOSING OF KAIWI ST. IN KONA. THERE IS PLENTY OF ROOM TO EXPAND THE HIGHWAY ON THE MAUKA SIDE OF THE STREET AND NOT PLACE 100 BUSINESSES AT JEOPARDY. BUSINESS ON THE BIG ISLAND HAS NOT BEEN EASY, OUR STATE HAS A REPUTATION OF ANTI BUSINESS AND TO ALLOW THE CLOSING OF THE INDUSTRIAL AREAS MAIN STREET WOULD BE YET ANOTHER NAIL IN OUR STATES SMALL BUSINESS COFFIN. THIS GREAT COUNTRY PUT A MAN ON THE MOON CAN'T YOU ENGINEER SOME ROADWAY ALLOWING THE 100 PLUS BUSINESS TO NOT BE PLACED IN A DEAD END, BECAUSE THAT IS WHAT YOU WILL BE DOING TO THE 100 STRUGGLING BUSINESS YOU WILL BE ENDING THERE ABILITY TO HAVE ACCESS OF ANY CONVENT MEANS FOR OUR CUSTOMERS. EFFECTIVELY KILLING THESE SMALL BUSINESSES.

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OF TRANSPORTATION
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ALOHA Wayne Barkas
WAYNE BARKAS, PRESIDENT
MULTI MEDIA PRODUCTIONS
3/6/96

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DIR 432
HWY 9071
HWY 9085
HWY 9090
HWY 1013
HWY 1017

HWY-PA
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HWY-PA 2.9719

APR 10 1996

SEE ATTACHED LIST

Subject: Queen Kaahumanu Highway Widening Project,
Project No. STP-019-1(20)

Thank you for participating in the public hearing process for the proposed project.

Based on the comments we received, we have reevaluated the need to close Kaiwi Street and have decided to permit right-turn-in and right-turn-out movements when the proposed project is implemented. This will require the construction of an auxiliary lane between Makala Boulevard and Palani Road to separate the through movements from the turning movements.

Thank you for your interest in this project.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

DO:gm

c: HWY-H, -T, -D, -PA

Similar letter sent to the following:

Ms. Katherine J. H. Augustine
Augustine Realty
P. O. Box 2002
Kailua-Kona, Hawaii 96745

Mr. Walter C. Decker
Kona Industrial Development Company
76-6305 Kaheiau Street
Kona, Hawaii 96744

Mr. Toni P. Ortiz
D & N Health Foods
74-5543 Kaiwi Street
Kailua-Kona, Hawaii 96740

Mr. Rolf L. Vossen
The Commercial Group, Ltd.
P. O. Box 908
Kailua-Kona, Hawaii 96745-0908

Mr. Wayne Barkas, President
Multi Media Productions Hawaii
74-5467 Kaiwi Street, #4B
Kailua-Kona, Hawaii 96740

Ms. Dana Bruyn
Kona Beauty Supply
Kaahumanu Plaza
75-5467 Kawai Street
Kailua-Kona, Hawaii 96740

Mr. J. Curtis Tyler, III
P. O. Box 9012
Kailua-Kona, Hawaii 96745-9012

Ms. Valerie P. Oskins, President
Home Convenience Center
JOD Enterprises, Inc.
74-5467 Kaiwi Street, Bay #2
Kailua-Kona, Hawaii 96740

Seventy feet of mauka Trust lands plus 80 feet of existing State lands (existing R/W) plus 50 feet of makai lands set aside for years by the Trust, as required, give a more than adequate 200 feet for all planned (4 lanes) or future potential (8 lanes total) improvements. Clearly, a 300-foot total width through the Kona urban area is uncalled for.

2. Intersections:

a. The plan calls for closing the Queen Liliuokalani Children's Center access intersection. This has already been accomplished by the Trust. The Children's Center is now accessed from Makala Boulevard (built with Trust funds) which intersects with Queen Kaahumanu Highway at a new intersection also constructed with Trust funds.

b. Regarding the plan to close Kaiwi Street, lessees of Trust land, both mauka and makai of Queen Kaahumanu Highway, have spent money in recent years on improvements to the Kaiwi Street intersection as well as to Kaiwi Street itself as required by the Department of Transportation and the County of Hawaii.

3. Project Location. In the draft EA, the plan is not clear regarding the southern terminus of the widening project, and the Trust believes that the project, including right-of way widening, should begin at Henry Street and extend to the airport access road. The Henry Street intersection and the highway between it and Palani Road need to be a part of the project for it to completely serve the community.

Sincerely yours,

BELT COLLINS HAWAII LTD.

James R. Bell

JRB:gk

cc: Frank Jahrling
Wes Park

APR 15 1996

HWY 1014
HWY-PA
2.9767

Mr. James R. Bell
Belt Collins Hawaii, Limited
680 Ala Moana Boulevard, First Floor
Honolulu, Hawaii 96813-5406

Dear Mr. Bell:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of March 5, 1966 commenting on the proposed widening of Queen Kaahumanu Highway. In response to your comments we would like to offer the following:

1. Rights-of-Way (ROW) Requirements

We have determined that an approximately 250 feet wide ROW is required to accommodate our future highway needs. Enclosed is the typical section upon which our proposed ROW requirements are based. Additional lands are required beyond the roadway section to accommodate grade differences between the roadway and the adjacent mauka lands. Final determination of ROW requirements will be accomplished in our design phase.

2. Intersection Requirements

We would like to acknowledge the work completed by the Trust with regard to Makala Boulevard and the closure of the former access road to the Queen Liliuokalani Children Center.

We have reevaluated the need to completely close Kaiwi Street and have decided that, as a minimum, right turn in and right turn out will be provided at Kaiwi Street. This will require the construction of an auxiliary lane between Makala Boulevard and Kaiwi Street and from Kaiwi Street to Palani Road which may require partial usage of the setback on the makai side of Queen Kaahumanu Highway. The Makala Boulevard intersection will be designed to accommodate the added left turn movements, if the left turn from Queen Kaahumanu Highway to Kaiwi Street is eliminated.

HWY-PA 2.9767

3. Project Location

The project limits, as currently configured, is Henry Street as the southern terminus, and approximately 1,000 feet north of the access road to the Keahole Airport.

Thank you for your parcicipation in the public hearing process.

Very truly yours,

for KAZU HAYASHIDA
Director of Transportation

Enclosure

DO:gf

DIRECTOR'S OFFICE
DEPT. OF
TRANSPORTATION
'96 MAR 18 10 47 AM

Hwy 1014

BELT COLLINS
H A W A I I

March 15, 1996
96A-134

RECEIVED
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OF TRANSPORTATION
'96 MAR 19 11 20 AM
HIGHWAYS DIVISION
PLANNING BRANCH

Mr. Kazuyoshi Hayashida
Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

On behalf of Liliuokalani Trust, we have reviewed the Draft Environmental Assessment for Queen Kaahumanu Highway Widening, Kailua to Keahole, County of Hawaii, dated January 1996.

The description of the proposed project raises a number of concerns for Liliuokalani Trust that have been discussed with the Department of Transportation in informal discussions over the past 5 to 10 years. It has been the opinion of the Trust that the Queen Kaahumanu Highway widening should be mainly designed to serve the needs of the Kailua-Kona community, as it is and will be the principal origin and destination for the traffic using the highway. To that end, the Trust has worked with the Department and Hawaii County in constructing roadways on Trust land that support this concept. These completed roadway projects include:

1. The extension of Luhia Street to the north like a frontage road on the makai side of Queen Kaahumanu Highway and generally paralleling it. Luhia can be extended further to the north later as needed.

2. The construction of Kamakaeha Avenue between Palani Road and Makala Boulevard like a frontage road on the mauka side of Queen Kaahumanu Highway and generally paralleling it. Kamakaeha can also be extended to the north later as needed.

3. The construction of Makala Boulevard from Kamakaeha Avenue makai to Kuakini Highway at the Old Airport State Park, including a fully channelized intersection with traffic lights on Queen Kaahumanu Highway and Makala Boulevard can be extended mauka to the proposed Mid-Level Road later as needed.

4. Improvement of Kuakini Highway from Kaiwi Street out to Makala Boulevard. Kuakini Highway can also be extended later to the north as needed.

5. Improvements to the intersection of Kaiwi Street and Queen Kaahumanu Highway.

850 ALA MOANA BOULEVARD, FIRST FLOOR, HONOLULU, HAWAII 96813-5406 U.S.A. TEL: 808 521-5161 FAX: 808 538-7819
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HAWAII • SINGAPORE • HONG KONG • AUSTRALIA • THAILAND • GUAM

6. Dedication of additional right-of-way to the County for Palani Road from its intersection with Queen Kaahumanu up to Henry Street extended to meet the new Mid-Level Road. Dedication of right-of-way for Henry Street extended to Palani Road.

7. Committed to the State and County right-of-way for the Mid-Level Road to the Trust land's north property line.

8. Relocated the access for the Queen Liliuokalani Children's Center off of Queen Kaahumanu Highway.

Based on these actions, the Trust's areas of concern with the proposed project are as follows:

1. Typical Road Section:

a. The Trust concurs with the plan proposal to widen the highway from two to four lanes and with the concept of a wider median today for future laneage.

b. The Trust, which is the most impacted landowner by the plan, does not concur with the plan to expand the right-of-way from 80 to 300 feet on the mauka (east) side of the existing right-of-way. It is noted that the draft EA uses "300 feet" as the ultimate right-of-way width whereas the March 7, 1996 hearing material uses "250" feet between Henry Street and Honokohau Harbor. The Trust believes that neither 300 nor 250 feet are warranted and that a 200-foot wide right-of-way would be adequate for the additional 2 lanes, as well as for 4 additional lanes, if a total of 8 lanes are ever needed.

*Further, the Trust has already given segments of additional right-of-*way, widening setbacks, and open space zoning on the makai side of the highway as *required by the County of Hawaii to accommodate the proposed highway widening.* These lands, which are about 50 feet in width, have been set aside by the Trust by dedication, setback, and zoning for many years to allow for a portion of the proposed widening to take place on the makai side of the highway. These are all valuable lands which might have earned income for the Trust. Based on this, the Trust believes that the State only needs about 70 feet on the mauka side for widening that could accommodate up to 8 lanes.

The Trust's property and adjacent portions of the proposed widening are within Kona's urban area. Typical sections in the EA (Figure 2.6, Pages 2-9) show a "Typical Four-Lane Widening" consuming 152 feet of roadway with a median wide enough for another 4 lanes. When that same roadway considers right and left turn lanes and, with the future lane median included, only 192 feet of cross-section is needed.

HWY-PA
2.9759

APR [illegible]

Ms. Bonnie Rice, President
Kona Outdoor Circle
76-6280 Kuakini Highway
Kailua-Kona, Hawaii 96740

Dear Ms. Rice:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of March 13, 1996, commenting on the proposed widening of Queen Kaahumanu Highway.

We will be coordinating our efforts with those of Hawaii Electric and Light Company (HELCO). The polelines that are between the access road to the Police Station and Palani Road will need to be relocated in order to accommodate the road widening. We will evaluate the placement of these utility lines underground.

Thank you for your participation in the public hearing process.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

DO:gm

c: HWY-C, -PA

KONA OUTDOOR CIRCLE

76-6280 Kuakini Highway
Kailua-Kona, Hawaii 96740

KOC
13 March 1996

Mr. Ronald Tsuzuki
Department of Transportation
600 Kapiolani Blvd, Suite 304
Honolulu, HI 96813

Dear Mr. Tsuzuki:

Subject: Draft Environment Assessment for Queen Kaahumanu Highway Widening

The Kona Outdoor Circle (KOC) wishes to be a consulted party for the subject EA. Also, would you kindly send the KOC a copy of the current Draft EA and all subsequent versions?

The Department of Transportation (DOT) is to be commended for recognizing the importance of proper landscaping along the new improved highway. Kona is fortunate to have some of the premier landscape architects in the entire state. Utilization of these talents would help assure that the landscape design would be fully appropriate to the community's vision for a beautiful Kona. The KOC, with its knowledge and resources, would appreciate the opportunity to comment on the landscape design as it progresses.

While the topic of landscaping was adequately addressed, another topic bearing on the visual appearance of the highway corridor was overlooked - that being the present and apparently, planned continued overhead utility lines immediately mauka of the highway. Today these utility lines are a major visual detraction from a sweeping vista that could be enjoyed by residents and our much needed visitors.

As you know, HELCO plans to install a second transmission circuit in addition to the existing 69 kv circuit further marring the scenic view. The KOC argued unsuccessfully during the EIS process for HELCO's project that their lines should be placed underground or at the surface in berms. We believe that the EIS prepared by CHEM Hill for HELCO was not in conformance with the requirements of the HRS, nor were its contents wholly accurate.

Dependent upon the proximity of the final alignment to the highway, utility poles could pose a safety hazard for vehicular traffic hiting the transmission poles. Furthermore, since HECO/HELCO is planning to design for only a 100 mph static wind load, a severe hurricane could snap a conductor or even topple a support pole. A conductor or pole falling on to the highway would create a significant and dangerous traffic situation.

For both safety and aesthetic reasons the KOC urges the Department to consider inclusion of plans in the final EA for changing the location or design of the utility lines. Options include: a) undergrounding, b) berming, or c) re-routing to a less visible and intrusive alignment considerably mauka of the new, improved highway.

In their EIS HELCO stated that they would install the second 69 kv circuit on the present right-away; then upon widening of Queen Kaahumanu Highway they would relocate the two circuits along the widened highway. The expense of first installing the second 69 kv circuit and subsequently moving both circuits should be used now to exercise one to the three options mentioned above. Should the State adopt a law similar to SB 2999 that has passed the Senate, federal funds would then be available to augment HELCO's funds for one of the suggested measures.

The KOC appreciates this opportunity to comment and make suggestions on the subject draft EA. If we can be of assistance please let us know. The final highway design will forever be part of our lives. Let us hope that the new highway enhances both our Kona quality of life and the safety of our children.

Sincerely,

Bonnie Rice, President
Kona Outdoor Circle

cc: The Outdoor Circle
R.M. Towill Corp.
OEQC

APR 19 1996

HWY-PA
2.9892

Mr. Clyde Nagata, Manager
Engineering Department
Hawaii Electric Light Company, Inc.
P. O. Box 1027
Hilo, Hawaii 96721-1027

Dear Mr. Nagata:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of March 1, 1996, commenting on the proposed widening of Queen Kaahumanu Highway.

We anticipate the design of the widening project to commence this summer and will continue to coordinate our efforts with your office.

Thank you for your participation in the public hearing process.

Very truly yours,

/s/ KAZU HAYASHIDA
Director of Transportation

DO:gm

c: HWY-PA

Hawaii Electric Light Company, Inc. • PO Box 1027 • Hilo, HI 96721-1027

T&D 9-2
H-W/G

March 1, 1996

Mr. Ronald Tsuzuki
Head Planning Engineer
State Department of Transportation
Highways Division, Room 204
600 Kapiolani Boulevard
Honolulu, Hawaii 96813

RECEIVED
STATE DEPARTMENT
OF TRANSPORTATION
Mar 4 12 01 PM '96
HIGHWAYS DIVISION
PLANNING BRANCH

Dear Mr. Tsuzuki:

Subject: Queen Kaahumanu Highway Draft Environmental Assessment
Queen Kaahumanu Highway Widening

We have reviewed the Draft Environmental Assessment titled: "Queen Kaahumanu Highway Widening: Kailua to Keahole, County of Hawaii."

The widening of the Queen Kaahumanu Highway between Keahole Airport and Kailua Village will have three non-significant effects on our existing facilities and operations.

1. We expect to reconstruct the existing overhead transmission line between the Keahole Generating Station and Kaiwi Street this year. Pole line construction plans have been submitted to the State of Hawaii Department of Transportation for final approval. Where the existing highway right-of-way is less than 300 feet wide, the new pole line will be installed outside of the highway right-of-way to prevent interference with the highway widening project. A "Use and Occupancy Agreement" is also in the process of being approved by the DOT.

2. The highway widening construction may have some impact on the operation and maintenance of our facilities located along the highway. In the event conflict should occur, we will cooperate with the State DOT to minimize the impact of the conflict on the highway widening project.

3. The widened highway will require the modification of how vehicles enter and exit existing access points. Our Keahole Generating Station has access to the highway via Reservoir Road. Access to and from Reservoir Road will be limited to right turns only. Turnaround (U turns) points will be provided and they will accommodate trucks. We accept the need to require a right turn only onto and off Reservoir Road.

We have concluded the aforementioned effects are not significant, will be adequately mitigated and will be significantly outweighed by the benefits derived from the highway widening project.

Sincerely,

Clyde H. Nagata, Manager
Engineering Department

CHN:DHT:ts

cc: Mr. Chester T. Koga, Project Planner
R. M. Towill Corporation
480 Waiakamilo Road, #441
Honolulu, Hawaii 96817-4941

LANIHAU PARTNERS L.P.
Kaimuki Plaza 3465 Waialae Ave., Suite 260 Honolulu, HI 96816 Ph: (808) 732-2622 Fax (808) 732-2788

March 11, 1996

RECEIVED
MAR 13 11 12 AM '96
DEPT OF TRANSPORTATION
HIGHWAYS DIVISION

Mr. Hugh Ono
Highway's Administrator
DOT - STATE OF HAWAII
869 Punchbowl Street
Honolulu, HI 96816

Dear Hugh:

This is just a note to thank you for your very prompt follow-up and assistance in getting Kenneth Au and me together by phone to talk over our questions on the Queen Kaahumanu Highway Widening Draft Environmental Assessment.

Kenneth was very much on top of the matter and very candid in his response and assistance. It was a pleasure to be able to resolve something so promptly and satisfactorily and I feel we will shortly have in hand a reply letter to the enclosed letter which will set the record straight.

Thanks for the kokua.

Sincerely,

Lanihau Partners L.P.
By Lanihau Management Corporation
Its Managing General Partner

James S. Greenwell
President

JSG:vsc
attachment:

RECEIVED
STATE DEPARTMENT
OF TRANSPORTATION
MAR 15 11 38 AM '96
HIGHWAYS DIVISION
PLANNING BRANCH

MAR 11 1996

HWY-PA
2.9765

Mr. James S. Greenwell
President
Lanihau Management Corporation
3465 Waialae Avenue, Suite 260
Honolulu, Hawaii 96816

Dear Mr. Greenwell:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of March 11, 1996 commenting on the proposed widening of Queen Kaahumanu Highway. In response to your comments, we would like to offer the following:

1. Honokohau I Access Road. We will add this access to Table 1. Consideration of a future full intersection is possible in the future and will be based on traffic warrants and whether the intersection can be implemented without adversely affecting the safety and operation of Queen Kaahumanu Highway.

2. Figure 2-8. We will take your suggestions for adding acceleration lanes and right turn lanes on Hinalani and Kaiminani under advisement.

3. Closure of Kaiwi Street. We have reevaluated the need to completely close Kaiwi Street and have decided that, as a minimum, right turn in and right turn out will be provided at Kaiwi Street. This will require the construction of an auxiliary lane between Makala Boulevard and Kaiwi Street and from Kaiwi Street to Palani Road and may require partial usage of the setback on the makai side of Queen Kaahumanu Highway. The Makala Boulevard intersection will be designed to accommodate the added left turn movements, if the left turn from Queen Kaahumanu Highway to Kaiwi Street is eliminated.

Thank you for your participation in the public hearing process.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

DO:gf

LANIHAU PARTNERS L.P.

Kaimuki Plaza 3465 Waialae Ave., Suite 260 Honolulu, HI 96816 Ph: (808) 732-2622 Fax (808) 732-2788

March 11, 1996

Director
Dept. of Transportation
STATE OF HAWAII
869 Punchbowl Street
Honolulu, HI 96816

Re: Draft Environmental Assessment for Queen Kaahumanu Highway Widening (January 1996)

We have reviewed subject draft and have the following comments to offer.

Comment 1 - Table 1 (Intersection Configuration) should add the following intersection to those listed:

Honokohau I Access Road - Right turn in and Right turn out, no median break (with acceleration/deceleration lanes).

Discussion: This would be consistent with construction plans recently approved by your Hawaii District office to provide improved access to TMK 7-4-08:13 (your Project No. BD69-352) at the existing permitted access point as well as being consistent with DOT's response to our question at the July 1, 1994 public meeting (see top of page 3 of minutes) confirming that DOT would allow development of existing access permitted areas.

In replying, we would also ask for confirmation of the Department's policy that a full movement intersection at this location may be considered at such future date when and as development in the area increases and to the extent that resulting traffic demands justify such additional improvements and traffic movements.

Comment 2 - Figure 2-8 (Intersection Type 2 as would occur at the Hinalani and Kaiminani intersections) should include a right turn (makai-bound) lane and an acceleration (north-bound) lane on Queen Kaahumanu Highway.

Discussion: This would greatly facilitate the movement of north-bound traffic, minimize the stacking of makai-bound traffic, and insure a safe acceleration/merging zone.

Comment 3 - The proposed closure of Kaiwi Street without increasing the capacity of Kuakini Highway from Kaiwi Street south should be re-examined. It would have severe adverse impacts on the level of service on nearby local (County) streets, particularly Kuakini Highway. We therefore recommend:

(a.) retaining the Kaiwi Street connection but restricting it to right in/right out; and
(b.) DOT strongly urge the County of Hawaii that at such time as the upgrading of Kuakini Highway to four lanes is considered, that said upgrade extend north at least to Kaiwi Street.

Sincerely,

Lanihau Partners L.P.

By Lanihau Management Corporation
Its Managing General Partner

James S. Greenwell
President

JSG:vsc

LIFE OF THE LAND

Ronald Tsuzuki
Department of Transportation
600 Kapiolani Blvd, suite 304
Honolulu, HI 96813

March 15, 1996

RE: Queen Kaahumanu Highway Widening

Life of the Land would like to be included in the environmental review process for this project. The County of Hawaii has recently proposed an urbanization of the surrounding lands, in the form of a petition to the Land Use Commission. However the petition was judged deficient, so will be reinitiated at a later date.

We are concerned with the impacts of rapid urbanization of West Hawaii. We recognize that the improved highway will facilitate further urbanization as well as respond to the increasing congestion that is already occurring. Hence we are particularly interested in the studies that will be undertaken of future growth patterns and the concomitant potential for environmental degradation.

As Big Island director of LOL, it would be helpful if correspondence could be sent directly to my home address at P.O. Box 155, Hawi, HI 96719.

Thanks in advance.

Bill Graham

RECEIVED
STATE DEPARTMENT
OF TRANSPORTATION
Mar 18 10 53 AM '96
HIGHWAYS DIVISION
PLANNING BRANCH

1111 Bishop Street Suite 511 • Honolulu, Hawai'i • 96813 • ph: (808) 533-3454 • fax: (808) 537-9019

HWY-PA
2.9758

Mr. Bill Graham
Life of the Land
P. O. Box 155
Hawi, Hawaii 96719

Dear Mr. Graham:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of March 15, 1996, commenting on the proposed widening of Queen Kaahumanu Highway.

The impact of highway improvements on growth has been debated in the past. Our highway plans have been developed based on current need and what the County of Hawaii has defined as its growth and development scenario. As part of our research, we reviewed the proposed developments that were on file with the State Land Use Commission and the Hawaii County Planning Department that were along and adjacent to the Queen Kaahumanu Highway to ascertain the timing of the various projects. Based on this evaluation and the long-range development plans of the County of Hawaii, we determined that the proposed widening project is needed and is generally supported by the community and businesses in this area.

Thank you for your participation in the public hearing process.

Very truly yours,

/s/ KAZU HAYASHIDA
Director of Transportation

DO:gm

c: HWY-PA

Thank you for your participation in the public hearing process.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

DO:gf

KONA INDUSTRIAL DEVELOPMENT COMPANY

76-6305 Kaheiau St. • Kona, Hawaii 96740 • (808) 326-9331
Kaneohe Office: P.O. Box AC • Kaneohe, Hawaii 96744 • (808) 235-0035 • FAX (808) 247-8163

March 6, 1996

Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

RE: Proposal to close Kaiwi Street at the intersection of Queen Kaahumanu Highway, Kona, Hawaii

We hope you will reconsider the decision to close Kaiwi Street to Queen Kaahumanu Highway when the highway is widened.

During peak hours, particularly in the afternoon, both Queen K Highway and the Old Airport Industrial Road are both backed up for blocks by southbound traffic. To make all the Industrial Park vehicles going southbound exit out of the Park on the Old Airport Industrial Road would cause an unbelievable traffic jam at the corner of Palani Road and the Old Airport Industrial Road.

To deny left-hand turn access from Queen K Highway into the Park all day long will cause an undue hardship on all those in need of entering the Industrial Park, as the only other two entrances to the Park would cause all to drive another two miles if they are approaching the Park going north on Queen K Highway.

As the owner of the Hale Hana Centre, Lot 3A, on Luhia Street, Industrial Park, this inconvenience could easily cause a 50% decrease in our tenants' businesses.

We urge you to retain the access/egress to the Industrial Park as is, i.e. all turns allowed except left turns out of Kaiwi Street into Queen K Highway.

At a minimum, please continue to allow right turns into Kaiwi and right turns out to Queen K Highway.

Aloha,

Walter C. Decker
Member, Association of
Liliuokalani Lessees

APR - 3 1996

DIR 426
HWY-PA
2.9671

Mr. Walter C. Decker
Kona Industrial Development Company
76-6305 Kaheiau Street
Kona, Hawaii 96740

Dear Mr. Decker:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of March 15, 1996 commenting on the proposed widening of Queen Kaahumanu Highway.

First let me clarify our position regarding the usage of the existing 50 feet wide setback line on the makai side of Queen Kaahumanu Highway between Palani Road and Makala Boulevard. The purpose of the public hearing that was held on March 7, 1996 was twofold. The first was to establish the basic design of the four (4) lane widening and the second was to establish the rights-of-way requirements for any future long-range improvements.

The widening plan that was presented at the hearing with Kaiwi Street closed, does not require the usage of the 50 feet setback. However, the Highways Division intends to keep the makai setback for future highway needs. Maintaining the makai setback is critical in that the rights-of-way for future widening south of Palani Road has been established on the makai side also.

We have reevaluated the need to completely close Kaiwi Street and have decided that, as a minimum, right-turn-in and right-turn-out will be provided at Kaiwi Street. This will require the construction of auxiliary lanes between Makala Boulevard and Kaiwi Street and from Kaiwi Street to Palani Road and may require partial usage of the 50 feet setback. The Makala Boulevard intersection will be designed to accommodate the added left turn movements, if the left turn from Queen Kaahumanu Highway to Kaiwi Street is eliminated.

HWY-PA
2.9839

Mr. J. Curtis Tyler, III
P. O. Box 9012
Kailua-Kona, Hawaii 96745-9012

Dear Mr. Tyler:

Subject: Queen Kaahumanu Highway Widening

Thank you for your letter of March 18, 1996, commenting on the proposed widening of Queen Kaahumanu Highway. We would like to offer the following in response to your inquiry:

1. Closure of Kaiwi Street: We have re-evaluated the need to completely close Kaiwi Street and have decided that, as a minimum, right-turn-in and right-turn-out will be provided at Kaiwi Street. This will require the construction of auxiliary lanes between Makala Boulevard and Kaiwi Street and from Kaiwi Street to Palani Road and may require partial usage of the setback on the makai side of Queen Kaahumanu Highway. The Makala Boulevard intersection will be designed to accommodate the added left-turn movements, if the left turn from Queen Kaahumanu Highway to Kaiwi Street is eliminated.

2. Right-of-Way Acquisition: As we pointed out at the public hearing, the acquisition of land between Makala Boulevard and Palani Road will be on the mauka (east) side of the highway.

3. Impact on Cultural Resources: We appreciate your concern for the preservation of the Mamalahoa Trail. As a point of clarification, the affected portion of the trail is on the makai side of the highway. As part of our studies prior to selecting the recommended alignment, we examined alternatives which utilized more of the mauka side of the right-of-way. However, these alternatives proved

unsatisfactory because it would compromise the design of the highway in accordance with acceptable engineering standards. The impacted portion of the trail on the makai side of the highway was previously disturbed during the initial and subsequent improvements to the highway.

4. Width of Median Strip: The proposed median was designed in anticipation of future roadway improvements, such as additional lanes for turning movements and for future highway widening. The median also allows for future improvements to occur within the median and thereby eliminating the need to widen towards the edge of the right-of-way and acquiring more right-of-way.

5. Highway Lighting: We will be examining the lighting requirements for the highway during the design phase of this project. As you mentioned, we will be lighting the highway based on standards provided by the Federal Highway Administration.

6. Palani to Henry Street Widening: We will be examining the ingress and egress from the housing project you cite and will evaluate the impacts on the widening project.

Thank you for your participation in the public hearing process.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

DO:gm

✓c: HWY-PA

J. CURTIS TYLER, III
Post Office Box 9012
Kailua-Kona, Hawai'i 96745-9012

Telephone (808) 326-7946 Facsimile (808) 326-7474

March 18, 1996 VIA FACSIMILE 1-808-587-1787

Mr. Ronald Tsuzuki, Head Planning Engineer
DOT-Highways Division
600 Kapiolani Blvd., Suite 304
Honolulu, Hawaii 96813

Re: Queen Kaahumanu Highway Widening Project

I have reviewed the Draft Environmental Assessment for the referenced project. As a lifelong resident of Kona and a small businessman who works in the Kona Business Park, I wish to offer the following comments in opposition to certain aspects of this project. These comments will reiterate and reinforce my verbal testimony presented at the March 7, 1996 public hearing in Kona.

1. Closure of Kaiwi Street/Queen Kaahumanu Intersection: As noted by the majority of speakers at the public hearing, this action will have a very negative impact on the Kona community. Some of the reasons for this are as follows: (a) decreased accessibility will directly impact the economic viability of area businesses; (b) limiting ingress and egress to the area and diverting traffic onto county roadways not equipped to handle the increased loads (i.e. Kuakini, Luhia, Palani, and Makala) will cause rapid deterioration in the community traffic service levels which are already terrible; (c) emergency vehicle response times will increase resulting in decreased health and safety margins in the immediate area. Recommendations: Maintain existing traffic pattern and intersection. If left-in is not possible with four lanes, then maintain right-in and right-out as a minimum. Confine all widening between Makala and Palani to the eastern (mauka) side of the existing roadbed. If the closure scenario still persists, I strongly suggest economic and traffic impact studies be conducted as soon as possible. I feel certain they will corroborate the negative impacts of the closure and demonstrate the need to abandon this idea, which ,in turn, will halt further expenditures on unnecessary designs.

2. Right-of-Way Acquisition Between Makala and Palani: As I testified at the public hearing, plans to widen the existing roadway by filling instead of cutting will not be cost effective and will certainly preclude the preservation of the "major" and much-needed intersection at Kaiwi. Furthermore, such plans will not be in the best interests of the businesses already located on the makai side of that corridor. Recommendation: Acquire any needed rights-of-way in Makala-Palani corridor only from the mauka side of the existing highway. This action also will afford a better opportunity to preserve the ancient and unique trail section located between Makala and Kaiwi.

3. Impact on Cultural Resources: The "removal of portions of approximately 500 feet of trail" is shown to be the only "feasible and prudent" alternative. The removal of some portions of the "Manalahoa" trail are understandable at the point where it crosses the highway; however, removal on the large section on the mauka side could be avoided if the right-of-way acquisition in that area is shifted more to the makai side of the existing highway. Recommendation: As a general rule, and whenever possible, the preservation of Hawaiian cultural resources should be a top priority consideration. These are irreplaceable and important assets for present and future generations.

Mr. Ronald Tsuzuki
March 18, 1996
Page Two

4. Width of Median Strip: Based on information presented at the public hearing, it appears as if the width of the median strip separating the traffic is going to be substantial (in excess of 70 feet, as I recall). This seems unnecessary given the reasons for downscaling the project from the 1991 Long-Range Highway Plan and also from a purely fiscal prudence. Recommendation: Consider decreasing the separation substantially to lower right-of-way acquisition and design costs.

5. Highway Lighting: Although details are not provided in the DEA, the recent highway lighting additions at the Honokohau Harbor intersection seem to indicate that substantial numbers of lighting fixtures may be planned for this project. These are and will be inconsistent with the atmosphere of the Kona community and may be inconsistent with the county lighting ordinances used to protect the astronomical viewing atop Mauna Kea. Recommendation: Install only that lighting which is absolutely necessary to meet requirements for a Federal Aid Project, and please remember that this is Kona, not Honolulu.

6. Palani to Henry Street Widening: The maps presented at the public hearing did not show the large housing project which is under construction on the mauka side just to the south of Henry Street. The ingress and egress to that project will be directly off Queen Kaahumanu Highway and in the area where the widening project will terminate. In my opinion, this situation is going to create a very serious traffic flow and safety problem. Failure to consider and mitigate this will be a major oversight. Recommendation: Prohibit any left turns in and out of the housing project.

On behalf of myself and my family, I will appreciate your favorable consideration of the foregoing recommendations.

Thank you for this opportunity to comment on the proposed project. If you have any questions regarding this letter, please call me.

Sincerely,

J. Curtis Tyler, III

(3)

On the other hand countries with hazardous roads and cars the mortality rate is low because few people drive every day.

Getting people to drive less will combat one of the ~~worst~~ most deadly public health epidemics of our time. Traffic fatalities can be reduced most effectively by designing communities that are less dependant on cars.

Sincerly
Tim Newstrom

DIR 441
HWY-PA
2.9674

Mr. Tim Newstrom
Box No. 390532
Kailua-Kona, Hawaii 96739

Dear Mr. Newstrom:

Subject: Queen Kaahumanu Highway Widening

Thank you for participating in the public hearing process for the proposed project.

Your comments will be included in our Final Environmental Assessment.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

DO:gf

c: HWY-PA

HWY-PA 2.8321

Mr. Kali Watson, Chairperson
Department of Hawaiian Home Lands
P. O. Box 1879
Honolulu, Hawaii 96805

Ms. Fanny Au Hoy
Daughters of Hawaii
Hulihe'e Palace
75-5718 Alii Drive
Kailua-Kona, Hawaii 96740

Poo Kunani Nihipali
Hui Malama I Na Kupuna O Hawaii Nei
P. O. Box 190
Haleiwa, Hawaii 96712

Na Ohana O Kekaha
P. O. Box 85
Kailua-Kona, Hawaii 96745

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII

KALI WATSON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

December 22, 1995

MEMORANDUM

TO: The Honorable Kazu Hayashida
Director of Transportation

FROM: Kali Watson, Chairman KW
Hawaiian Homes Commission

SUBJECT: Queen Kaahumanu Highway Widening, North Kona, Hawaii

Thank you for your request of December 6, 1995 for comments of the draft archaeological inventory survey of the new Queen Kaahumanu Highway right-of-way between Palani Road and Keahole Airport.

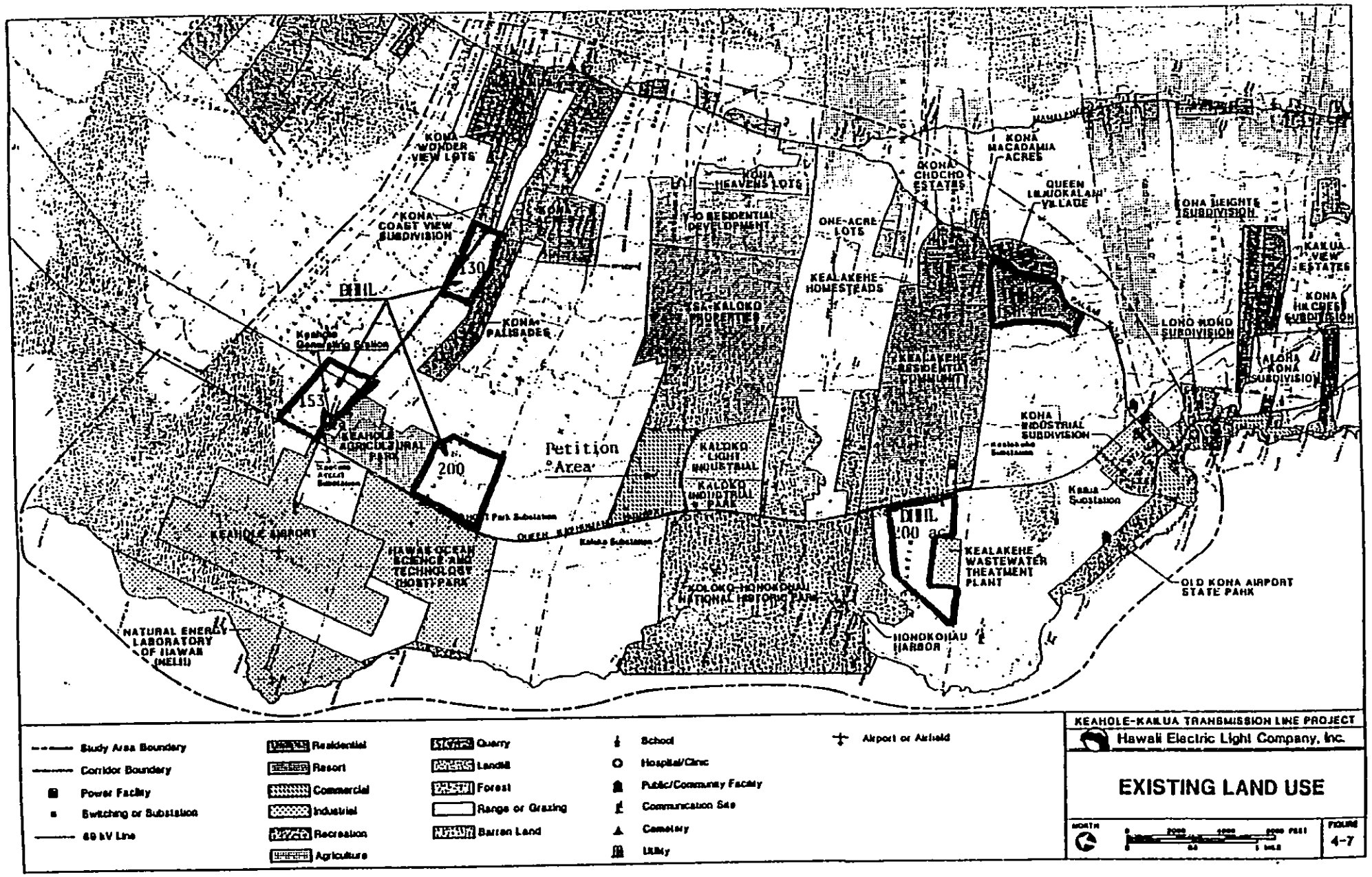
The Department of Hawaiian Home Lands (DHHL) has acquired certain parcels and is in the process of acquiring other parcels in North Kona in the vicinity of the proposed project. (see attached Map-1) We are therefore interested in your plans to widen the highway and information on cultural resources in the area.

Based on Figures 6 and 7 in the subject draft report, we note that portions of Hawaiian home lands frontage mauka of the highway at Kalaoa and makai of the highway at Kealakehe may be in need of inventory level surveys.

Thank you for the opportunity to comment. If you have any questions, please call Mr. Joe Chu of our Planning Office at 586-3837.

Attachment: Map-1

3846L34



Attachment: Map-1

JOHN WAIHEE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HAWAII 96801

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

June 21, 1994

TO: The Honorable Rex D. Johnson, Director
Department of Transportation

FROM: Peter Sybinsky, Interim Director
Department of Health

SUBJECT: **Public Information Meeting**
Proposed Widening of Queen Kaahamanu Highway
North Kona, Hawaii

Thank you for allowing us the opportunity to comment on the subject project for the public information meeting on June 22, 1994.

Currently the Department of Health administers Title 11, Administrative Rules Chapter 43, "Community Noise Control for Oahu", which is applicable only for the island of Oahu. The department is, however, in the process of adopting Hawaii Administrative Rules Chapter 46, which will expand the current noise rules statewide.

As such, should the proposed rules be adopted prior to the commencement of the project, construction activities associated with the project will be subject to the following requirements:

1. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the rules.

2. Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers.

3. The contractor must comply with the requirements pertaining to construction activities as specified in the rules and the conditions issued with the permit.

Should you have any questions concerning this matter, please call Mr. Jerry Y. Haruno, Environmental Health Program Manager, Noise and Radiation Branch at 586-4701.

JAN-16-96 TUE 10:53 AM HWY-PLANNING BRANCH FAX NO. 8085871787 P. 2

Hwy 1013

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Office
P.O. Box 50167
Honolulu, Hawaii 96850

In Reply Refer To: MSS

MAR 29 1994

Mr. Rex D. Johnson
State of Hawaii
Director of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Johnson:

Thank you for your letter dated March 22, 1994 which enclosed the Botanical Survey Report for the proposed project to widen Queen Kaahumanu Highway to a 4-lane divided facility from the vicinity of Palani Road to Keahole Airport. Although the survey was undertaken at the end of a long dry season, we concur with the determination that there are no known endangered, threatened, or candidate category 1 species within the proposed project area. Consequently, consultation under section 7 of the Endangered Species Act is not required.

We would like to point out that there is one candidate category 2 species present within your project area, Capparis sandwichiana(maiapilo), *Pua pilo*. Category 2 status indicates that the U.S. Fish and Wildlife Service has sufficient data to be concerned about the status of this species, but insufficient information to make a scientific determination that this species should be listed under the U.S. Endangered Species Act.

We would like to recommend that any landscaping of the widened highway consider using the endemic vegetation which is so unique to this area. Thank you for the opportunity to review and provide input in the early planning stage of your project. Should you wish further information, please contact our Branch Chief for Interagency Cooperation, Ms. Margo Stahl at 808\541-2749 or our Listing Branch Chief, Dr. Loyal Mehrhoff at 808\541-3441.

RECEIVED APR 7 11 19 PLANNING

Sincerely,

Robert P. Smith
Field Supervisor
Pacific Islands Office

INITIAL

APPENDIX A

BOTANICAL SURVEY REPORT

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FIGURES

INTRODUCTION

A botanical survey of the proposed Kaahumanu Highway widening site, an area one-hundred fifty feet wide on either side of the highway from Keahole Airport Road to Palani Road, Kailua-Kona, Hawaii was carried out in October and November 1992. The purpose of the survey was to collect data for the preparation of a species list; to describe the vegetation of the site; and to ascertain if any proposed or listed, threatened or endangered plants are growing in the area.

METHODS

Because of the narrowness of the study area, the foray method was used during the data collection phase of the survey, that is, frequent forays from Kaahumanu Highway to the outer boundary of the study area were made. Forays were made every 10 to 25 meters depending on the density of the vegetation. A two person team collected all of the field data.

BOTANICAL HISTORY

Along its seven plus mile length, the study area passes through several of the dry communities described by Gayne and Cuddihy (Wagner et al 1990). At least three of these communities can be distinguished; lowland dry grasslands, lowland dry scrub lands, lowland dry forest, and barren a'a lava flows with scattered grass cover. Earlier writers have described this area as "open country, grass covered, with isolated trees or clumps of trees" (Hillebrand 1888) and Rock labelled simply "the lowland zone" (Rock 1913). Rock observed that the area was "open grassland with kiawe (*Prosopis pallida* (Humb. & Bonpl. ex Willd.) Kunth), pili grass (*Heteropogon contortus* (L.) P. Beauv.), and alien species from many countries", some of which he referred to as obnoxious.

The designations of Hillebrand and Rock were incorporated into Ripperton and Hosaka's effort to describe all of the vegetation of the Hawaiian Islands (Ripperton & Hosaka 1942). In their scheme, all of the coastal lowlands were included in the " Zone A" or areas characterized by low rainfall, high daytime temperatures and xerophytic or dryland vegetation.

Because, in much of the leeward coastal lowlands, harsh environmental conditions, extensive and varied disturbance, and the high percentage of alien species which characterize Zone A, are present, these areas have been rendered fairly uninteresting for botanical studies. As a result, little research has been done on the vegetation of the dry coastal lowlands. Not until the enactment of the endangered species act of 1973 and the advent of the environmental impact process in 1970 has this general area been scrutinized.

During the 1980s, three environmental impact statements for projects in in the dry coastal ecosystem, of which this study site is a part, were filed. One by the Corps of Engineers (USACOE 1985) and two by Belt Collins (Belt Collins and Associates 1987, 1989).

RESULTS

Apart from the young a'a lava flow which crosses Queen Kaahumanu Highway approximately two and one half miles south of the Keahole Airport Road, three vegetations types were found (Figure 1). They are Fountain Grass/Pahoehoe, Fountain Grass/Summer Deciduous Scrub, and Summer Deciduous Scrub Forest.

Fountain Grass/Paholehole occupies the area south of Keahole Airport Road to as far as the young a'a lava flow mentioned earlier. Although the grass cover (*Pennisetum setaceum* (Forssk.) Choiv.) appears to be thin and monotonous it is surprisingly diverse. The sprawling Hawaiian caper, maiapilo, (*Capparis sandwichiana* DC), small noni trees (*Morinda*

LEGEND

= Fountain grass/Pahoehoe

= Fountain grass/Summer Deciduous Scrub

= Summer Deciduous Scrub

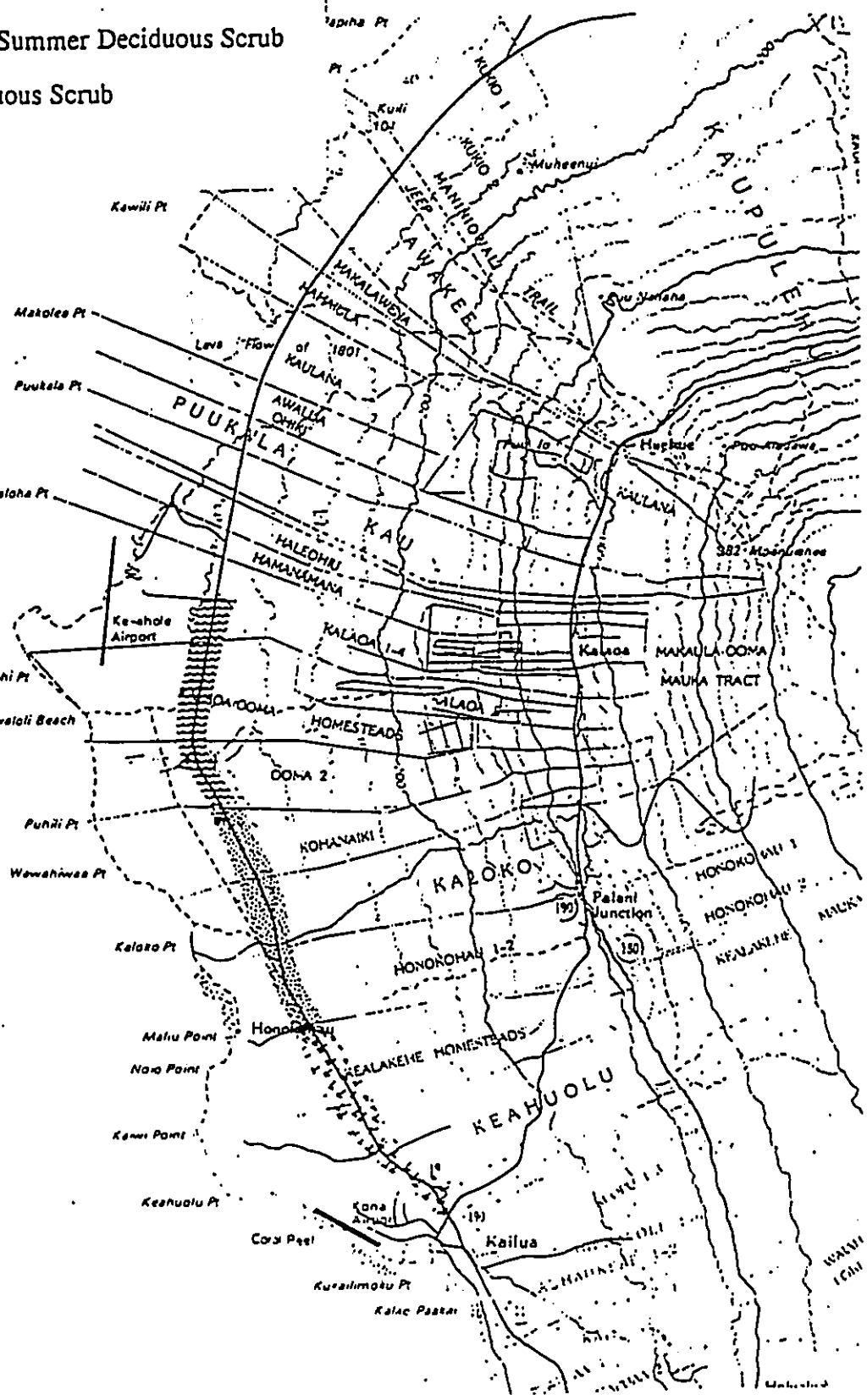

Figure 1. VEGETATION TYPES

citrifolia L.), shrubby koa haole (*Leucaena leucocephala* (Lam.) deWit) and sourbush (*Pluchea symphytifolia* (Mill.) Gillis) and several grass species in addition to fountain grass are common. Natal red top (*Rhynchelytrum repens* (Willd.) Hubb.), Pili grass (*Heteropogon contortus* (L.) P. Beauv.), goose grass (*Elusine indica* (L.) Gaetrn.), and Bermuda grass (*Cynodon dactylon* (L.) Pers.) to name a few. This vegetation type persists for a short distance south of the a'a flow.

The vegetation begins a gradual change from Pahoehoe/Fountain Grass to Fountain Grass/Summer Deciduous Scrub where woody species such as koa haole, klu (*Acacia farnesiana* (L.) Willd.), kiawe (*Prosopis pallida* (Humb. & Bonpl. ex Willd.) Kunth, and 'opiuma (*Pithecellobium dulce* (Roxb.) Benth. form a dry scrub one to three meters in height, but basically the species composition is the same. In the vicinity of Kaloko Fishpond Road there appears to be an increase in the annual rainfall. The woody vegetation increases in density and height and small trees 2 to 5 meters tall are common. Some endemic, shrubby trees also persist in this vegetation. Alahe'e (*Canthium odoratum* (G. Forster) Seem., naio (*Myoporum sandwicense* A. Gray), and 'A'ali'i (*Dodonaea viscosa* Jacq.) were found as small, old trees growing among the boulders.

Fountain Grass/Summer Deciduous Scrub persists and gradually becomes denser near Liliokulani Childrens' Center. From the Childrens' Center to Palani Road the vegetation is Summer Deciduous Scrub Forest. Here, the principal canopy tree is kiawe. Trees 5 to 8 meters in height are common, but there are many planted monkey pod (*Samanea saman* (Jacq.) Merr.) and feral 'opiuma trees that are emmergent.

In this area the fall rains had begun and the usually summer dry vegetation had begun to turn green and the trees to regain their leaves. The species diversity was also much greater. Vines such as the huge ivory gourd (*Coccinia grandis* (L.) Voight.) covered even the largest trees while blue morning glory (*Ipomoea indica* (J. Burm.) Merr.), bitter melon (*Momordica charantia* L.), and huehue haole (*Passiflora suberosa* L.) were much more common. Lantana (*Lantana camara* L.), 4 o'clock (*Mirabilis jalapa* L.), hairy honohono (*Commelina benghalensis* L.), and 'uhaloa (*Waltheria indica* L.) were beginning to flower. In many places the dense ground cover was fountain grass and occasional large patches of 'Ilima (*Sida fallax* Walp.) .

Aside from the few endemic plants already mentioned, the vegetation of the proposed road widening area is similar to that found in the dry coastal lowlands of the island of Hawaii.

ENDANGERED SPECIES

No State of Hawaii (DLNR 1991) or federally listed category 1, proposed or listed threatened or endangered species of plants were found on this site (USFWS 1991).

LIMITATIONS OF THE SURVEY

This survey was undertaken in late October at the end of a long dry season when the area was just beginning to react to the first rains of the season, well before annual plants had had time to react. A similar survey a little later in the wet season would probably have resulted in a more extensive list of introduced species.

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CHECKLIST OF PLANTS FOUND ALONG KAAHUMANU HIGHWAY,

BETWEEN KEAHOLE AIRPORT ROAD AND PALANI ROAD

The plant families in the following species list have been alphabetically arranged within three groups, Ferns, Monocotyledons, and Dicotyledons. The genera and species are arranged alphabetically within families. The taxonomy and nomenclature follow that of St. John (1973) and Wagner, Herbst and Sohmer (1990). For each taxon the following information is provided:

1. An asterisk before the plant name indicates a plant introduced to The Hawaiian Islands since Cook or by the aborigines.
2. The scientific name.
3. The Hawaiian name and or the most widely used common name.
4. Abundance ratings are for this site only and they have the following meanings:

   Uncommon = a plant that was found less than five times.

   Occasional = a plant that was found between five to ten times.

   Common = a plant considered an important part of the vegetation.

   Locally abundant = plants found in large numbers over a limited area. For example, plants found in grassy patches.

This species list is the result of an extensive survey of this site at the beginning of the wet season (October 1992) and it reflects the vegetative composition of the flora during a single season. Minor changes in the vegetation will occur due to introductions and losses and a slightly different species list would result from a survey conducted during a different growing season.

Scientific Name	Common Name	Abundance
	FERNS	
POLYPODIACEAE - Common Fern Family		
**Pellea ternifolia* (Cav.) Link	Cliffbrake	Occasional
Polypodium pellucidum Kaulf.		Occasional
**Nephrolepis exaltata* Schott.	Boston fern	Locally abundant
PTERIDACEAE - Pteris Family		
Doryopteris decipiens (Hook.) Sm.	Iwaiwa	Uncommon
Doryopteris decora Brack.	Desert Doryopteris	Uncommon
	MONOCOTYLEDONES	
AGAVACEAE - Agave Family		
**Agave sisalana* Perrine	Sisal	Uncommon
Cordyline fruticosa (L.) A. Chev.	Ti	Uncommon
COMMELINACEAE - Spiderwort Family		
**Commelina benghalensis* L.	Hairy honohono	Locally abundant
CYPERACEAE - Sedge Family		
**Pycreus polystachyos* (Roth.) P. Beauv.		Uncommon
GRAMINEAE - Grass Family		
**Cenchrus ciliaris* L.	Buffel grass	Abundant
**Chloris barbata* (L.) Sw.	Swollen fingergrass	Common
**Chloris divaricata* R. Br.	Stargrass	Locally abundant
**Cynodon dactylon* (L.) Pers.	Bermuda grass	Occasional
**Digitaria ciliaris* (Retz.) Koeler	Henry's crab grass	Occasional
**Digitaria violascens* Link	Smooth crabgrass	Occasional
**Elucine indica* (L.) Gaertn.	Goosegrass	Occasional
**Hetropogon contortus* (L.) P. Beauv.	Pili grass	Common
**Panicum maximum* Gaud.	Torrid panic-grass	Uncommon
**Pennisetum setaceum* (Frossk.) Chiov	Fountain grass	Common
**Rhynchelytrum repens* C.E.Hubb	Natal redtop	Common
	DICOTYLEDONES	
AMARANTHACEAE - Amaranth Family		
**Amaranthus spinosus* L.	Spiny amaranth	Common
**Amaranthus viridis* L.	Slender amaranth	Occasional

Scientific Name	Common Name	Abundance
ANACARDIACEAE - Mango Family		
**Schinus terebinthifolius* Raddi	Christmas berry	Common
APOCYNACEAE - Dogbane Family		
**Catharanthus rosens* (L.) G. Don	Periwinkle	Occasional
ASCLEPIADACEAE - Milkweed Family		
**Stepelia gigantea* N. E. Brown	Carrion flower	Locally abundant
ASTERACEAE - Sunflower Family		
**Bidens cynapiifolia* Kunth		Occasional
**Bidens pilosa* L.	Spanish needle	Common
**Emilia sonchifolia* (L.) DC	Flora's paintbrush	Occasional
**Erechtites hieracifolia* (L.) Raf. ex DC		Occasional
**Pluchea symphytifolia* Gillis	Sour bush	Occasional
**Tridax procumbens* L.	Coat buttons	Common
CACTACEAE - Cactus Family		
**Opuntia ficus-indica* (L.) Mill.	Panini	Uncommon
CAPPARACEAE - Caper Family		
Capparis sandwichiana DC	Maiapilo	Common
**Cleome gynandra* L.	Wild spider flower	Common
CARYOPHYLLACEAE - Pink Family		
**Spergula arvensis* L.	Corn spurry	Locally abundant
CLUSIACEAE - Mangosteen Family		
**Clusia rosea* Jacq.	Autograph tree	Uncommon
CONVOLVULACEAE - Morninglory Family		
**Ipomoea indica* (J. Burm.) Merr.	Koaki 'awa	Common
**Ipomoea obscura* (L.) Ker-Gawl		Occasional
CUCURBITACEAE - Cucumber Family		
**Coccinia grandis* (L.) Voigt	Ivy-fruited gourd	Common
**Momordica charantia* L.	Balsam pear	Common

Scientific Name	Common Name	Abundance
EUPHORBIACEAE - Spurge Family		
**Chamaesyce hirta* L.	Hairy spurge	Common
**Chamaesyce hypericifolia* Mellsp.	Graceful spurge	Occasional
**Euphorbia cyanthophora* J.A. Murray	Mexican fire plant	Common
FABACEAE - Bean Family		
**Acacia farnesiana* (L.) Willd.	Klu	Common
**Chamaecrista nictitans* (L.) Moench	Partridge pea	Common
**Crotalaria pallida* Aiton	Smooth rattle-pod	Occasional
**Desmanthus virgatus* (L.) Willd.	Slender mimosa	Occasional
**Desmodium tortuosum* (Sw.) DC	Florida beggerweed	Common
**Indigofera suffruticoas* Mill.	Iniko	Common
**Leucaena leucocephala* deWit	Koa-haole	Common
**Medicago minima* (L.) Bartal.	Small bur clover	Locally abundant
**Pithecellobium dulce* Benth	'Opiuma	Common
**Prosopis pallida* HBK	Kiawe, algaroba	Occasional
**Senna occidentalis* (L.) Link	Coffee senna	Occasional
LAMIACEAE - Mint Family		
**Hyptis suaveolens* (L.) Poit.		Uncommon
MALVACEAE - Mallow Family		
**Abutilon grandifolium* Sweet	Hairy abutilon	Common
**Malvastrum coromandelianum* Garcke	False marrow	Common
**Sida fallax* Walp.	'Ilima	Common
**Sida rhombifolia* L.	Cuba jute	Occasional
OLLUGINACEAE - Carpetweed Family		
**Mollugo cerviana* (L.) Ser.	Threadstem carpetweed	Common
MYOPORACEAE - Myoporum Family		
Myoporum sandwicense A. Gray	Naio	Uncommon
NYCTAGINACEAE - Four o'clock Family		
**Boerhavia coccinea* Mill.		Occasional
Boerhavia repens L.	Alena	Common
**Mirabilis jalapa* L.	Four-o'clock	Occasional
PASSIFLORACEAE - Passion flower Family		
**Passiflora suberosa* L.	Huehue haole	Occasional

Scientific Name	Common Name	Abundance
PHYTOLACCACEAE - Pokeweed Family		
**Rivina humilis* L.	Coral berry	Locally abundant
PIPERACEAE - Pepper Family		
Peperomia sp.	'Ala'ala wai nui	Uncommon
PORTULACACEAE - Portulaca Family		
**Portulaca oleracea* L.	Pigweed	Occasional
**Portulaca pilosa* L.	Akulikuli	Occasional
**Talinum fruiticosum* (L.) Juss.		Common
RUBIACEAE - Coffee Family		
Canthium odoratum Seem.	Alahe'e	Uncommon
Morinda citrifolia L.	Noni	Common
SAPINDACEAE - Soapberry Family		
Dodonaea viscosa Jacq.	A'ali'i	Uncommon
STERCULIACEAE - Stink tree Family		
**Waltheria indica* L.	Hi'aloa, uha-loa	Common
VERBENACEAE - Verbena Family		
**Lantana camara* L.	Lantana	Occasional
ZYGOPHYLLACEAE - Creosote Family		
Tribulus cistoides L.		Uncommon

ENVIRONMENTAL NOISE IMPACT ASSESSMENT OF THE PROPOSED WIDENING OF QUEEN KAAHUMANU HIGHWAY KEAHOLE TO KAILUA, HAWAII

Prepared for:

R. M. TOWILL CORPORATION

Prepared by:

John C. Shearer
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1561 Pensacola, Suite 1502
Honolulu, Hawaii 96822

December 7, 1992

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

Several major residential and resort developments, with build-out periods of up to 20 years, are currently proposed between Keahole Airport and Kailua-Kona. The State Department of Transportation proposes to widen Queen Kaahumanu Highway between the airport and Kailua to accommodate the increased traffic generated by these and other developments.

Existing traffic is the most significant source of environmental noise at locations within about 300 to 400 ft from the highway. In the quieter areas further back, other sounds, such as those generated by the wind or ocean surf, may be dominant. The noise from aircraft operations associated with Keahole Airport can also be significant.

Increased future traffic on the widened highway should cause relatively small environmental noise impacts in only two localities; the closest existing residences in the Keahole Agricultural Park and the closest proposed residences in the Kealakehe Planned Community. The setback distance involved in both areas is approximately 350 ft.

In the worst-case scenario of a six-fold increase in highway traffic by the year 2010, noise exposure levels at these closest noise-sensitive buildings could increase by an estimated 7 dBA. However, the future Day-Night Average Sound Levels (Ldn's) would be below the Ldn 65 noise mitigation threshold used by federal agencies such as the Department of Housing and Urban Development. A noise exposure increase of up to 7 dBA over the next 20 years could still be significant. The closest existing residences would experience a change from "minimal" to "moderate" noise exposure over this period.

Noise mitigation measures that could be considered, for these two localities only, include providing tall, very dense plantings in the proposed buffer zone on the mauka side of the highway, together with increasing the buffer zone width from 100 ft to 150 ft. Possible alternate measures include incorporating earth berms or sound barrier walls in the buffer zone, and suitably orienting and/or airconditioning the closest homes in the Kealakehe Planned Community.

Elsewhere, for example in the proposed O'Oma II and Kohanaiki developments, where the closest residences would have minimum setbacks of 800 ft to ¼ mile, future highway traffic noise would have no significant impact.

The only noise-sensitive areas that could be significantly impacted by the short-term construction activities associated with the proposed highway widening are the closest homes in the Keahole Agricultural Park. Noise mitigation measures should include using adequate silencers on all diesel-powered equipment and limiting construction hours in this locality.

2. INTRODUCTION

The State Department of Transportation proposes to widen and provide controlled access to the section of Queen Kaahumanu Highway between Keahole Airport and Kailua-Kona, Hawaii.

This draft report describes the existing noise environment in the study area and presents a preliminary assessment of possible impacts caused by increased traffic noise from the widened highway and noise from the associated construction activities. Comments on appropriate noise mitigation measures are also provided.

3. PROJECT DESCRIPTION AND LOCALITY

The project comprises the proposed widening of Queen Kaahumanu Highway from two to four lanes between Palani Road, Kailua and Keahole Airport, a total distance of approximately 7 miles. Its purpose is to accommodate the traffic growth resulting from increased residential, commercial and resort development in West Hawaii.

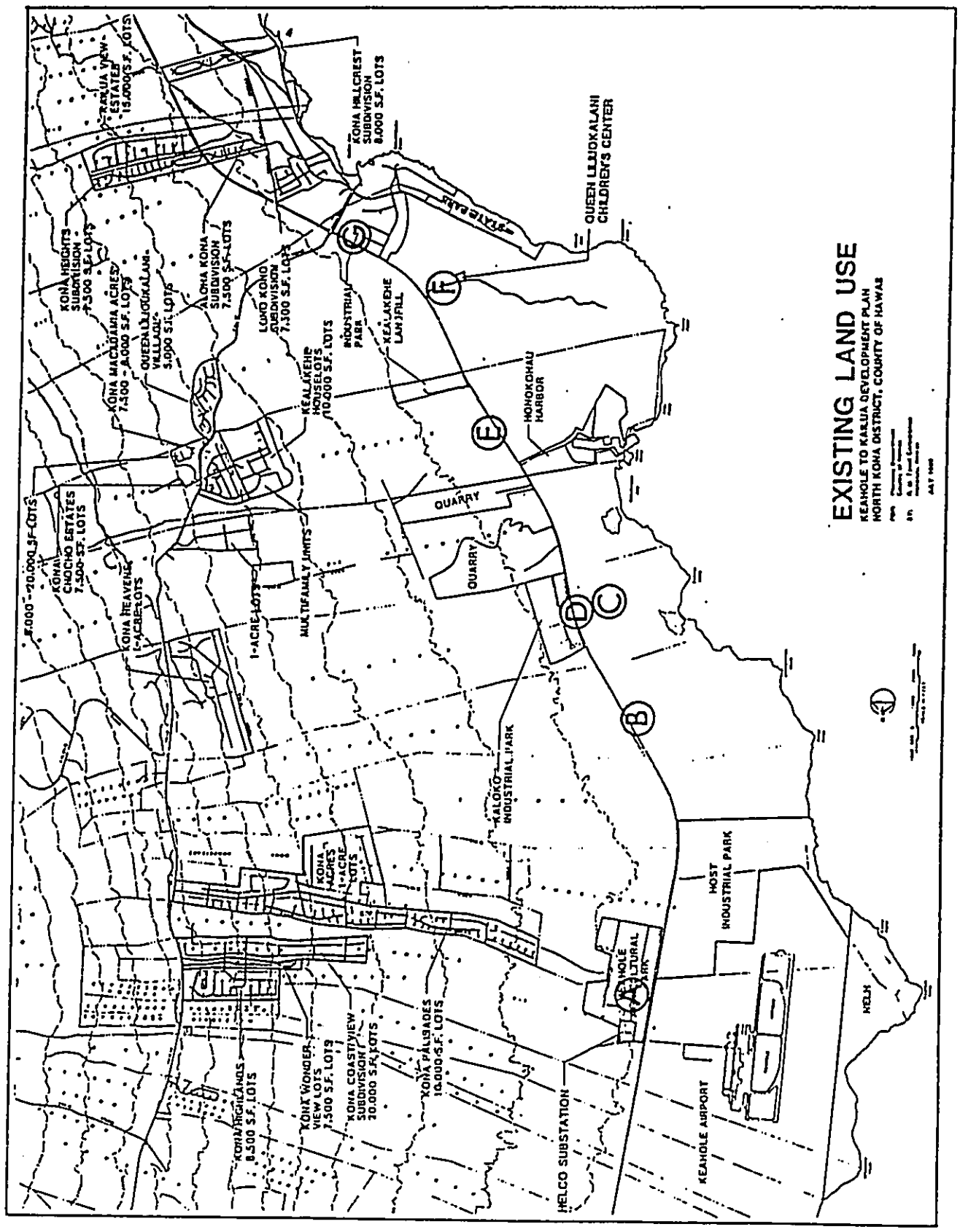
Between Palani Road and Kiawi Street the existing pavement would be used for the two southbound lanes. The two northbound lanes would be constructed on the mauka side of the existing highway. Between Kiawi Street and the airport the opposite would occur, i.e., the two southbound lanes would be built on the makai side of the existing pavement. Landscaped buffer zones; at least 100 ft wide, are planned on both sides of the widened highway.

The lands alongside the highway are, at present, mostly undeveloped. The nearest existing noise-sensitive buildings are the residences in the Keahole Agricultural Park, the closest of which are approximately 350 ft mauka from the highway. Figure 1 shows the existing land uses between the airport and Kailua.

Although there are several major residential and resort developments proposed between the airport and Kailua (Reference 1), most of the noise-sensitive areas would be set well back from the highway. For example, all future residential developments mauka of the highway, apart from a section of the Kealakehe Planned Community, would be in the Upland Residential Zone, almost a mile away. The closest proposed residential allotments in the Kealakehe Planned Community would be approximately 350 ft from the highway.

The closest residential allotments in the O'Oma II development, just south of the airport, would be approximately 800 ft makai from the highway. In the adjacent Kohanaiki resort, the closest residential areas would have a ¼-mile setback.

Figure 1 - Study Area Showing Existing Land Uses and Noise Measurement Locations



Plans for both the Kealakehe and O'Oma II developments incorporate golf courses between the highway and the closest proposed residential areas.

Future development of the existing Kaloko-Honokohau National Historic Park could include the construction of a Live-in Cultural Education Complex. This would be located at least half a mile from the highway. Housing for park maintenance staff could also be provided in the south-east corner of the park, approximately 500 ft from the highway.

The project's timing has yet to be finalized. Current estimates are that the detail design could be completed by the end of 1993 with construction taking place in 1994 and 1995.

Construction work on major residential and resort projects, such as the Kealakehe Planned Community, O'Oma II and Kohanaiki, should also commence within the next year or two. The complete build-out of all of these developments could take up to 20 years.

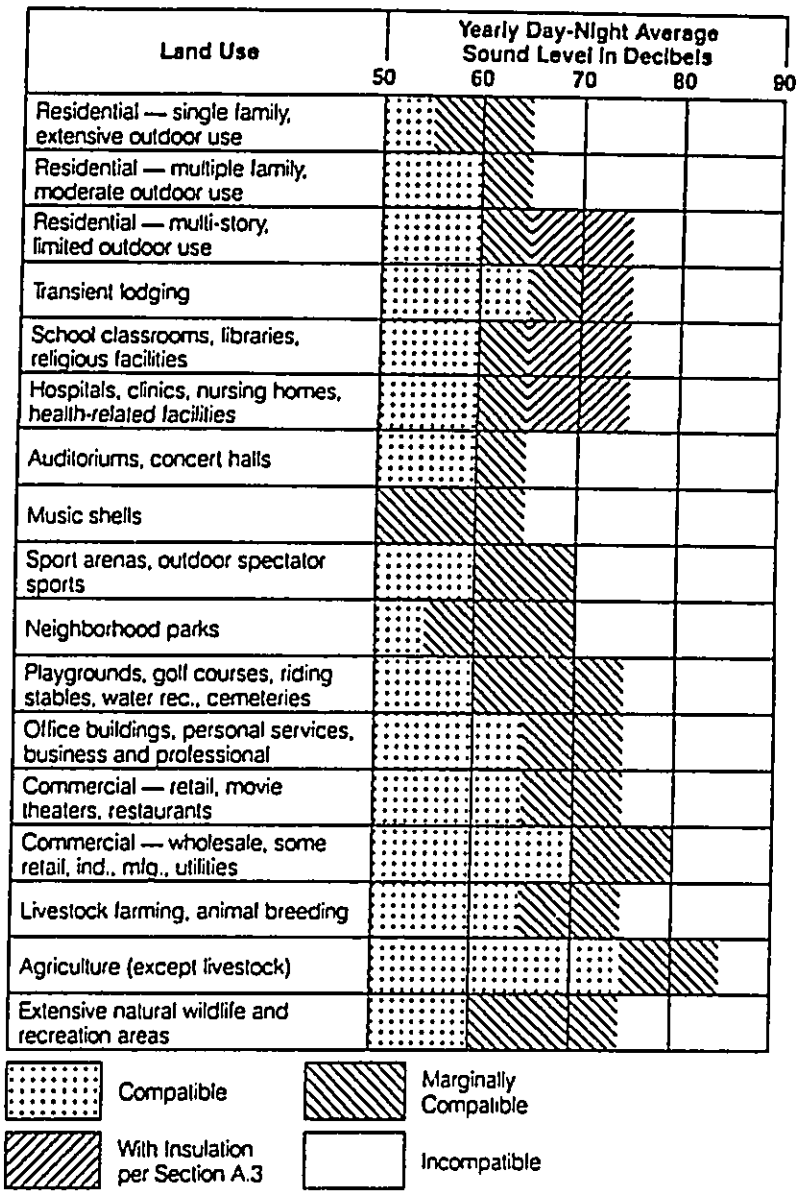
4. NOISE STANDARDS AND GUIDELINES

Land-use compatibility guidelines are commonly presented in terms of the Day-Night Average Sound Level (Ldn) which is a measure of the noise exposure over a 24-hour period. The Ldn is, essentially, the 24-hour average sound level computed after adding 10 dBA to the sound levels recorded between 10 pm and 7 am to account for people's greater sensitivity to noise at night. See Appendix B for a brief description of acoustical terminology.

In determining noise acceptability for funding assistance, federal agencies such as the Department of Housing and Urban Development (HUD) consider noise exposures of up to Ldn 65 to be "acceptable" for residential development (References 2 and 3). Sites exposed to Ldn's of less than 55 are classified as being subjected to minimal noise exposure, while sites exposed to Ldn's of between 55 and 65 are considered to be moderately exposed. Sites subjected to noise exposures between 65 and 75 Ldn are considered "normally unacceptable" for residential development. Building approval would be subject to additional noise control measures and these sites are classified as being significantly exposed. Sites subjected to Ldn's exceeding 75 are considered "unacceptable" for residential development and are classified as being severely exposed.

These criteria are generally consistent with the land use compatibility guidelines for residential areas presented in Figure 2.

Figure 2 - Land Use Compatibility with Yearly Day-Night Average Sound Level at a Site for Buildings as Commonly Constructed (Reference 4)



The Federal Highway Administration (FHWA) uses the Equivalent Continuous Noise Level (Leq) in the peak hour, or the level exceeded for 10% of the time (L10) in the peak hour, instead of Ldn. The noise abatement criteria used by the FHWA for residences are 67 dBA Leq or 70 dBA L10 (Reference 5). In practice, the Leq in the peak hour is usually numerically similar to the Ldn; i.e., the FHWA limit would normally correspond to about 67 Ldn.

Exterior noise exposure levels of Ldn 65 or less do not necessarily imply negligible noise impact, particularly in areas like Hawaii where naturally ventilated dwellings providing minimal exterior-to-interior noise reduction are common. Even with well insulated buildings, an exterior level of Ldn 65 may still be higher than desirable for outdoor relaxation and enjoyment.

While accepting Ldn 65 as a more realistic short-term goal, the U.S. Environmental Protection Agency has set a long-term goal of Ldn 55 (Reference 6). But after considering the cost and feasibility of applying a "negligible-risk" limit of Ldn 55, other federal agencies (such as HUD) have selected Ldn 65 as a more appropriate regulatory standard.

The impacts of increased traffic noise on existing residences resulting from roadway modifications (such as the proposed widening of Queen Kaahumanu Highway) can also be assessed, in part, by considering the amount by which traffic noise will increase in the future. In using such an approach, Reference 7 notes that a noise level increase of 3 dBA or less is not normally considered to represent a significant change. A 5 dBA increase is often used as the point at which a project's noise impact is considered significant.

Although not yet applicable on the island of Hawaii, the State Department of Health's community noise regulations for Oahu (Reference 8) provide guidance with respect to construction noise limits and control measures. If noise levels at the closest property line are likely to exceed the allowable levels specified in the regulations, a permit must be obtained from the Department to allow the construction activities to proceed.

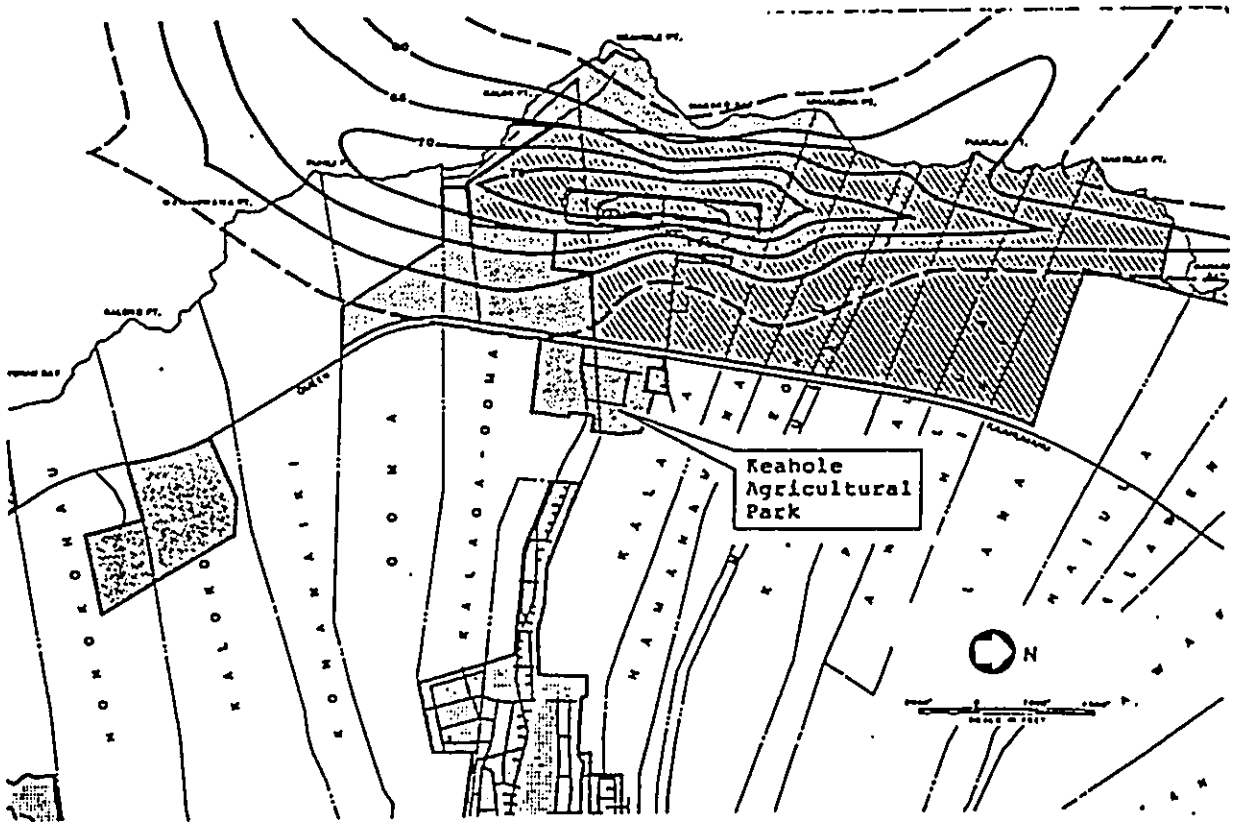
Permit conditions include restrictions on the hours of operation of construction activities creating noise in excess of the allowable levels to between 7 am and 6 pm on weekdays and Saturdays, and total prohibition of such activities on Sundays and certain public holidays. Activities which create noise levels exceeding 95 dBA at the property line are restricted to between 9 am and 5 pm on weekdays, and are prohibited at all other times.

5. EXISTING NOISE ENVIRONMENT

Traffic on Queen Kaahumanu Highway is the main source of environmental noise at locations within approximately 300 to 400 ft from the highway. In the quieter locations further back, other sounds, such as those generated by the wind or ocean surf, may be dominant.

The other significant noise source in the subject area is the aircraft operations associated with Keahole Airport, which could impact parts of the proposed O'Oma II and Kohanaiki developments. The 1990 airport noise contours (Figure 3) show the closest existing noise-sensitive areas to the airport (residences in the Keahole Agricultural Park) to be currently exposed to aircraft noise of less than Ldn 55.

Figure 3 - 1990 Ldn Contours for Keahole Airport



Less significant noise sources near the highway include the Keahole Power Plant operated by Hawaii Electric Light Company (HELCO) and some of the light industrial premises towards Kailua.

To help quantify the existing noise environment, spot noise measurements of from 10- to 20-minutes duration were made at several locations near Queen Kaahumanu Highway, between Keahole and Kailua, on the afternoon of November 16 and the morning of November 17, 1992. The Equivalent Continuous Noise Level (Leq) at each location was recorded with a CEL-328 Integrating Sound Level Meter, which was checked for calibration with a CEL-282 Acoustical Calibrator. Traffic counts were also performed in conjunction with the spot noise measurements to permit calibration of the FHWA Traffic Noise Prediction Model (Reference 9).

The noise measurement locations are described below and their positions are indicated in Figure 1:

A - In the Keahole Agricultural Park, between Pu Kiawe Street and Queen Kaahumanu Highway, approximately 350 ft from the highway (about the same setback as the closest homes).

B - 100 ft from the center of the highway, at Kohanaiki makai.

C - At the existing entrance road to the Kaloko-Honokohau National Historical Park, 200 ft from the center of the highway.

D - At the existing entrance road to the Kaloko-Honokohau National Historical Park, 50 ft from the center of the highway.

E - 100 ft from the center of the highway, at Kealakehe mauka.

F - On the access road to Queen Liliuokalani Children's Center, about 500 ft from the highway.

G - Between Palani Road and Kiawi Street, Kailua, 50 ft makai from the center of the highway.

The noise measurement results are presented in Table 1.

Wind conditions during the measurements were typical of those normally reported for the area, with sea breezes from mid morning to early evening and offshore winds from early evening to mid morning. There was light cloud cover, with maximum daytime temperatures near 85 degrees.

Traffic on Queen Kaahumanu Highway was the dominant noise source at all measurement locations apart from Location F, on the access road to Queen Liluokalani Children's Center, where the distance to the highway (about 500 ft) the topography and the wind direction all contributed to the traffic being barely audible. The Leq at this location (34 dBA) was significantly less than the values measured elsewhere (49 to 69 dBA).

The difference between the results recorded at Locations C and D on the afternoon of November 16 (when there was a 5 to 10 mph seabreeze) and those obtained on the morning of November 17 (when there was a very light breeze towards the ocean) illustrate the effect of wind direction on noise propagation at some distance from the highway. At Location C, 200 ft from the highway, the noise level was 8 dBA higher, when the wind was blowing from the highway towards the measurement position, than the level recorded when the wind was blowing in the opposite direction. At Location D, only 50 ft from the highway, this trend was not, however, apparent.

TABLE 1 - Summary of Noise Levels Recorded at Representative Locations near Queen Kaahumanu Highway on November 16 and 17, 1992

Location	Date	Time	Leq (dBA)	Noise Sources Noted
A	11/16	2:25 to 2:45 pm	53.3	Highway traffic, aircraft, construction activities at airport, power plant
B	11/16	3:25 to 3:45 pm	63.3	Highway traffic, aircraft
C	11/16	4:20 to 4:40 pm	49.3	Highway traffic, aircraft
D	11/16	4:52 to 5:12 pm	67.7	Highway traffic
C	11/17	7:38 to 7:58 am	56.5	Highway traffic, aircraft, workshop activities at Kaloko Industrial Park
D	11/17	8:02 to 8:22 am	68.5	Highway traffic, aircraft, workshop activities at Kaloko Industrial Park
E	11/17	8:51 to 9:11 am	59.8	Highway traffic, quarry operations, aircraft
F	11/17	9:47 to 9:57 am	34.0	Wind, birds, highway traffic, aircraft
G	11/17	10:25 to 10:45 am	64.3	Highway traffic, wind

As noted earlier, the closest existing residences to Queen Kaahumanu Highway (in the Keahole Agricultural Park) and the closest proposed residences (in a section of the Kealakehe Planned Community) are approximately 350 ft from the highway.

Estimates based on the noise survey results, current traffic volumes and use of the FHWA Traffic Noise Prediction Model, indicate that the noise exposure levels at the locations of these closest existing and proposed residences are presently

around Ldn 55, implying minimal noise exposure and clear acceptability in terms of the HUD/FHWA noise mitigation thresholds of (at or around) Ldn 65.

At the locations of the closest proposed residences in the O'Oma II and Kohanaiki developments, 800 ft and ¼ mile back from the highway respectively, existing traffic noise exposure levels would be less than Ldn 45 due to the combined effects of distance from the highway and intervening topography.

6. FUTURE NOISE ENVIRONMENT

Apart from increased traffic on Queen Kaahumanu Highway, other factors affecting the future noise environment (over the next 10 to 20 years) will include ongoing construction activities associated with the proposed developments between Keahole and Kailua and noise generated in the developments themselves (including local traffic).

The proposed expansion of existing facilities, such as HELCO's Keahole Power Plant, could affect the noise environment in their immediate vicinity.

Plans to lengthen the runway at Keahole Airport from 6,500 ft to 11,000 ft and continued traffic growth at the airport will also affect the future noise environment in the subject area. The year 2005 airport noise contours indicate, however, that parts of the nearby O'Oma II development will experience noise exposure reductions of up to about 5 points, reflecting the effect of the lengthened runway and the fact that the majority of aircraft will be the quieter Stage 3.

Turning to the noise from increased future traffic on Queen Kaahumanu Highway, the traffic consultants presently estimate that future (year 2010) traffic volumes on the widened highway between the airport and Kailua will be at least three times and possibly up to about six times higher than the current volumes (Reference 10). Significant future traffic volume increases are likely even without the proposed highway widening.

The wide range in predicted increases is due to as-yet-unresolved questions concerning the most likely levels of future residential and resort development in West Hawaii and the extent of additional roadway construction required. The worst-case scenario, of future (year 2010) traffic volumes being six times higher than at present, reflects a situation where there would be maximum development, but no additional major roadway construction to take some of the pressure off Queen Kaahumanu Highway.

Nevertheless, these data indicate that the noise exposure levels at the locations of the closest existing and proposed

residences (approximately 350 ft mauka from the highway) will increase by at least 4 dBA and possibly up to 7 dBA, i.e., to approximately Ldn 59 to 62. This estimate also takes into account the fact that the effective center of the widened highway will move some 50 ft in the makai direction, further away from the closest residences.

7. POTENTIAL IMPACTS AND POSSIBLE MITIGATION MEASURES

7.1 Increased Traffic Noise

Even with a six-fold increase in traffic volumes on Queen Kaahumanu Highway, there are only two areas where the increased traffic noise could be at all significant; the closest existing residences in the Keahole Agricultural Park and the closest proposed residences in the Kealakehe Planned Community.

Elsewhere, for example in the proposed O'Oma II and Kohanaiki developments, future highway traffic noise would be significantly less than that generated within the developments themselves and would generally be inaudible at the closest residences.

At the closest existing residences in the Keahole Agricultural Park and the closest proposed residences in the Keahalakehe Planned Community the future noise exposure levels, in this worst-case scenario of a six-fold increase in highway traffic, would be below the HUD/FHWA noise mitigation threshold of (at or around) Ldn 65. However, an increase in noise exposure levels of up to about 7 dBA over the next 20 years could still be significant (a 10 dBA increase corresponds to an approximate doubling of subjective loudness). The closest existing residences would experience a change from "minimal" to "moderate" noise exposure over this period.

Even though the future (year 2010) worst-case traffic noise exposure levels would be below the levels at which federal agencies such as HUD and FHWA require implementation of noise mitigation measures, there could, arguably, be some impact at these closest existing and proposed residential areas.

Alternative noise mitigation measures that could be considered for implementation in these two localities include providing the following:

1) Tall, very dense plantings in the proposed buffer zone on the mauka side of the highway, and an increased buffer zone width, from 100 ft to 150 ft, in these areas only. Information presented in Reference 9 suggests the combined benefit of these two measures could be only 2 dBA to 3 dBA, but that would still be enough to partially offset the expected future increase in highway traffic noise.

2) Earth berms or sound barrier walls in the proposed buffer zone on the mauka side of the highway. Further investigations would be needed to determine the most cost-effective berm or wall heights, however noise reductions of at least 5 dBA should be possible.

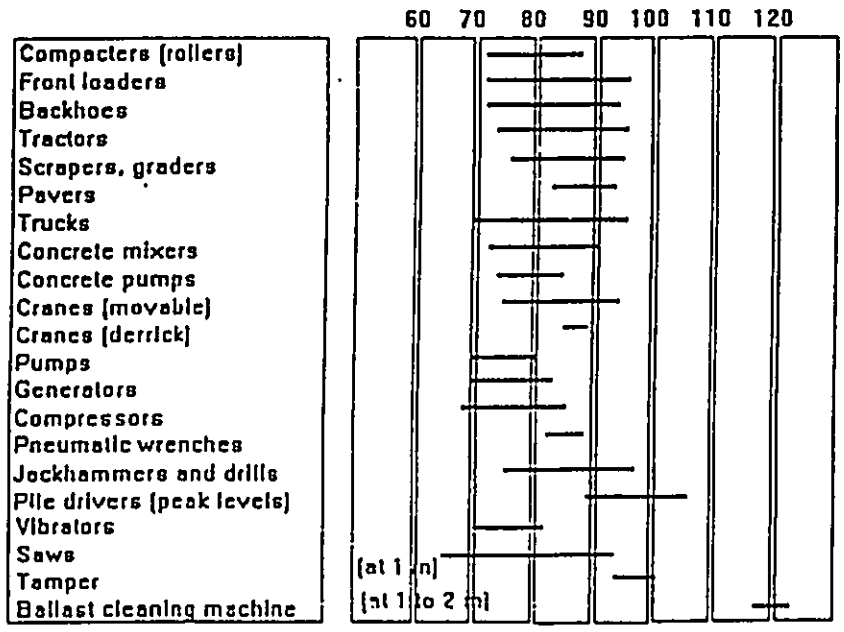
3) Suitable orientation of the closest proposed houses in the Kealakehe Planned Community so that the most noise-sensitive areas (the bedrooms) face away from the highway, and/or airconditioning the buildings to permit doors and windows to be closed for noise reduction purposes.

7.2 Construction Noise

Based on currently anticipated schedules, the only noise-sensitive areas that could be significantly impacted by the short-term construction activities associated with the proposed widening of Queen Kaahumanu Highway are the closest homes in the Keahole Agricultural Park.

As indicated by the data in Figure 4, the diesel-powered excavation and earthmoving equipment involved in road construction can be very loud, with noise levels at 50 ft typically ranging from approximately 70 dBA to 95 dBA. At the closest homes in the Keahole Agricultural Park, the noise levels would be 15 dBA to 20 dBA lower than at 50 ft distance, i.e., they would be between about 50 dBA and 80 dBA. Noise from these activities would be significantly higher than existing background levels and could, therefore, have some short-term impact on these residents.

Figure 4 - Typical Construction Noise Levels (in dBA) at 50 ft (Reference 11)



Noise mitigation measures should include the use of adequate silencing on all diesel-powered equipment and limiting the hours of operation during construction activities near the Keahole Agricultural Park, along the lines specified in the State Department of Health's community noise regulations for Oahu (Reference 8).

APPENDIX A - REFERENCES

1) "Keahole to Kailua Development Plan," prepared by R. M. Towill Corporation for the County of Hawaii, Planning Department, November 1990.

2) "Guidelines for Considering Noise in Land Use Planing and Control," Federal Interagency Committee on Urban Noise, June 1980.

3) "Environmental Criteria and Standards," Department of Housing and Urban Development, 24 CFR Part 51, July 12, 1979, amended January 6, 1984.

4) American National Standard S3.23-1980, "Sound Level Descriptors for Determination of Compatible Land Use," May 1980.

5) "Procedures for Abatement of Highway Traffic Noise and Construction Noise," Department of Transportation, Federal Highway Administration, 23 CFR Part 772, June 19, 1973, with revisions through August 5, 1982.

6) "Toward a National Strategy for Noise Control," U.S. Environmental Protection Agency, April 1977.

7) "Guidelines for Preparing Environmental Assessments," U.S. Urban Mass Transportation Administration, Publication C5620.1, October 16, 1979.

8) "Community Noise Control for Oahu," State of Hawaii, Department of Health, Chapter 43 of Title 11, Administrative Rules, April 26, 1976, revised November 6, 1981.

9) Barry, T.M. and Reagan, J.A., "FHWA Traffic Noise Prediction Model," FHWA-RD-77-108, U.S. Department of Transportation, Federal Highway Administration, December 1978.

10) Telephone discussion with Dawn McKinstry, of Parsons Brinckerhoff Quade & Douglas, Inc., on November 30, 1992.

11) Harris, C.M. (ed.), "Handbook of Noise Control," 2nd ed., McGraw-Hill, 1979, chap. 31.

12) "Protective Noise Levels," EPA 550/9-79-100, November 1978.

APPENDIX B - ACOUSTICAL TERMINOLOGY

Sound (Noise) Level

Sound or noise (which is generally considered as "unwanted sound") consists of minute fluctuations in atmospheric pressure capable of evoking the sense of hearing. It is measured using instruments known as sound level meters in terms of decibels, abbreviated dB. Sound level, or Sound Pressure Level, is defined as:

$$SPL = 20 \log_{10} (P/P_{ref}) \text{ dB}$$

where P is the sound pressure fluctuation (above or below atmospheric pressure) and P_{ref} is 20 micropascals, which is approximately the lowest sound pressure that can be detected by the human ear. For example, if P is 20 micropascals then the SPL is 0 dB, and if P is 200 micropascals the SPL is 20 dB, and so on.

When two sound levels are combined the result is the logarithmic sum. Two sound levels of 50 dB, for example, produce a combined level of 53 dB, not 100 dB. Sounds of 44 dB and 50 dB produce a combined level of 51 dB.

The symbol "L" is often used to represent Sound Pressure Level.

The A-Weighted Sound Pressure Level (dBA)

Overall sound levels are usually expressed in terms of dBA, which is measured using the "A-weighting" filter incorporated in sound level meters. This is an electronic filter having a frequency response corresponding approximately to that of human hearing. It is most sensitive to sounds at mid frequencies (500 Hz to 4,000 Hz) and less sensitive at lower and higher frequencies. The level of a sound in dBA is a good measure of the loudness of that sound. Different sounds having the same dBA level generally sound about equally as loud.

While a change of 1 dBA or 2 dBA in the level of a sound is difficult for most people to detect, a change of 3 dBA to 5 dBA is generally detected as a small but noticeable change in loudness; 5 dBA is often considered a potentially significant change when evaluating community response. A 10 dBA change corresponds to an approximate doubling or halving in loudness.

TABLE 2 - Typical Noise Levels

Sound Pressure Level (dBA)	Typical Example	Subjective Evaluation
130	Threshold of pain	Extremely noisy/intol-
120	Heavy rock concert	erable
110	Grinding at 3 ft	
100	Loud car horn at 10 ft	Very noisy
90	Construction site with pneumatic drilling	
80	Curbside of busy street	Loud
70	Loud radio or TV	
60	Department store	Moderate to quiet
50	General store	
40	Private office	Quiet to very quiet
30	Bedroom	
20	Unoccupied recording studio	Almost silent

Statistical Levels

Time-varying sounds, such as most of those generated in the community, are sometimes described in terms of the statistical exceedance levels "Lx," where L is the noise level exceeded for x% of a given measurement period. For example, L10 is the noise level exceeded for 10% of the time. Another metric commonly used in describing environmental noise is the Equivalent Continuous Noise Level (Leq), which is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.

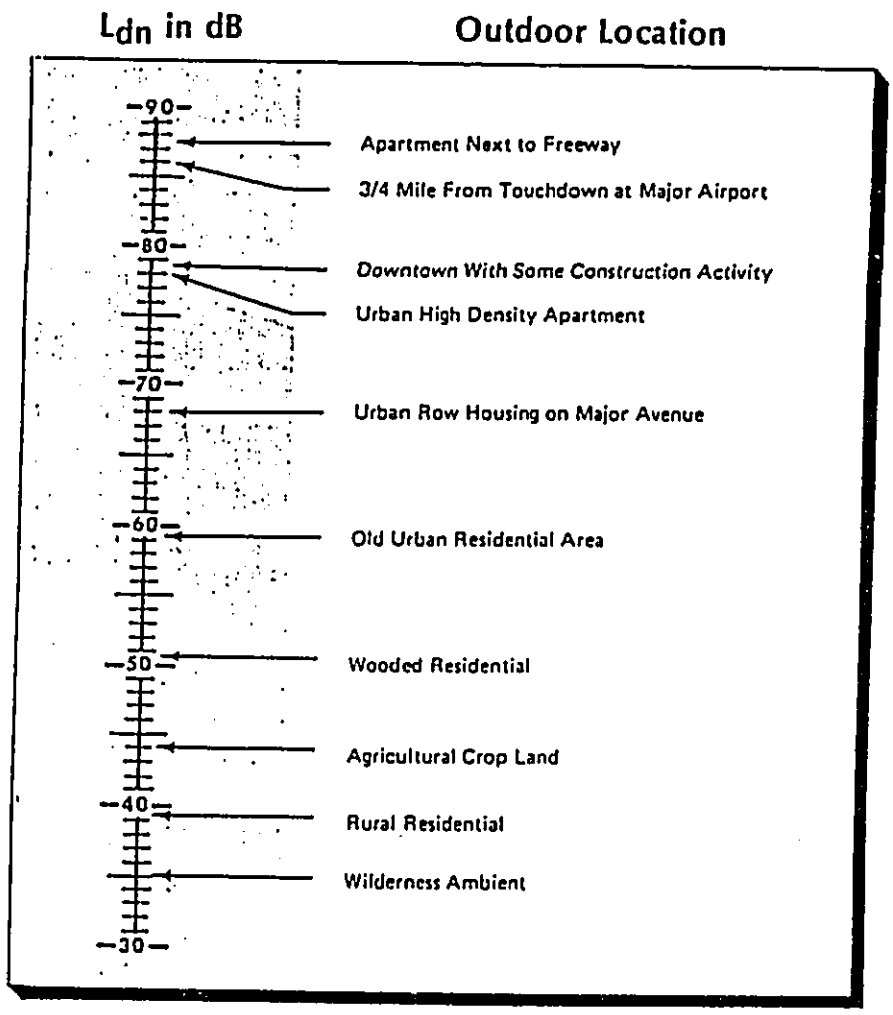
Day-Night Average Sound Level (Ldn)

Ldn is the Leq measured over a 24-hour period, after adding 10 dBA to the noise levels recorded between 10 pm and 7 am to account for people's greater sensitivity to noise at night.

Environmental noise levels measured in terms of Leq or Ldn are almost invariably A-weighted (dBA) levels, although this may not always be stated. For example, Ldn 65 means a Day-Night Average Sound Level of 65 dBA.

Typical Ldn values in the community range from less than 50 in quiet residential or rural areas to more than 75 in high-density urban and downtown areas (Figure 5).

Figure 5 - Typical Ldn Values (Reference 12)



APPENDIX B

ENVIRONMENTAL NOISE IMPACT ASSESSMENT

BOTANICAL SURVEY REPORT FOR THE PROPOSED WIDENING OF QUEEN KAAHUMANU HIGHWAY, KEAHOLE AIRPORT ROAD TO PALANI ROAD KAILUA-KONA, HAWAII

FOR
R. M. TOWILL CORPORATION
415 WAIAKAMILO STREET, SUITE 400
HONOLULU, HAWAII

BY
EVANGELINE J. FUNK, PH.D.
BOTANICAL CONSULTANTS
HONOLULU, HAWAII

APPENDIX C

ARCHAEOLOGICAL SURVEY

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL | # of pages ▶ 2

To John SATO	From HILLARY ORR
Dept./Agency TOWILL	Phone # 303-969-2994
Fax # 800-842-1937	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

May 6, 1993

John Sato
R. M. Towill Corporation
420 Waiakamilo Rd. #411
Honolulu, Hawaii 96817-4941

RMN ___
FILE ___
CC CK

John,

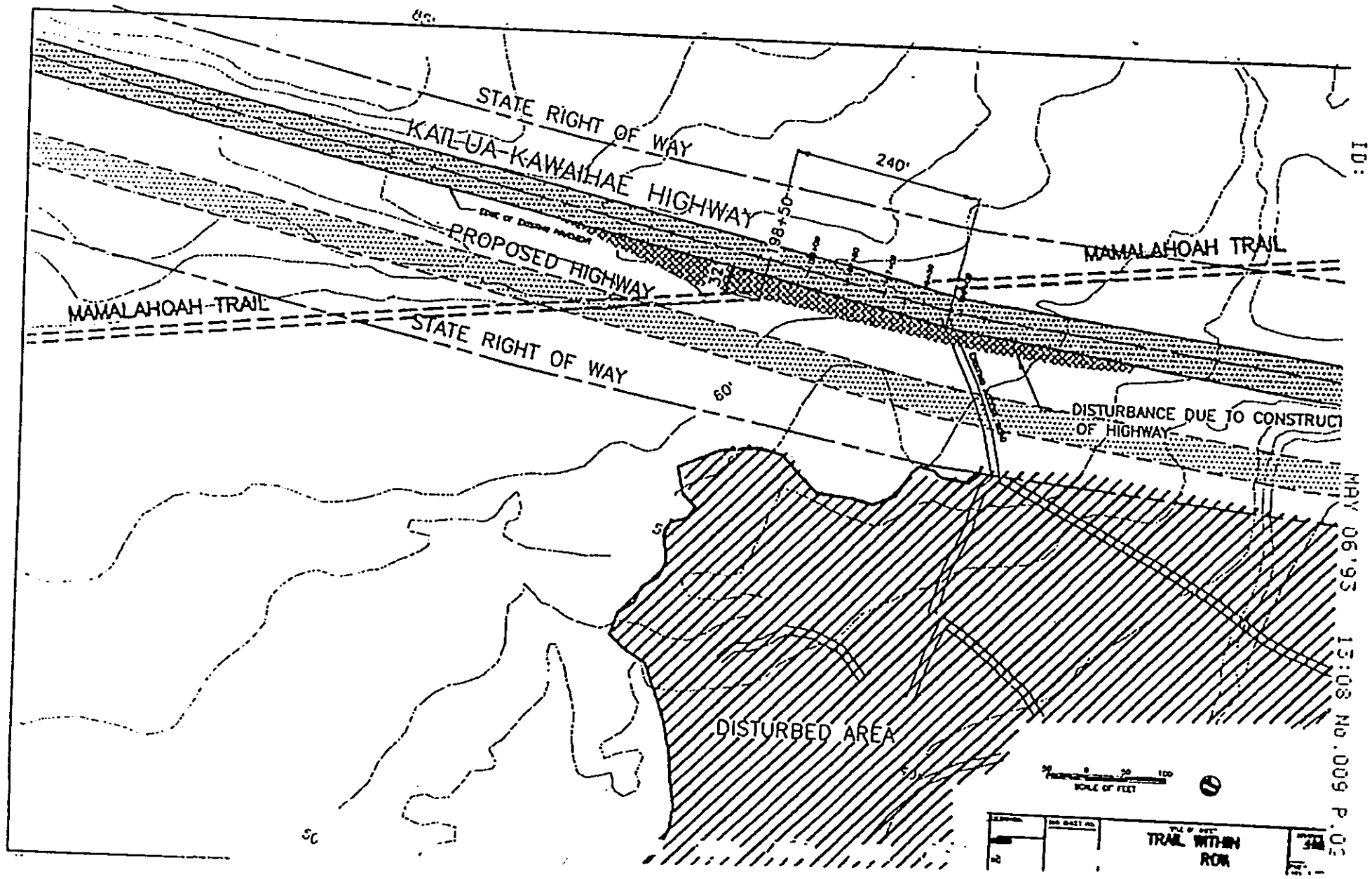
I spoke with the park archeologist, Laura Schuster, yesterday. She informed that she could easily identify the Mamalahoah Trail as drawn on the following site plan. She said that approximately thirty feet (30') off of the edge of pavement (Makai of the highway) she could identify the trail. The trail began after disturbance from the construction of the highway ended. This information confirms the site plan of the preliminary design Towill sent to us on the four lane expansion. This drawing shows the Mamalahoah Trail entering the state ROW and then running along the length of the highway Mauka.

I talked to some of our compliance folks as to the legal aspects of construction on existing trail. They said that, depending on the exact classification of the trail, i.e. Cultural Landmark, State Historic Site, etc... compliance would only have to meet State of Hawaii standards (State NEPA, etc...) if all construction occurred on state owned lands and if all construction was performed with state funds. If any funding is done with federal money - FHWA, then all federal compliance would have to be addressed before construction could occur. Of course, the public review process of all of this could cause the largest impasse of this project. I suppose the amount of public review depends greatly on whether or not compliance stays at the State level or has to go through federal compliance.

This information is all a little new to me, but I do think that it is very important to both your project and to the development that may occur at the Kaloko-Honokohau. If there is any other information I could provide to you, or if you just want me to "leave you alone", please do not hesitate to call.

Thank you for your time.

William Orr
Landscape Architect - Team Captain - KAHO 109-15
National Park Service, Denver Service Center, Western Team Design
12795 West Alameda Parkway
Denver, Colorado 80225
303-969-2290



AN ARCHAEOLOGICAL INVENTORY SURVEY OF THE NEW QUEEN KAAHUMANU HIGHWAY RIGHT-OF-WAY BETWEEN PALANI ROAD AND KEAHOLE AIRPORT

Within the *Ahupua'a* of Keahuolu, Kealakehe, Honokohau, Kaloko, Kohanaiki, O'oma 2, Kalaoa-O'oma, and Kalaoa 1-4 Kekaha, North Kona District, Hawai'i Island

DRAFT

Prepared for

Mr. Chester Koga
R.M. Towill Corporation
Honolulu

by

Patrick O. Walsh, M.A
and
Hallett H. Hammatt, Ph.D.

Cultural Surveys Hawaii
July, 1995

ABSTRACT

This report presents the results of an archaeological inventory survey with limited subsurface testing conducted by Cultural Surveys Hawaii (CSH) within the new Queen Kaahumanu Highway right-of-way between Palani Road and the Keahole Airport entrance road. The project area consists of a narrow strip of land, averaging 300 feet wide, situated along the present Queen Kaahumanu Highway (the highway) within the *ahupua'a* of Keahuolu, Kealakehe, Honokohau, Kaloko, Kohanaiki, O'oma 2, Kalaoa-O'oma, and Kalaoa 1-4.

A total of seventeen sites were identified within the project area during the inventory survey[1]. Five of these sites had been previously identified and were assigned state site numbers prior to this survey. Those sites include: Sites 00002, 02238, 06432, 13194 and 15324. The remaining twelve sites are newly identified and include Sites 19943 through 19954.

The seventeen sites included in this inventory survey consist of a total of 29 individual features: nine single feature sites and eight sites with multiple features. Formal site and feature types include: trails (seven); modified outcrop (four); cairns (three); walls (two); mounds (three); petroglyphs (two); enclosures (two); road; terrace; alignment; ash deposit; midden scatter; and pahoehoe excavation. Assigned functional categories include: transportation; temporary habitation; boundary/ranching; markers; special; quarry; agriculture; and unknown.

Subsurface testing was conducted at three features within the project area to determine the presence or absence of human remains. These features include: Site 02238 Feature A Terrace; Site 19943 Feature A Mound; Site 19944 Feature A Mound. The testing results determined the absence of burials within these three features.

Of the seventeen sites within the project area, eight are recommended for data recovery level study, four are recommended for preservation in addition to data recovery, and five are not recommended for further study or preservation.

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[1] All state site numbers are prefixed by 50-10-27- unless otherwise noted. This prefix is omitted throughout this report.

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I. INTRODUCTION

At the request of Mr. Chester Koga of R.M. Towill Corporation, Cultural Surveys Hawaii has conducted an archaeological inventory survey of the new Queen Kaahumanu Highway right-of-way between the intersection with Palani Road and the intersection with the Keahole Airport entrance road. The project area extends through eight *ahupua'a* of the Kekaha region of the North Kona District on the Island of Hawai'i. These *ahupua'a* from south to north include: Keahuolu, Kealakehe, Honokohau, Kaloko, Kohanaiki, O'oma 2, Kalaoa-O'oma, and Kalaoa 1-4 (Figures 1-3).

This inventory survey follows and supersedes the preparation of an archaeological assessment of the project area in which previous archaeological studies in the vicinity of the project area were identified (see Figure 5), and a list of archaeological sites identified within the vicinity of the project area was generated (see Table 2). The archaeological assessment also identified those portions of the project area that had not previously undergone inventory level survey (see Figure 3). The subsequent survey and limited subsurface testing of those areas was conducted June 14-16 and June 22-23 by three archaeologists; Douglas Borthwick, Ian Masterson and Patrick Walsh.

A total of seventeen sites were identified within the project area during the inventory survey (see Table 1). Five of these sites had been previously identified and were assigned state site numbers prior to this survey. Those sites include: Sites 00002, 02238, 06432, 13194 and 15324. The remaining twelve sites are newly identified and include Sites 19943 through 19954.

A. Project Area Description

The project area consists of a narrow strip of land, averaging 300 ft. (91 m.) wide, between the intersection of Queen Kaahumanu Highway with Palani Road and the intersection of Queen Kaahumanu Highway with the Keahole Airport entrance road, for a total length of approximately 36,000 linear feet (10,973 m.). The eastern and western boundaries of the project area conform to the new highway right-of-way which is identified on a set of 1" = 200' scale topographic maps prepared by the Hawaii State Department of Transportation and provided to CSH by R.M. Towill Corporation.

The project area lies between 2700 ft. (823 m.) and 10,000 ft. (3048 m.) from the shoreline at an elevation range between 40 ft. (12 m.) and 140 ft. (43 m.) above sea level (a.s.l.). Rainfall in the project area averages between 20 and 30 inches per year and temperatures range from an average minimum of 62-68 degrees Fahrenheit to an average maximum of 78-82 degrees (Armstrong 1973:57-58).

The land surface is comprised predominately of undissected a'a and pahoehoe lava flows. The Soil Survey of the Island of Hawaii describes a'a lava terrain as having "practically no soil covering and is bare of vegetation, except for mosses, lichens, ferns, and a few small *ohia* trees...This lava is rough and broken. It is a mass of clinkery, hard, glassy, sharp pieces piled in tumbled heaps" (Sato et al. 1973:34). The same study describes pahoehoe lavas as "a billowy, glassy surface that is relatively smooth. In some areas however, the surface is rough and broken and there are hummocks and pressure domes" (ibid).

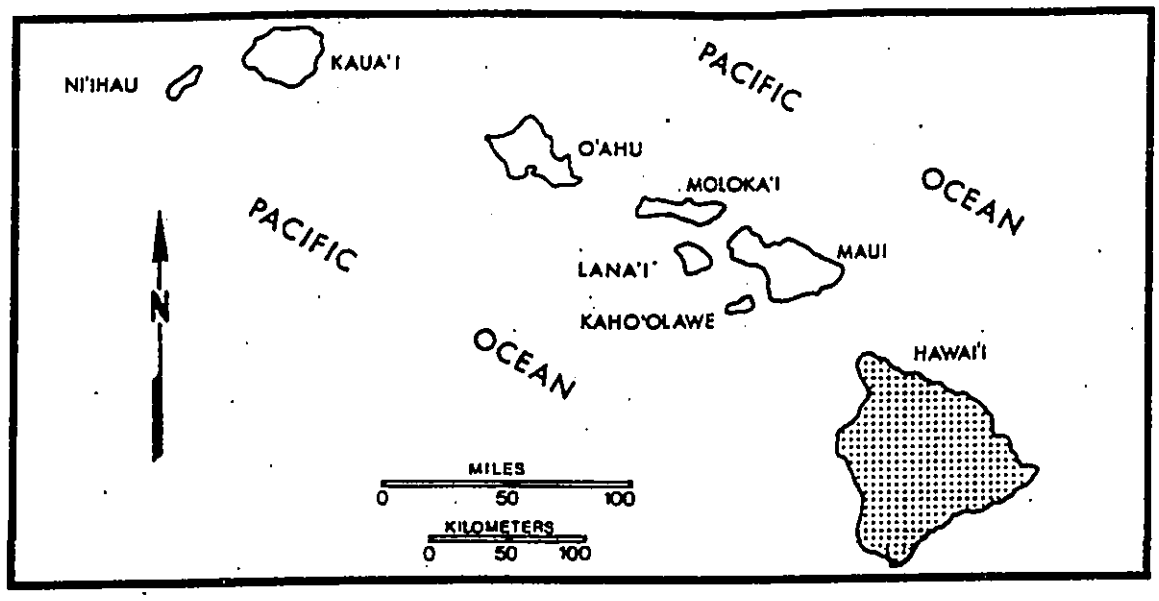


Figure 1 State of Hawai'i

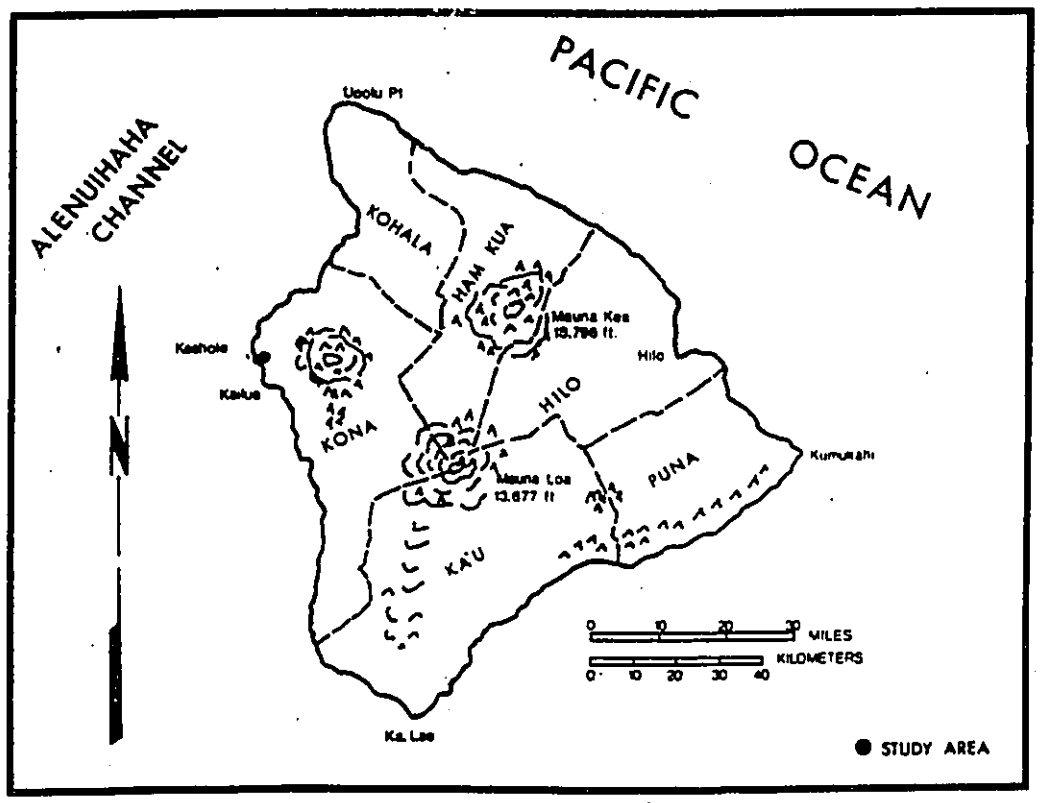


Figure 2 General Location Map, Hawai'i Island

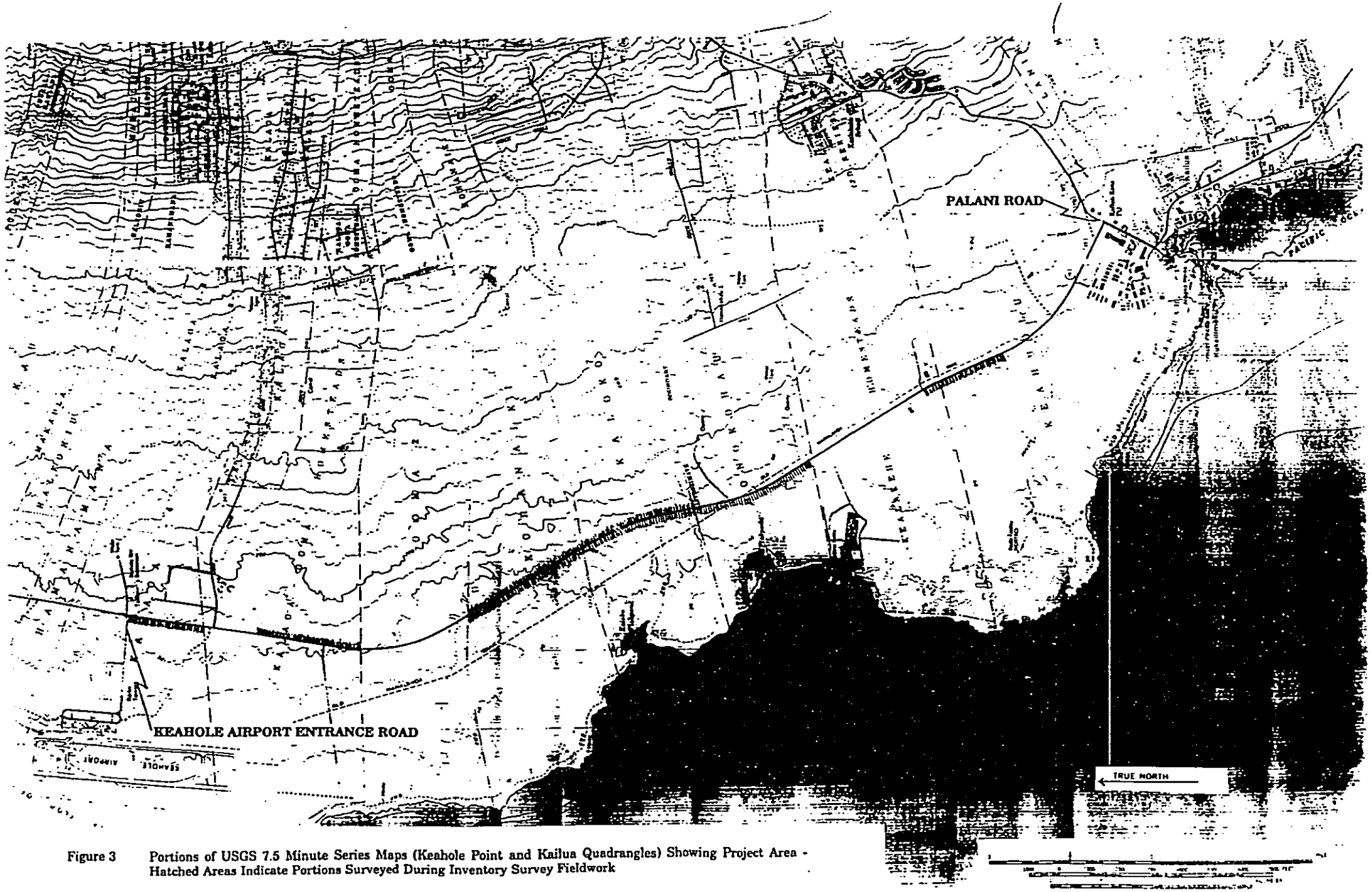


Figure 3 Portions of USGS 7.5 Minute Series Maps (Keahole Point and Kailua Quadrangles) Showing Project Area - Hatched Areas Indicate Portions Surveyed During Inventory Survey Fieldwork

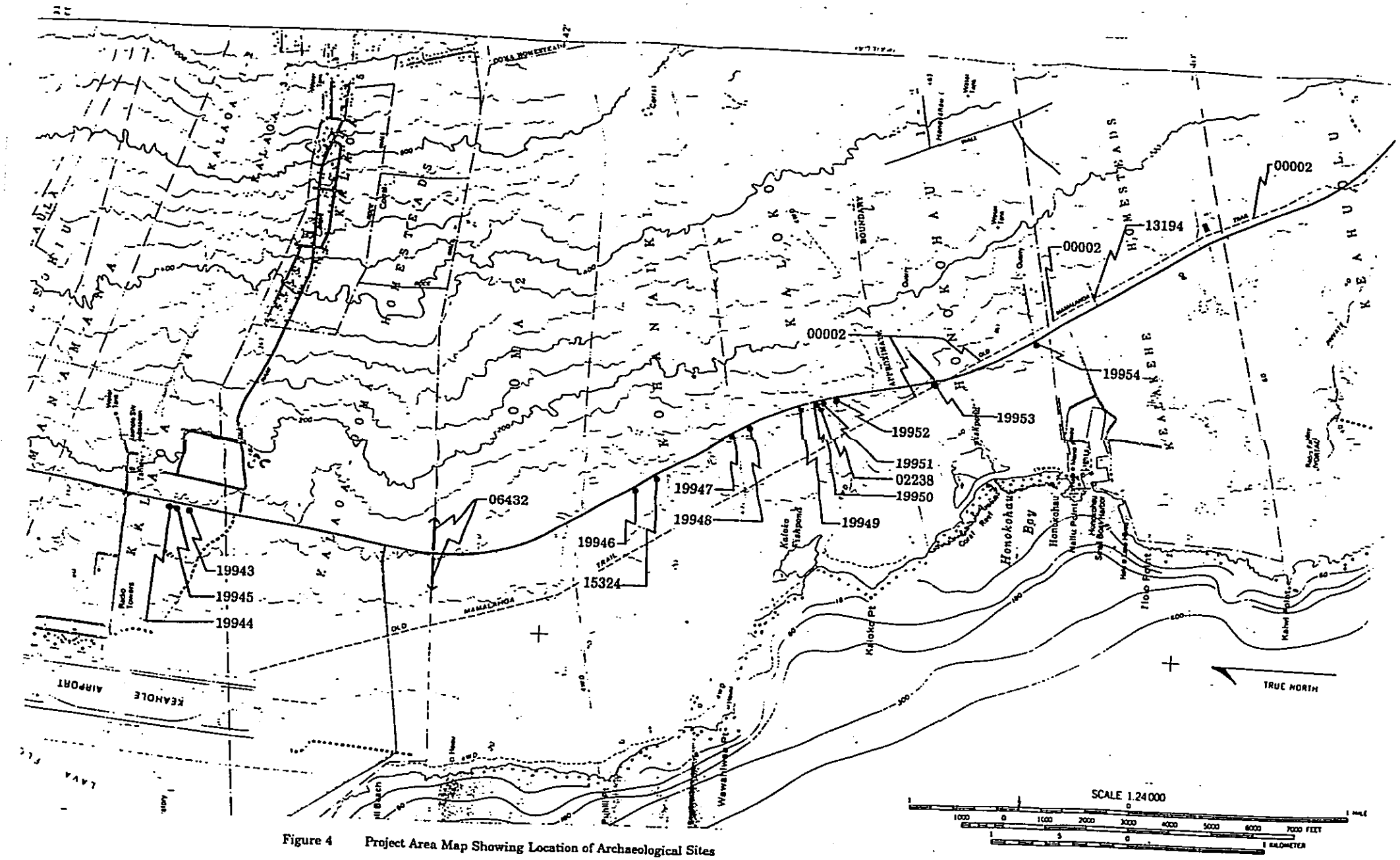


Figure 4 Project Area Map Showing Location of Archaeological Sites

Vegetation within the project area is of the type identified as "Fountain Grass Grassland" in The Botanical Survey of the West Hawai'i Boundary Review (Char & Associates 1992 quoted in Head and Rosendahl 1993:2). This vegetation type typically consists of low tufts of grass with scattered shrubs and a few trees. Specific plants commonly observed within the project area include: *pili* grass (*Heteropogon contortus*), Guinea grass (*Panicum maximum*), fountain grass (*Pennisetum setaceum*), *wilelaiki* or Christmas-berry (*Schinus terebinthifolius*), *klu* (*Acacia farnesiana*), *koa haole* (*Leucaena glauca*), *kiawe* (*Prosopis pallida*), and lantana (*Lantana camara*).

B. Scope of Work

The principal objective of the inventory survey was the identification of any and all cultural resources within the project area. The inventory survey is necessary for assessing the impact of the proposed development project and planning for appropriate mitigation. The scope of work was designed to meet the requirements of the State Historic Preservation Division, department of Land and Natural Resources (SHPD-DLNR). Survey procedures included:

1. A complete ground survey of those portions of the project area that had not been previously surveyed at the inventory level for the purpose of site inventory. All sites were located, described, and mapped. Field documentation included an overall project area map showing the location of all sites and features within the project area, descriptions, photographs and scale drawings of all sites and selected features. All sites were assigned State site numbers. An evaluation of site functions, interrelationships, and significance was undertaken.

2. Limited subsurface testing was conducted to assist in functional determination of sites.

3. Research on the historic background and previous archaeological studies of the project area and the *ahupua'a* was undertaken. Because the project area spans eight *ahupua'a*, and a considerable amount of primary research has been undertaken by several recent studies, the background research for this report focused on presenting a summary of background information and identifying sources of information for further research.

This report presents the results of archaeological work completed by Cultural Surveys Hawaii and includes:

(a) a map of the area surveyed showing all archaeological sites and site areas;

(b) descriptions of all archaeological sites with selected photographs, scale drawings, and discussions of function;

(c) historical and archaeological background sections summarizing prehistoric and historic land use as they relate to the archaeological features;

(d) a summary of site categories with an evaluation of their significance in an archaeological and historic context;

(e) Recommendations based on all information generated which specifies what steps should be taken to mitigate the impact of development on the identified archaeological resources - such as data recovery and preservation of specific areas. These recommendations will be developed in consultation with the landowner and the appropriate State and County agencies.

C. Methods

The inventory survey fieldwork was preceded by the identification of all previous archaeological studies conducted within and adjacent to the present project area. The results of this research was presented in an archaeological assessment report which, in addition to accounting for previously identified sites located within or in close proximity to the project area, also identified those portions of the project area that had not yet undergone inventory-level archaeological survey. Inventory survey fieldwork was then conducted on those portions of the project area that had not previously undergone inventory survey fieldwork.

The inventory survey fieldwork consisted of a visual inspection of the ground surface by two or three archaeologists spaced 50 to 100 feet apart (depending on ground surface visibility). On the western side (*makai*) of the highway, the project area typically extends 200 feet from the pavement edge of the present highway. One archaeologist followed the bulldozed edge of the present highway right-of-way (typically 20 to 50 feet from the highway pavement edge), and another archaeologist followed the western boundary of the project area (i.e. the new highway right-of-way) as identified on 1"=200' scale topographic maps prepared by the State Department of Transportation. One additional archaeologist was situated between the edge of the present highway and the western project area boundary along selected portions of the project area, where ground surface visibility was reduced by vegetation. On the eastern side (*mauka*) of the highway, the project area typically extends 50 feet from the pavement edge of the present highway, roughly following the power line that parallels the highway. One archaeologist followed the eastern project area boundary, determining that the majority of this area had been bulldozed or otherwise modified during the construction of the present highway and/or the construction of the power line.

All newly identified archaeological sites, and previously identified sites not recorded at the inventory survey level, were recorded in detail. Site recording included plotting site locations on the 1"=200' project area topographic map, written descriptions, photographs, and selected sites were sketched to scale. Temporary site numbers and feature designations were assigned. An attempt was made to correlate previously identified sites to the sites identified in the field; resulting in the identification of five previously identified sites and twelve newly identified sites within the boundaries of the present project area.

Table 1: Sites Included in the Present Inventory Survey

(Previously Identified Sites)

State Site #	CSH Site/ Feature #	Ahupua'a	Site/Feature Type	Probable Function	Preliminary Significance	Recommended Treatment
00002	--	Keahuolu, Kealakehe, Honokohau	Road (Mamalahoa Trail)	Transportation	A,C,D,*	DR, P[1]
02238	11	Kaloko	Complex	Temporary Habitation	D	DR
	11A		Terrace			
	11B		Enclosure			
06432	16	O'oma 2	Wall	Boundary, Ranching	D	NFW
13194	--	Kealakehe	Trail	Transportation	C,D,E,*	DR, P[1]
15324	6	Kohanaiki	Trail Network	Transportation	D,E,*	DR, P
	6A		Trail Branch			
	6B		Trail Branch			

(Newly Identified Sites)

19943	1	Kalaoa 1-4	Utilized Lava Tube (with interior features)	Temporary Habitation	D	DR
	1A		Mound			
	1B		Alignment			
	1C		Ash Deposit			
	1D		Midden Scatter			
19944	3	Kalaoa 1-4	Mounds (2)	Markers	D	DR
	3A		Mound			
	3B		Mound			
19945	4	Kalaoa 1-4	Petroglyphs (2)	Special	D, E	DR, P
	4A		Petroglyph Figure			
	4B		Petroglyph Figure			

State Site #	CSH Site/ Feature #	Ahupua'a	Site/Feature Type	Probable Function	Preliminary Significance	Recommended Treatment
19946	5	Kohanaiki	Trail	Transportation	D	DR
19947	7	Kohanaiki	Cairns (3)	Boundary markers	D	NFW
	7A		Cairn			
	7B		Cairn			
	7C		Cairn			
19948	8	Kaloko	Pahoehoe Excavation	Quarry	D	NFW
19949	9	Kaloko	Enclosure	Unknown	D	NFW
19950	10	Kaloko	Modified Outcrop Complex	Agriculture	D	DR
	10A		Modified outcrop			
	10B		Modified outcrop			
	10C		Modified outcrop			
	10D		Modified outcrop			
19951	12	Kaloko	Wall	Boundary, Ranching	D	NFW
19952	13	Kaloko	Trail	Transportation	D	DR
19953	14	Honokohau	Trail	Transportation	D	DR
19954	15	Honokohau	Trail	Transportation	D	DR

KEY:
- A — Site reflects major trends or events in the history of the state or nation
- B — Site is associated with the lives of persons significant in our past
- C — Site is an excellent example of a site type
- D — Site may be likely to yield information important in prehistory and history
- E — Site has cultural significance; probable religious structures (shrines, *heiau*) and/or burials present
- DR — Data Recovery
- P — Preserve
- P[1] — Preserved - included in previous Preservation Plan(s)
- NFW — No Further Work
- * — Significance assessments of site (or portions of site) also determined in prior archaeological studies

II. BACKGROUND RESEARCH

A. Historical Studies

The present project area consists of an approximately 300 foot (91 meters) wide strip that extends through eight *ahupua'a* of the North Kona District. These *ahupua'a* from south to north include; Keahuolu, Kealakehe, Honokohau 1-2, Kaloko, Kohanaiki, O'oma 2, Kalaoa-O'oma (O'oma 1), and Kalaoa 1-4. Because a considerable amount of background research and previous archaeological studies have been conducted within the subject *ahupua'a*, the background study for this project will focus on presenting a summary of these previous studies with an emphasis on identifying land use and settlement patterns for the project area.

Legendary References

The project area is located within the Kekaha region of North Kona District. Based on a recent translation of the "Legend of Ka-Miki" by Kepa Maly (cited in Henry et al. 1993) the region or *'okana* of Kekaha extends from Keahuolu northward to the Kona-Kohala boundary. The Kekaha region is also called *Kekaha wai'ole*, or "waterless place", a name which reflects its dry and barren appearance. Despite its desolate appearance, legends and other traditional accounts indicate that Kekaha was once a populous and productive region. Referring to the lands between O'oma and Makaula, PHRI researchers Maly and Kalima summarize this point as follows:

> To a contemporary visitor, the project area lands, and Kekaha in general, appear barren and desolate. It is difficult to believe that many people could have lived in the area without modern conveniences, but traditional accounts of this area describe numerous settlements, extensive agricultural fields and fishponds, and well-defined trails. There is also much praise of the fishing grounds of the region. (in Henry et al. 1993:20)

A great deal of primary research on legendary references and place names of Kekaha has been undertaken by Kepa Maly and Lehua Kalima. The results of some of this research can be found in "The Historical Documentary Research by Kepa Maly and Lehua Kalima" presented in PHRI report 1275-071493: *Archaeological Assessment Study, Kailua to Keahole Region State Lands LUC Project* (Henry et al. 1993).

Early Historic References

Early historical references to Kekaha and North Kona, in general, tend to emphasize its barrenness, but also hint at traditional settlement, particularly along the coast. The following observations were made by visitors to the region between 1792 and 1840.

> The naturalist, Archibald Menzies who travelled along the coast in 1792, described the area as "barren and rugged with volcanic dregs and fragments of black lava... in consequence of which the native inhabitants were obliged to have recourse to fishing for their sustenance" (1920:99).

> Vancouver, referring to the North Kona coast in 1794 stated: the adjacent shores... chiefly composed of volcanic matter, and producing only a few detached groves of cocoa nut trees, with the appearance of little cultivation, and very few inhabitants... (Vancouver 1798,III:62 quoted in Cordy 1985:34)
>
> In 1823, William Ellis referred to the 1801 Huehue lava flow from Hualalai, which covered parts of Kekaha just to the north of the present project area, as having "inundated several villages, destroyed a number of plantations and extensive fish ponds, filled up a deep bay twenty miles in length and formed the present coast... stone walls, trees and houses all gave way before it" (Ellis 1963:30-31).
>
> In 1840, the explorer C. Wilkes observed "a considerable trade is kept up between the north and south end of this district. The inhabitants of the barren portion of the latter are principally occupied in fishing and the manufacture of salt, which articles are bartered with those who live in the more fertile regions of the south, for food and clothes" (Wilkes 1845:91).

1848-1852 Mahèle Data

Historical data on land use and settlement for individual *ahupua'a* was generated during the Great Mahele land divisions of the mid-Nineteenth Century. Several previous archaeological and historical studies have compiled Mahele data for each of the eight *ahupua'a* through which the present project area traverses. In general, land claim testimonies indicate that there were relatively few native tenants that made land claims and the majority of lands became the property of the government. Of the few land claims made, however, it appears that the cultivation of traditional crops within the upper elevations (the Upland Zone), including taro and sweet potatoes, was the predominate land use activity. Only one claimant indicated the cultivation of a commercial crop (coffee). Besides a claim made for "salt lands" at Keahuolu, and several other claims made for rights to fish pond resources, there is very little indication of land use throughout the intermediate and lower elevations, including an absence of claims made for house lots on the coast.

The Mahele data from each of the subject *ahupua'a* supports what Cordy found in his study of land claims made at Kaloko, namely, that by the time of the Mahele, "the coast was virtually abandoned [and] the economic focus in this area had shifted to the uplands, which may have been a non-traditional pattern in this area" (Cordy et al. 1991:421). The following are excerpts from previous studies which provide brief summaries of the Mahele data for each of the subject *ahupua'a*.

<u>O'oma 1-2 and Kalaoa 1-5</u>

> The Mahele saw all these *ahupua'a* become government lands (Indices 1929:31,35); evidently they were the king's lands which he passed to government control... Only two Land Commission Awards were given in this area (LCA 7899 and 7937), both in Kalaoa 5 [outside the present project area]; but a series of Grants were issued in the *ahupua'a* from 1852-1864 -- evidently commoners acquiring lands. All these awards were in the upland forest zone from the 800 to 2200 foot elevations... they would seem to be agricultural parcels. (Cordy 1985:35)

Kohanaiki

The entire *ahupua'a* of Kohana-Iki was classified as Government Lands (Board of Commissioners 1929). Because of this, no testimony can be found on this land by any of the natives wishing to testify for Kuleana lands. Instead, parcels of the land were later sold by the government to raise money. (Lehua Kalima in O'Hare and Goodfellow 1992:A-12)

Honokohau 1&2

The *ahupua'a* were given to two members of the reigning *ali'i*... Subsequent *kuleana* awards within the two *ahupua'a* were given to eleven individuals. These awards - ranging in size from 1 to 5.75 acres... are located between 800 and 1680 feet [elevation]. Only two of the testimonies recorded for these awards mentioned specific crops grown upon the awarded parcels, [these include taro and potato kihapais. A house lot was claimed by only one individual]. (Robins et al. 1995:25)

Kaloko

As Kelly (1971) noted, all 12 commoner or *kuleana* awards were located within the Upland Zone, between 1200-1700 feet elevation. [In addition] six unawarded claims were found. Thus, at least 18 *kuleana* claims were filed for Kaloko in 1848. Actual crops grown in the claims fields are mentioned in only six claims. Taro predominated, although two sweet potato plots were claimed and eight mixed taro and sweet potato plots. House lots were claimed in only two of the eighteen cases - which is extremely unusual. In sum, housing data are extremely poor for this period. (Cordy et al. 1991:411, 417)

Kealakehe

At the time of the Mahele, the *ahupua'a* of Kealakehe was set aside as government land, while preserving the rights of native tenants. It is from the testimonies of these tenants that we obtain data on land use during the mid-1800s...From the [eleven] testimonies it was determined by Silva (1987) that ...claimants listed numerous cultivated parcels (kihapai) planted in taro and sweet potatoes. At least ten houses...[and] a fair sized banana patch was situated in the uplands. (Donham 1990:B-4)

Keahuolu

The *ahupua'a* of Keahuolu was awarded to Ane Keohokalole (d.1857). Six native tenants made claims for *kuleana* lands at Keahuolu. [Claimants indicated taro and sweet potato *kihapais* as well as palm trees, one coffee patch and one section of salt land. None of the claimants specifically filed for house lots]. (Donham 1990:B3-5)

Late Nineteenth and Early Twentieth Centuries

Following are selections from previous studies which summarize the historical developments that occurred within Kekaha and selected portions of the Kekaha region:

Kekaha

By the end of the 1800s, land use in North Kona had undergone significant alterations from the dryland cultivation and fishing practiced during prehistoric

and proto-historic times. Maly summarizes the gradual replacement of Hawaiian lifestyle in this area as the result of two major factors: the 1801 eruption of Hualalai, and changing land use patterns over the last 150 years. The lava flows from Hualalai reclaimed much of the land used for settlement, agriculture and fishponds; reducing the land to a shadow of its former condition. Introduction of foreign plants and animals brought about additional changes, as once barren lava fields became overgrown with *kiawe* and other weedy shrubs, and goat and cattle raising became a mainstay of local industry. The 1850s saw the development of large-scale commercial ranching and agriculture as a result of the shift to private land ownership brought about by the Mahele and an 1850 law permitting foreigners to own land. Coffee, grazing land, tobacco and sugar cane gradually replaced traditional crops such as taro and *uala*; stripped the land of forests, and caused disruption of the water catchment systems...

Today, the upland and intermediate zones are covered with coffee plantations, housing developments, and light industry. On the coast are the Keahole Airport and the Natural Energy Laboratory. The coast has not been utilized for permanent human habitation since the 1801 lava flow. (Henry et al. 1993:50)

Kaloko

The historical documents suggest that by the 1840s to 1850s, the Coastal Zone had been abandoned as a residential area, except probably for a house used by the fishpond's caretaker. This pattern would have been a stunning change from prehistoric and early historic times, when many coastal residences were present. (Cordy et al. 1991:288)

By the 1870s and 1880s, housing does seem to have become focused in the Upland Zone at the Kohanaiki Homesteads and with some scattered houses across Kaloko along the Road to Kailua and the upper Government Road. Cultivation may have been shifting to cash crops (coffee), and... small-scale livestock raising may have been taking place.

By the early 1900s, large-scale ranching began in the uplands, with the acquisition of chiefly lands by Huehue Ranch. [Citing Kelly (1971), Cordy also notes], a gradual reduction in house locations...These patterns appear to be related to decreasing populations in this region of North Kona into the early 1900s. (Cordy et al. 1991:421)

Honokohau

Following the Mahele (ca. 1850s), the Intermediate and Upland Zones of the project area were ultimately abandoned, as suggested by Boundary Commission and Land Court Award records. As a result, the vacant lands were subsequently acquired for cattle ranching and portions leased for commercial cultivation of coffee and fruit by Japanese immigrants. By the 1920s to 1930s the Coastal Zone of Honokohau I and II was virtually vacant, with settlement associated with ranching and coffee farming centered primarily along the *mauka* roads, as it is today. (Robins et al. 1995:149)

B. Previous Archaeological Studies

The following is an annotated list of previous archaeological studies conducted within or adjacent to the present project area. They are presented by *ahupua'a* from Keahuolu northward to Kelaoa 1-4.

Although the present project area typically extends 200 feet (61 meters) *makai* and 50 feet (15 meters) *mauka* of the present highway, the background research focused on identifying all archaeological sites previously identified within approximately 300 feet (91 meters) of both side of the present highway. Subsequent inventory survey fieldwork included the determination of which of these previously identified sites was located within the boundaries of the present project area.

Keahuolu

Donham, Theresa
1990a *Archaeological Inventory Survey - Queen Liliuokalani Trust Property: Land of Keahuolu, North Kona District, Island of Hawaii (TMK:3-7-4-8:por.2,12)*, PHRI 596-021290.

Inventory survey of an 1100 acre parcel situated on both sides of the highway -5500 feet (1676 m.) on the east side (from Palani Road to the northern *ahupua'a* boundary) and 1500 feet (457 m.) on the west side. A total of 19 sites were identified within roughly 300 feet (91 m.) of the highway.

O'Hare, Constance R. and Paul H. Rosendahl
1993 *Archaeological Inventory Survey - Queen Liliuokalani Trust 100-Acre KIS Expansion Site: Land of Keahuolu, North Kona District, Island of Hawaii (TMK:3-7-4-8:por.2)*, PHRI 1311-010093.

Inventory survey of a 100 acre parcel situated along the west side of the highway bordered on the south by the already developed Kona Industrial Subdivision and on the north by a portion of the project area cited above. Seven sites were identified within roughly 300 feet (91 m.) of the highway.

Jensen, Peter M.
1992a *Archaeological Mitigation Program, Queen Liliuokalani Trust Property, Phase I: Mitigation Plan for Data Recovery, Interim Site Preservation and Monitoring, Land of Keahuolu, North Kona District, Island of Hawaii*, PHRI 1152-012192.

Data Recovery Plan for the Donham 1990 Inventory Survey project area. Eighteen of the nineteen sites identified within 300 feet (91 m.) of the highway were either recommended for further data recovery work or were determined to have been sufficiently recorded during the inventory survey. The remaining one site, Site 00002, the Mamalahoa Trail was recommended for preservation.

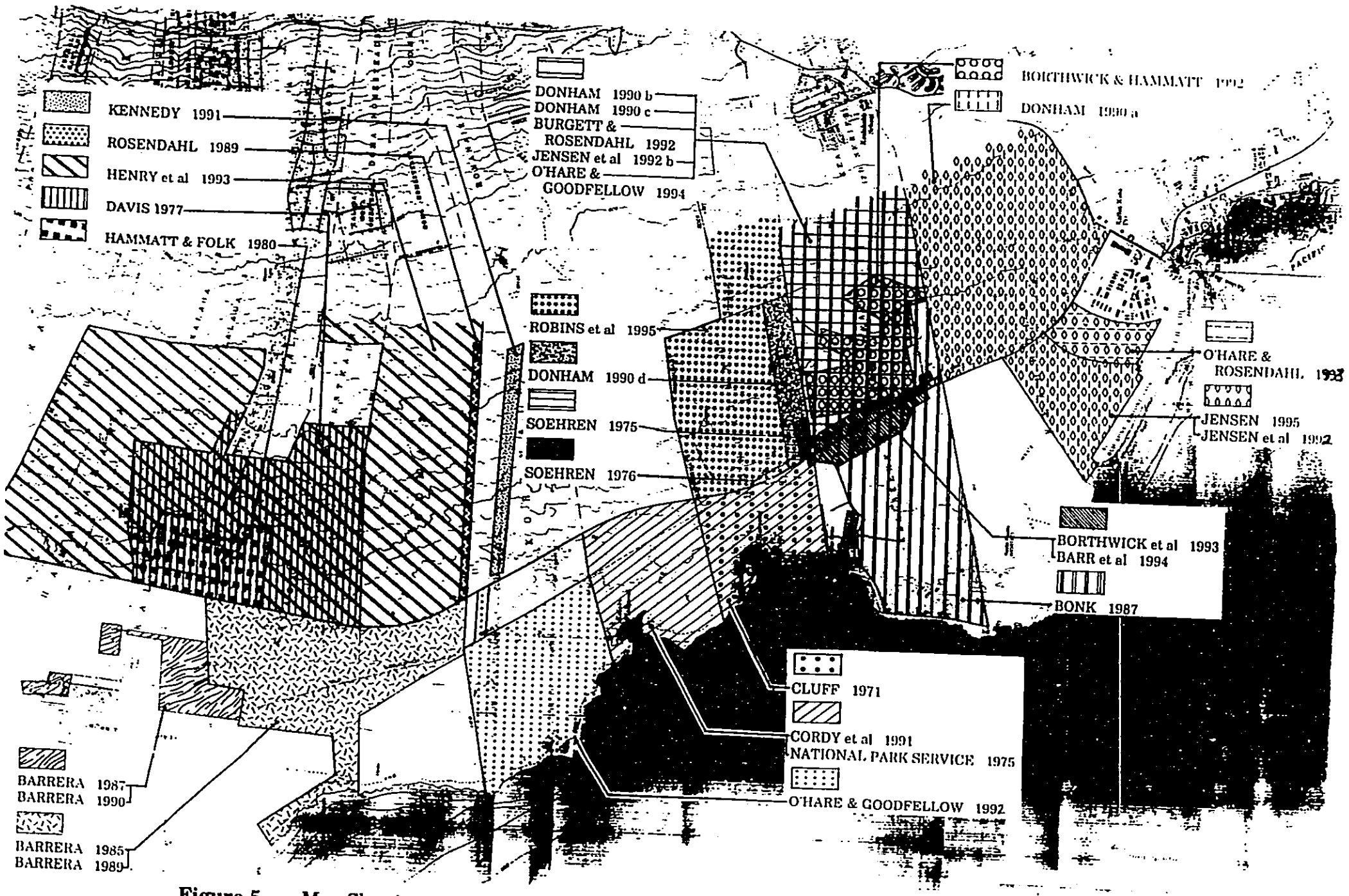


Figure 5 Map Showing Approximate Project Area Locations of Previous Archaeological Studies

During the review of this data recovery plan, two amendments were added in 1993 and accepted by the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD). One of these amendments called for the inclusion of the 100 acre KIS Expansion parcel (O'Hare and Rosendahl 1993) into the data recovery and preservation plans for the 1100 acre Queen Lili'uokalani Trust parcel.

The amended data recovery plan thus included the seven sites identified within 300 feet (91 m.) of the highway during the course of the inventory survey of the KIS Expansion parcel (O'Hare and Rosendahl 1993). All seven of these sites were either recommended for further data recovery work (including a section of the Mamalahoa Trail) or were determined to have been sufficiently recorded.

Jensen, Peter M.
1995 *Archaeological Preservation Plan - Queen Lili'uokalani Trust Keahuolu Lands, Land of Keahuolu, North Kona District, Island of Hawaii,*

Only one of the total 26 archaeological sites identified within 300 feet (91 m.) of the highway was recommended for preservation, site 00002, the Mamalahoa Trail. The preservation plan for site 00002 includes only the section of the trail situated on the *mauka* side of the highway, while the section on the *makai* side of the highway was slated for data recovery work only. The long-term preservation plan for the *mauka* section of the Mamalahoa Trail is outlined and includes "further data collection," and "preservation with interpretive development."

Keahuolu Summary

The highway extends approximately 8100 feet (2469 m.) through Keahuolu. The *mauka* side of the highway within Keahuolu has been completely surveyed and has subsequently undergone extensive development. Along the *makai* side of the highway approximately 2700 feet (823 m.) is developed lands within the Kailua Industrial Subdivision, approximately 3200 feet (975 m.) has been surveyed as part of the Queen Lili'uokalani Trust Lands, and approximately 2200 feet (671 m.) on the northern end of the *ahupua'a* has apparently not undergone any previous archaeological survey.

Twenty six archaeological sites were identified within 300 feet (91 m.) of the highway. Of these, only one site has been preserved; the *mauka* section of site 00002, the Mamalahoa Trail. A field check has confirmed that this section of the trail begins approximately 370 feet (113 m.) north of the centerline of Makalapua Blvd. and approximately thirty feet (9.0 m.) east of the existing Queen Kaahumanu Highway pavement edge. The trail extends through the remainder of the *ahupua'a*, roughly parallelling the highway at 321 degrees True North. An approximately 700 foot (213 m.) section is within the present project area (see Site Descriptions section of this report).

Kealakehe

Bonk, William J.
1987 *An Archaeological Walk-Through Survey of Lower Kealakehe, North Kona, Hawaii*, University of Hawaii at Hilo.

A walk-through survey over the width of the *ahupua'a* between the coast and roughly 640 feet A.M.S.L. One site, the Mamalahoa Trail was identified in close proximity to the highway, and another site, a steppingstone trail previously identified by Soehren (Soehren 1975, see Honokohau Section below) was mentioned as being just *mauka* of the highway near the northern boundary of the *ahupua'a*.

Donham, Theresa K.
1990b *Archaeological Inventory Survey - Kealakehe Planned Community Project Area: Lands of Kealakehe and Keahuolu, North Kona District Island of Hawaii (TMK:7-4-8:17, por.12)*, PHRI 652-010890.

Donham, Theresa K.
1990c *Addendum Report: Archaeological Inventory Survey - Kealakehe Planned Community Project Area: Lands of Kealakehe and Keahuolu, North Kona District Island of Hawaii (TMK:7-4-8:17, por.12)*, PHRI 652-051090.

Burgett, Berdena D. and Paul H. Rosendahl
1992 *Addendum Report: Archaeological Inventory Survey - Kealakehe Planned Community Project Area: Lands of Kealakehe and Keahuolu, North Kona District Island of Hawaii*, PHRI 927-021192.

These three reports document the inventory survey of an approximately 950 acre project area situated on the east side of the highway. Three sites were identified within roughly 300 feet (91 m.) of the highway including, the Mamalahoa Trail (Site 00002), a steppingstone trail (Site 13194), and a site consisting of several *ahu* (Site 13195).

The steppingstone trail identified by Soehren (1975) and mentioned again by Bonk (1987) is identified in this survey (Site 13253) as being located roughly 400 feet (122 m.) from the highway (and is thus considered to be outside the present project area).

Jensen, Peter M.
1992b *Archaeological Mitigation Program - Kealakehe Planned Community Project Area - Phase I: Mitigation Plan for Data Recovery and Interim Site Preservation: Lands of Kealakehe and Keahuolu, North Kona District, Island of Hawaii*, PHRI 991-101491.

This is the "mitigation plan" for the sites identified within the Kealakehe Planned Community Project Area. Recommended treatment for sites 00002 and 13194 included further data collection in addition to preservation with

State Site #: 06432 **CSH Site #:** 16
Site Type: Wall
Function: Boundary/Ranching
Features (#): 1

Description: Site 6432 is a free-standing stone wall that forms the boundary between Kalaoa-O'oma and O'oma 2 (Figures 13 & 14). The wall has been breached in the construction of the present highway, but continues both *mauka* and *makai* for more than several hundred feet. The wall is typically 1.1 m. high and 0.7 m. wide. The wall is well constructed small and medium boulders and cobbles with a cobble and pebble core fill. Both sides of the wall are well-faced and the wall is generally in excellent condition.

The wall was previously identified by Davis in 1977 and described as follows: Site 6432 is the stone boundary wall between Kalaoa-O'oma and Kalaoa *ahupua'a*. Given the fact that this wall is nearly transit-line straight and is constructed of core-filled masonry, it is likely a historic feature. No further work is recommended (1977:33).

Pahoehoe excavations were observed within a hundred feet (30 m.) on either side of the wall and it is probable that these reflect the quarrying of stones for the construction of the wall. One such area may be the same as site 18524, which is a pahoehoe excavation identified in this general area by PHRI (Henry et al. 1993).

State Site #: 13194 **CSH Site #:**
Site Type: Trail
Function: Transportation
Features (#): 1

Description: Site 13194 is a stepping stone trail originally identified by PHRI in 1989 during the inventory survey for the Kealakehe Planned Community (Donham 1990b). The site was described as follows:

> The trail consists of a cleared and packed path through the aa with spaced pahoehoe slabs that are inset into the aa. Most of the slabs are a minimum of 0.20 m. and a maximum of 0.35 m in size. The rest of the slabs are small cobbles. The western end of the trail is cut off by the Queen Kaahumanu Highway. Efforts to relocate it on the west side of the highway were unsuccessful. To the east of the highway, the Mamalahoa Trail seems to have crossed over this trail. To the east of the Mamalahoa Trail, it has been broken by two different bulldozer paths over the aa. At the eastern end of the aa, the trail appears to make a sharp turn to the north. This turn may be an intersection of two trails; efforts to locate a continuation over the pahoehoe to the north and east were unsuccessful. (Donham 1990:A-14)

The trail was recommended for preservation with interpretive development and has since been included in two preservation plans (Jensen et al 1992, Borthwick and Hammatt 1992).

A field check of the western end of the trail during the present survey confirmed that portion of the trail has been preserved as is. The trail begins 95 feet (29 m.) from the highway pavement edge and extends 85 feet (26 m.), where it intersects with the Mamalahoa Trail. The trail continues east of the Mamalahoa Trail for another 73 feet (22

m.) where it becomes obscured by a bulldozed path. The trail continues within or just adjacent to the bulldozed path for roughly 100 feet (30 m.), beyond which it was observed to continue inland apparently undisturbed.

State Site #: 15324 **CSH Site #: 6**
Site Type: Inland-heading Trail
Function: Transportation
Features (#): 2

Description: Site 15324 consists of two converging trail segments designated Features A and B (Figure 15). Both trail segments extend in a roughly *mauka-makai* direction, but angle toward each other and converge into one trail that continues inland. The point where the two trails meet is located at the edge of the bulldozed portion of the present highway right of way, 164 feet (50 m.) from the *makai* edge of the highway pavement. Both trail segments were observed to continue over 300 feet (91 m.) *makai*. On the *mauka* side of the highway, the trail was observed at the edge of the bulldozed portion of the powerline (the new right-of-way boundary) and continuing inland at 65 degrees T.N. for at least another 100 feet (30 m.).

Both trail segments (Features A and B) average 0.6 m. wide and consist of a trodden surface that meanders over pahoehoe and a'a lava surfaces. A few isolated stepping stones consisting of pahoehoe slabs were observed along Feature B. Both trail segments are well worn and clearly visible, especially on the a'a lava surfaces. The portion of Feature A within the new right-of-way is approximately 40 feet (12 m.) long, and the portion of Feature B within the new right-of-way is 50 feet (15 m.) long.

A PHRI site tag was found along the trail on the *mauka* side of the highway labelled 92-1118 1118-12. This site is now known to be state site #15324. The inventory survey report containing the site description and significance evaluations developed by PHRI was not available to the public at the time of this report (i.e. not yet submitted to DLNR

State Site #: 19943 **CSH Site #: 1**
Site Type: Utilized Lava Tube
Function: Temporary Habitation
Features (#): 1

Description: Site 19943 is a utilized lava tube located within undulating, gently seaward sloping pahoehoe terrain. The lava tube is oriented *mauka-makai* (northwest-southeast). Access to the tube is gained from an entrance formed by a ceiling collapse (Figure 16). The lava tube entrance is located 160 feet (49 m.) from the *makai*, or eastern edge of the present highway pavement.

The lava tube contains four interior features, designated Features A-D. The features include a mound (Feature A), an alignment (Feature B), an ash deposit (Feature C) and a midden scatter (Feature D) (Figure 17).

The main chamber of the tube extends *makai* (northwest) of the entrance for approximately 35.0 m., beyond which the tube becomes prohibitively narrow and low, and continues in the same direction for at least another 8.0 m. The latter portion was too small to be investigated. The main chamber also extends *mauka* of the entrance for 8.0 m.

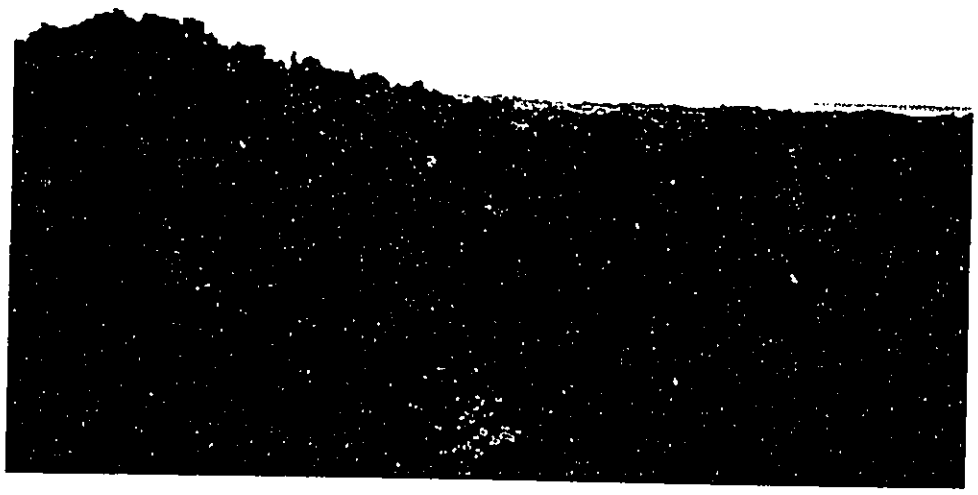


Figure 15 Site 15324 Feature A Photograph, View West

Figure 16 Site 19943 Lava Tube Entrance Photograph

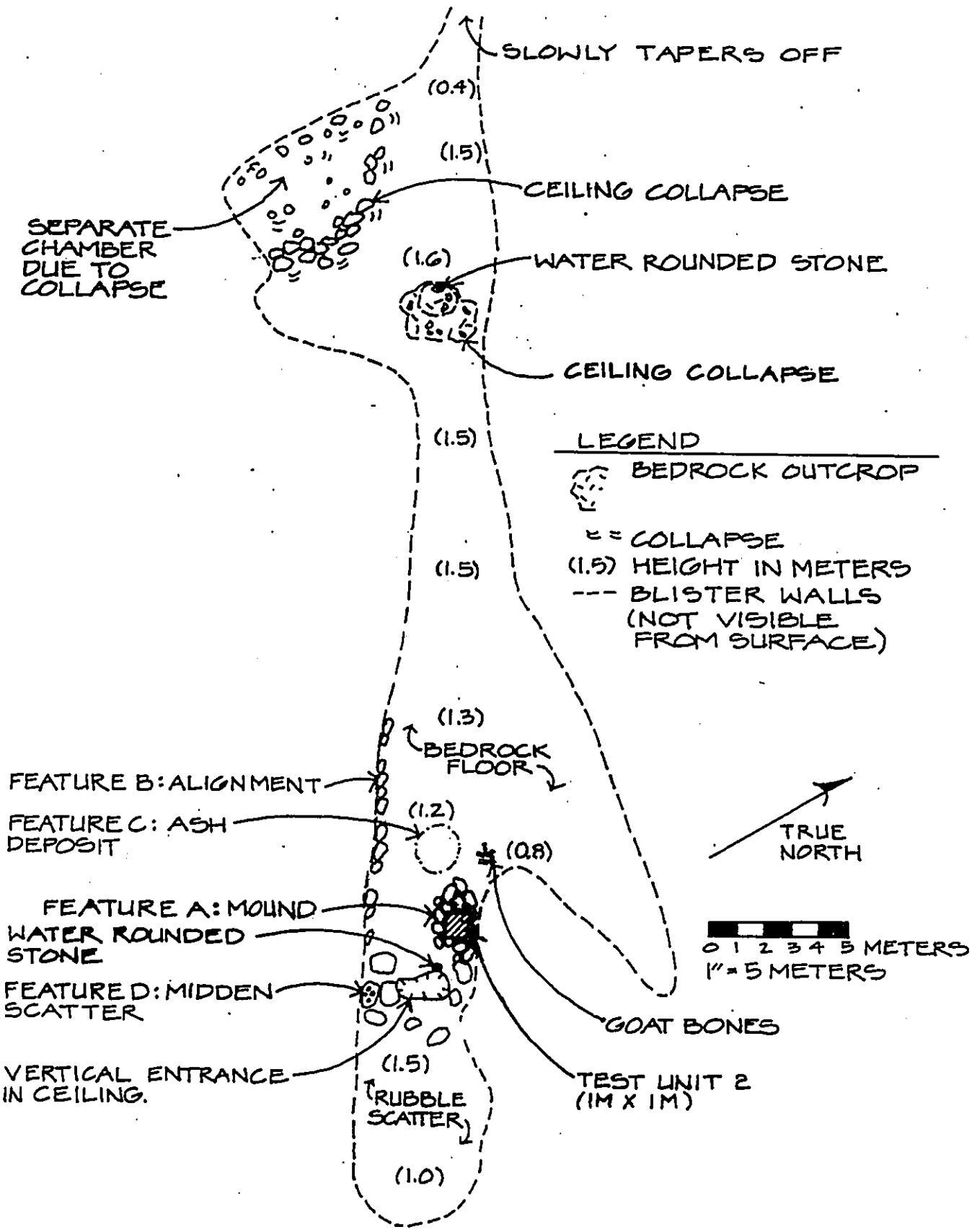


Figure 17 Site 19943 Plan View, also showing location of Test Unit 2

The width of the main chamber ranges from 2.5 m. to 9.5 m., and ceiling heights range from 0.4 to 1.6 m. The floor of the tube consists of bedrock with little or no soil deposits.

Feature A mound is located just *makai* of the entrance against the northern interior wall and measures 1.5m. NW/SE by 2.5 m. NE/SW. It is constructed of large, medium and small boulders loosely piled on the floor of the tube. This mound was tested during the inventory survey fieldwork (see the Testing Results section following). The alignment, Feature B, is located along the southern wall of the main chamber and begins just *makai* of the entrance and extends northwest for approximately 8.5 m. It consists of a single course of small and medium boulders. The ash deposit, Feature C, is located just *makai* of the entrance between the mound Feature A and the alignment Feature B. It consists of a roughly circular (2.0 m. diameter) very thin deposit (less than two centimeters) within the crevices and undulations of the bedrock floor. Feature D, midden, was observed scattered within a 5.0 m. radius of the entrance with a small but dense concentration just south of the entrance. Midden was observed to include *'opihi*, *pipihi*, cowry, and conus shells and sea urchin spines. The skeletal remains of a goat were also observed on the floor of the tube.

Based on the presence of midden and internal features, this lava tube is interpreted as a temporary habitation site. Feature A mound was considered to be a possible human burial, but subsurface testing has eliminated this possibility. The site is in good condition with evidence of minor modern disturbance including a note left behind by visitors in 1982 and evidence of use by goats.

Testing Results

A single 1.0 m^2 test unit, designated Test Unit 2, was hand excavated within Feature A mound to determine the presence or absence of human remains. The test unit was placed over the center of the mound (see Figure 17). Excavation consisted of dismantling the mound structure to the bedrock floor of the lava tube, which was encountered 0.5 m. below the mound surface (Figures 18 & 19).

The mound was found to be a loose pile of boulders (maximum height 0.5 m.) resting directly on the bedrock lava tube floor. No soil strata were encountered. No human remains were encountered. Additionally, no artifacts, midden or charcoal were observed within the mound or on the floor of the tube beneath the mound.

Based on the negative testing results and the lack of formalized architecture, the mound is interpreted as a clearing mound.

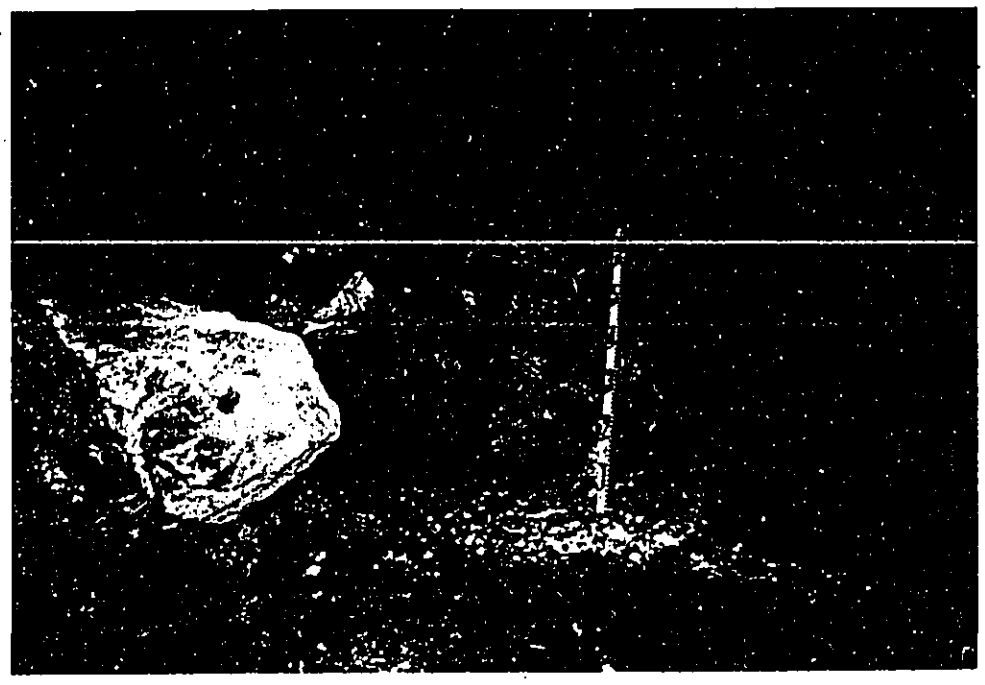


Figure 18 Site 19943 Feature A Test Unit 2 Post-excavation Photograph

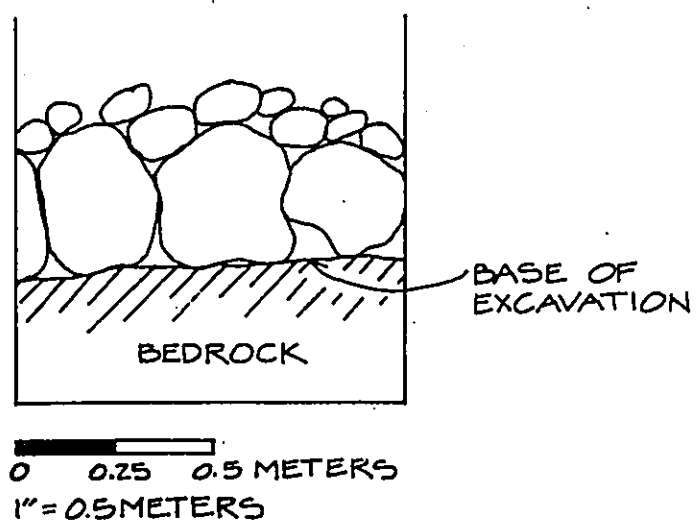


Figure 19 Site 19943 Feature A Test Unit 2 Profile, North Face

State Site #:	19944	**CSH Site #: 3**
Site Type:	Mounds	
Function:	Markers	
Features (#):	2	

Description: Site 19944 consists of two mounds designated features A and B (Figures 20 & 21). The mounds are situated at the interface of a pahoehoe and an a'a lava flow. The mounds are aligned in a roughly north-south direction and are 4.7 m. apart (center to center). Both are constructed of loosely piled small boulders, cobbles and pebbles.

Feature A mound is the northernmost and largest of the two mounds. It measures 1.2 m. N/S by 1.45 m. E/W with a maximum height of 0.35 m. This feature was tested for the presence of human remains (see Testing Results section following). Feature B mound is smaller, measuring 1.2 m. N/S by 1.0 m. E/W with a maximum height of 0.35 m.

This site is located approximately 6.0 m. *makai* of 19945 petroglyphs, and may have functioned as a marker for the petroglyph site, or perhaps a marker for a nearby trail, although a trail has not been identified in close proximity to this site during this or previous archaeological surveys.

Testing Results

A single 1.0 m^2 test unit, designated Test Unit 1, was hand excavated within Feature A mound to determine the presence or absence of human remains. The test unit was placed over the east-central portion of the mound (see Figure 20). Excavation consisted of dismantling a 1.0 m^2 portion of the mound structure to bedrock, which was encountered between 0.25 and 0.35 m. below the mound surface (Figures 20 & 22).

The mound was found to be loosely constructed of small boulders, cobbles and pebbles resting directly on the undulating a'a lava surface. No soil strata were encountered. No human remains were encountered. A possible coral abrader and a small amount of midden was found at the base of the mound within the a'a bedrock. The midden consisted of 1.9 gms. of kukui endocarps, 1.7 gms. snakehead cowry (Cypraea caputserpentis), and 1.7 gms. sea urchin (Echinoderm).

Based on the testing results, the location of the site, and the lack of formalized architecture, this site is interpreted as a marker, most likely built to mark the location of the nearby petroglyphs, or a presently indistinguishable trail. The midden may reflect a single or temporary use of the site.

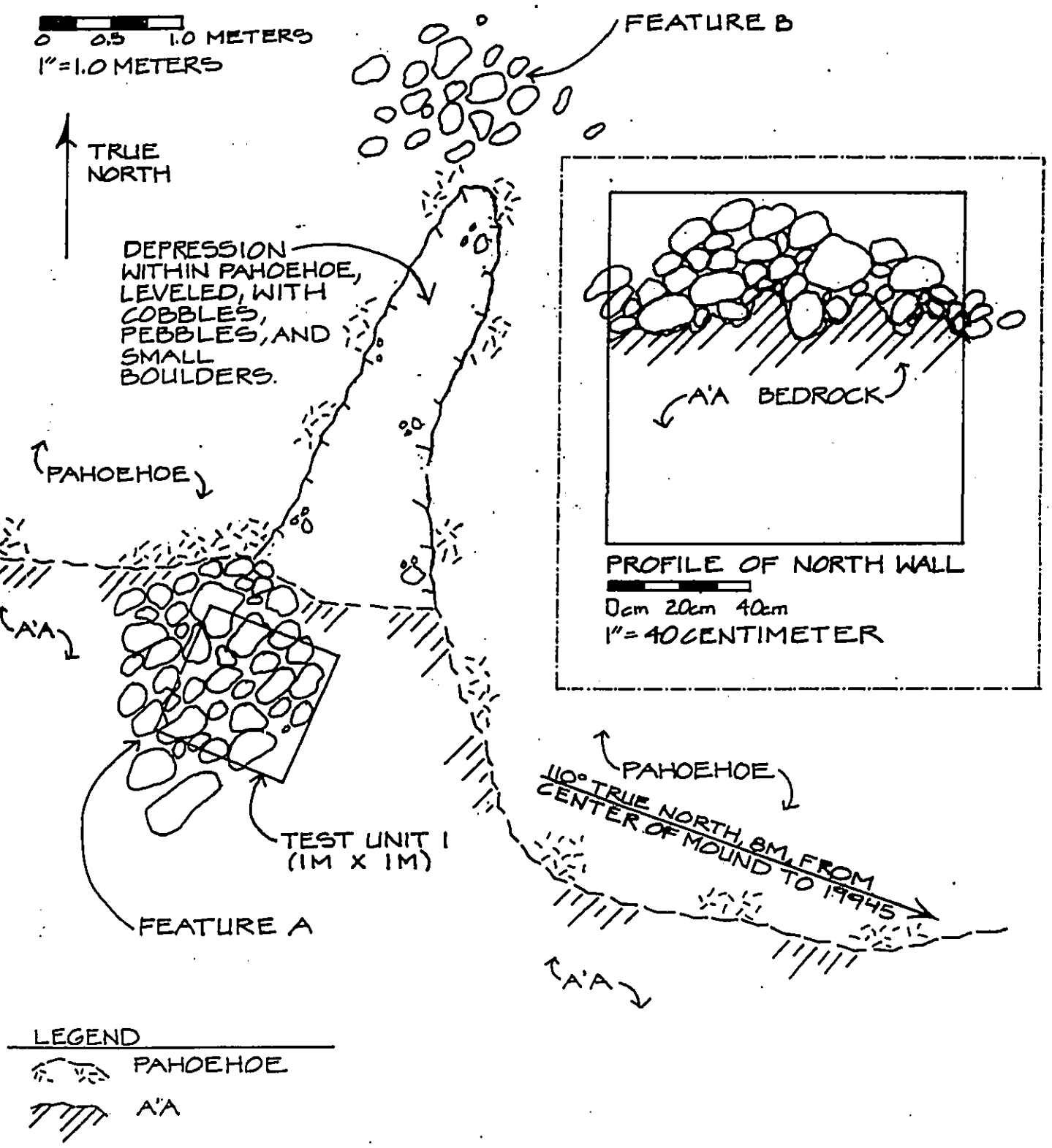


Figure 20 Site 19944 Plan View, also showing location and Profile (North Wall) of Test Unit 1

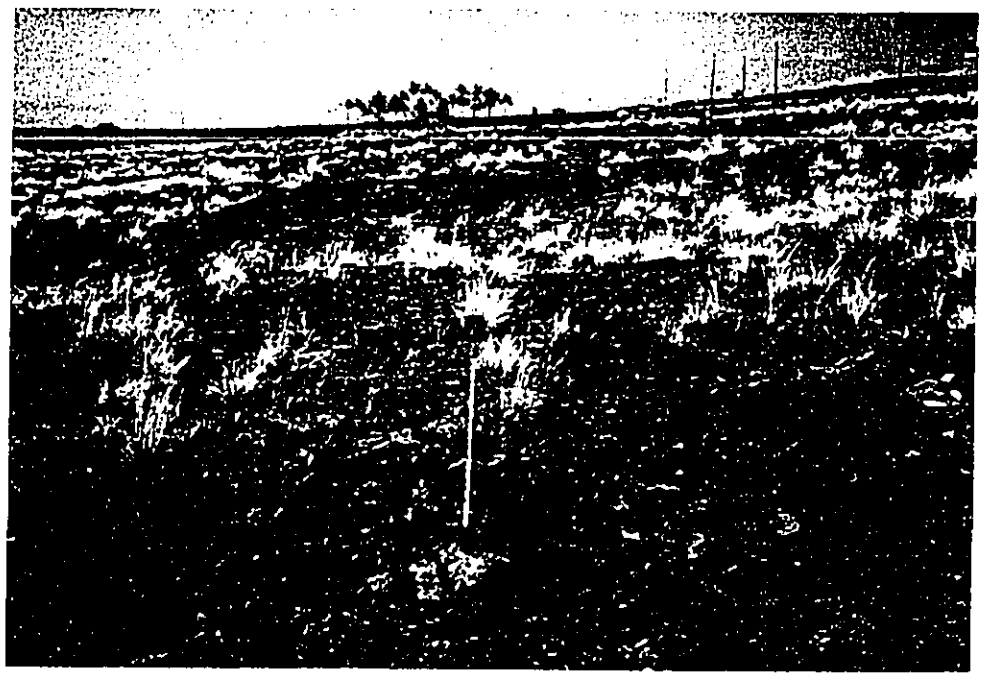


Figure 21 Site 19944 Photograph, Feature A Foreground, View North

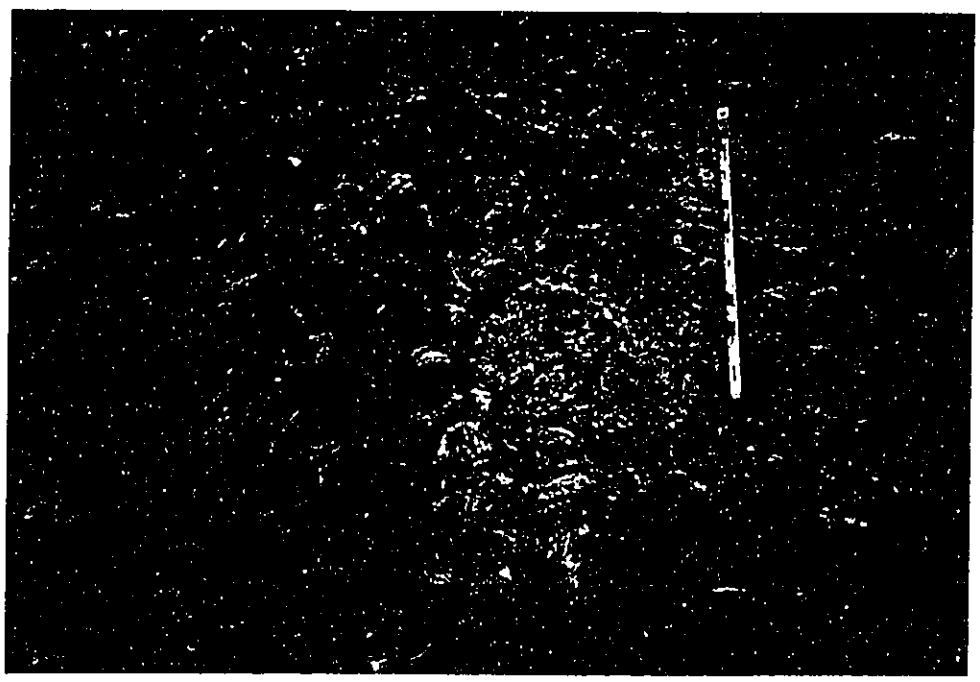


Figure 22 Site 19944 Feature A Test Unit 1 Post-excavation Photograph

State Site #:	19945	**CSH Site #: 4**
Site Type:	Petroglyphs	
Function:	Special	
Features (#):	2	

Description: Site 19945 consists of two petroglyph figures, designated Feature A and B, located on a low, horizontal pahoehoe outcrop. The petroglyphs appear to be mostly pecked although some incising may have been employed. The figures are both human representations of the basic lineal type (Figure 23).

Feature A petroglyph figure measures 0.55 m. wide by 0.50 m. high. Feature B figure measures 0.84 m. wide by 0.42 m. high. The pecked image lines, or grooves average three centimeters in width. Both figures each have two circles, one completely pecked like a *piko*, and the other with only the circle outline pecked. On Figure A, the circles are located above the shoulder line of the image, and on Figure B the circles are located below the shoulder line, possibly distinguishing a male and female image. Feature A image has no "feet", a single downward pointing line for a right hand and three outward pointing "finger" lines on the left hand. The image has a "neck" line and no head. Feature B is slightly lower than Feature A (the shoulder line of Feature B *is roughly halfway down* Feature A image), and larger, especially in width. Feature B has both feet and hands, each consisting of three lines, pointing outward on the hands and downward on the feet. Feature B has no neck line or head.

The petroglyphs are in good condition although there is a natural crack in the pahoehoe which partially extends through both figures. This site may be associated with Site 19944 mounds, located 8.0 m. *makai*, which have been interpreted as markers.

State Site #:	19946	**CSH Site #: 5**
Site Type:	Inland-heading Trail	
Function:	Transportation	
Features (#):	1	

Description: Site 19946 consists of a trail segment extending in a *mauka-makai* direction over an a'a lava flow. The identifiable portion of the trail is 190 feet (58 m.) long and begins at the edge of the bulldozed portion of the present highway right-of-way and ends at the edge of the a'a lava flow. The portion of the trail segment within the new right-of-way is approximately 65 feet (20 m.) long. The trail ranges between 1.0 and 1.5 m. wide and consists of a partially cleared trodden surface of a'a bedrock, cobbles and pebbles. No stepping stones or curbing was observed.

A small cairn was observed on the edge of the a'a flow on the northern side of the trail and is considered to be a trail marker. The cairn consisted of loosely piled small a'a boulders 0.5 m. high and 0.5 m. in diameter.

While the trail segment is considered to be a portion of a trail extending from the coast inland, the trail could not be discerned on the pahoehoe lava terrain that continued *makai*, nor on the *mauka* side of the road. The trail segment is considered to be in fair to poor condition.

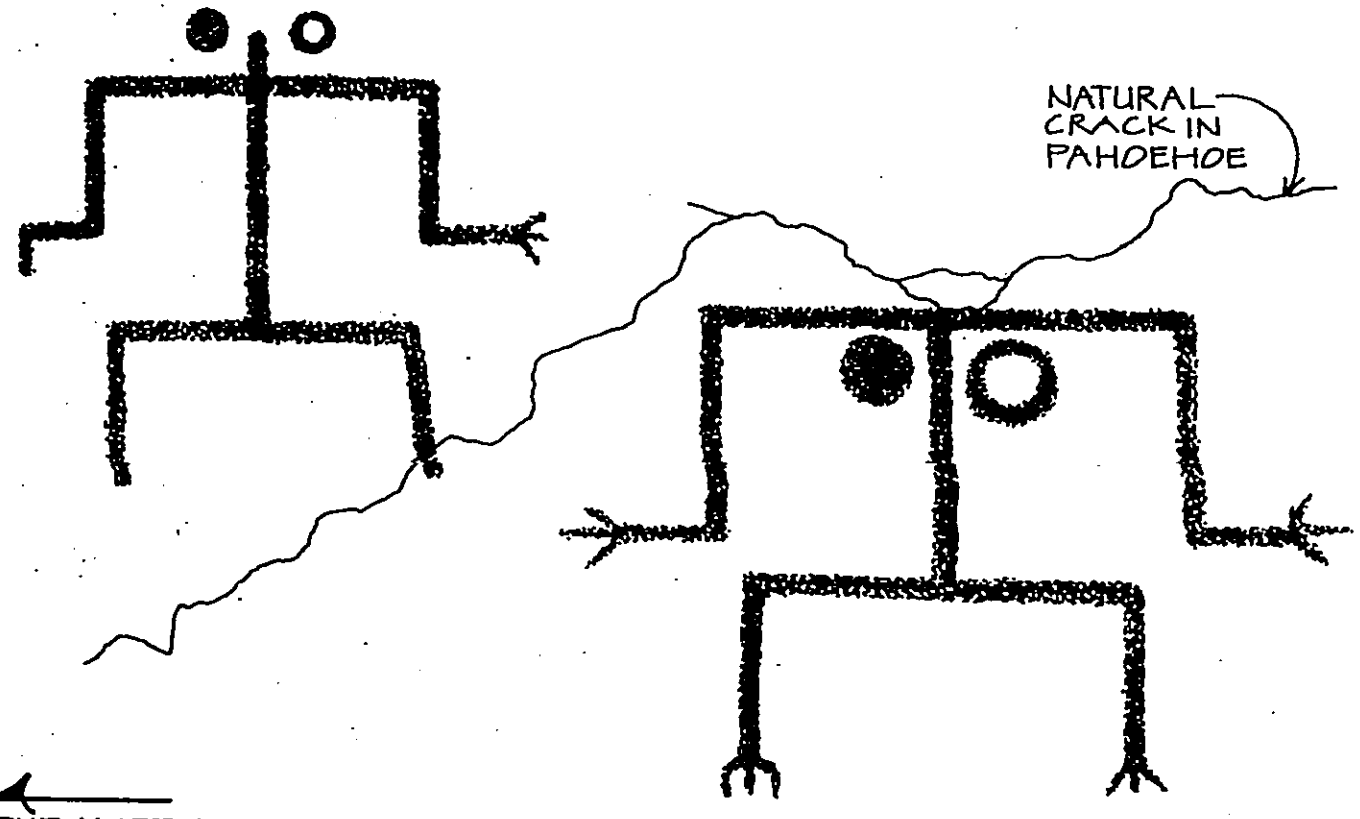


Figure 23 Site 19945 Petroglyphs Plan View

State Site #: 19947 **CSH Site #:** 7
Site Type: Cairns
Function: Boundary Markers
Features (#): 3

Description: Site 19947 consists of three small cairns, designated Features A-C. The cairns are located within a low point of gently undulating pahoehoe terrain. They are constructed of loosely stacked pahoehoe cobbles and small boulders on top of slightly raised pahoehoe outcrops. Two of the cairns are aligned in a roughly north-south axis and the third is to the west of these, forming a triangle.

Feature A, the northernmost cairn, measures 0.8 m. in diameter and is 0.6 m. high. Feature B, the southernmost cairn measures 0.6 m. N/S by 0.9 m. E/W and is 0.6 m. high. Feature C, the westernmost cairn, measures 0.7 m. in diameter and 0.7 m. high.

The cairns are located at the approximate *ahupua'a* boundary between Kohanaiki and Kaloko, and are considered to be *ahupua'a* boundary markers. All three are in fair to good condition.

State Site #: 19948 **CSH Site #:** 8
Site Type: Pahoehoe Excavation
Function: Quarry
Features (#): 1

Description: Site 19948 is a pahoehoe excavation which consists of an area from which pahoehoe slabs have been broken up, partially piled or stacked and, perhaps, removed (Figures 24 & 25). The area consists of two adjoining, roughly circular areas, the larger of which is 5.5 m. by 5.2 m. and the smaller is 2.4 m. in diameter. The excavations have created depressions approximately 0.3 m. deep.

The larger area is partially cleared and contains medium boulder-sized pahoehoe slabs strewn about within the excavation and around the edge of the excavation. The smaller area has been cleared and the floor of the excavation consists of an underlying pahoehoe outcrop.

This site may be modern, as similar excavations were observed being made nearby by modern wall builders quarrying pahoehoe slabs for rock wall stones. Another similar excavation site was observed during this survey at O'oma 2 *ahupua'a*, and is believed to be modern based on the presence of a pair of gloves beneath a pile of boulders adjacent to the excavations.

State Site #: 19949 **CSH Site #:** 9
Site Type: Enclosure
Function: Unknown
Features (#): 1

Description: Site 19949 is a small circular enclosure situated on top of smooth pahoehoe terrain (Figure 25). The enclosure is constructed of minimally stacked or aligned small pahoehoe slabs and small a'a boulders and cobbles. The interior of the enclosure measures 2.0 m. and the enclosure walls measure between 0.5 and 0.6 m. high.

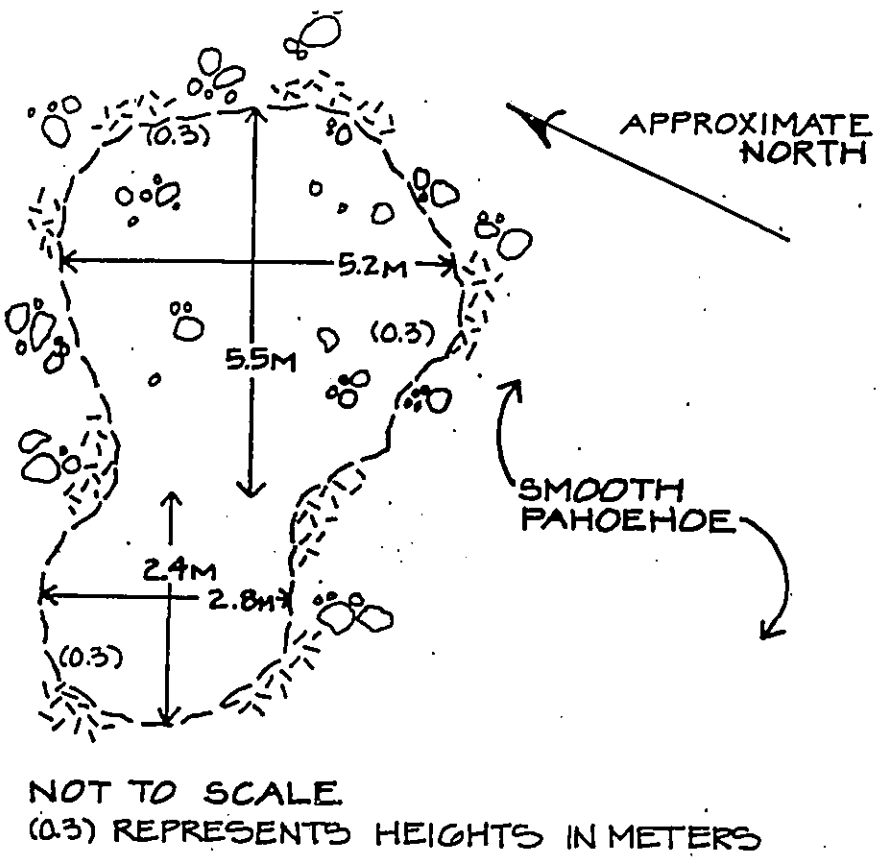


Figure 24 Site 19948 Pahoehoe Excavation Plan View

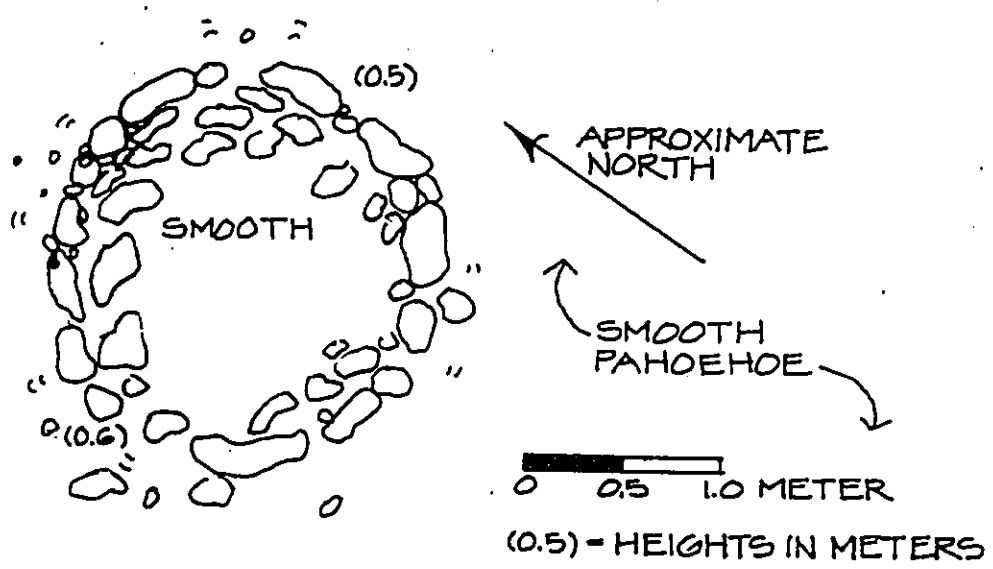


Figure 25 Site 19949 Enclosure Plan View

The enclosure appears to have been hastily constructed and the walls are loosely stacked and fragile. It may have functioned as an historic or modern hunting blind.

State Site #: 19950 **CSH Site #:** 10
Site Type: Modified Outcrop Complex
Function: Agriculture
Features (#): 4

Description: Site 19950 is a complex consisting of four modified outcrops designated Features A-D (Figure 26). The modifications consist of piled or mounded small boulders and cobbles along the edges of slightly raised pahoehoe outcrop.

Feature A is 2.3 m. N/S by 0.8 m. E/W. and is 0.5 m. high. Feature B is 2.2 m. N/S by 1.0 m. E/W and is 0.4 m. high. Feature C is a discontinuous narrow pile with a total length of 6.5 and a maximum width of 1.0 m. Feature C is 0.6 m. high. Feature D is roughly 1.5 m. N/S by 2.0 m. E/W and is 0.4 m. high. Other minor piling was observed to the north and east.

This site is interpreted as an agricultural site and the individual features, the modified outcrops, appear to be piled or mounded rocks cleared from the adjacent small soil areas. The presence of two pieces of coral and one cowry shell reflect probable traditional use of the site. It is likely that this site is associated with the habitation site (Site 02238) located approximately 40 feet (12 m.) to the south.

State Site #: 19951 **CSH Site #:** 12
Site Type: Wall
Function: Ranching/Boundary delineation
Features (#): 1

Description: Site 19951 consists of a serpentine wall that extends in a general *mauka-makai* direction (Figure 27). The wall consists of free-standing sections which adjoin natural and modified outcrops. The free-standing sections are constructed of small and medium boulders, faced on both sides and "core-filled" with cobbles and pebbles. The free-standing sections average 1.0 m. high and 0.8 m. wide. Those sections of the wall formed by natural and modified outcrops reach a maximum height of 1.3 m.

The wall begins 100 feet (30 m.) *makai* of the highway pavement edge (the extent of bulldozing for the construction of the present highway) and continues *makai* at least 200 feet (61 m.) beyond the project area boundary. The wall is not present on the *mauka* side of the highway, as that area has been landscaped and developed as the Kaloko Industrial Park. The wall is in good condition.

State Site #: 19952 **CSH Site #:** 13
Site Type: Inland-heading Trail
Function: Transportation
Features (#): 1

Description: Site 19952 consists of a *mauka-makai* oriented trail segment (Figure 28). The trail is discernable as a trodden surface roughly 1.0 m. wide extending over the finger of an a'a lava flow. The trail becomes increasingly faint as it continues *makai* over

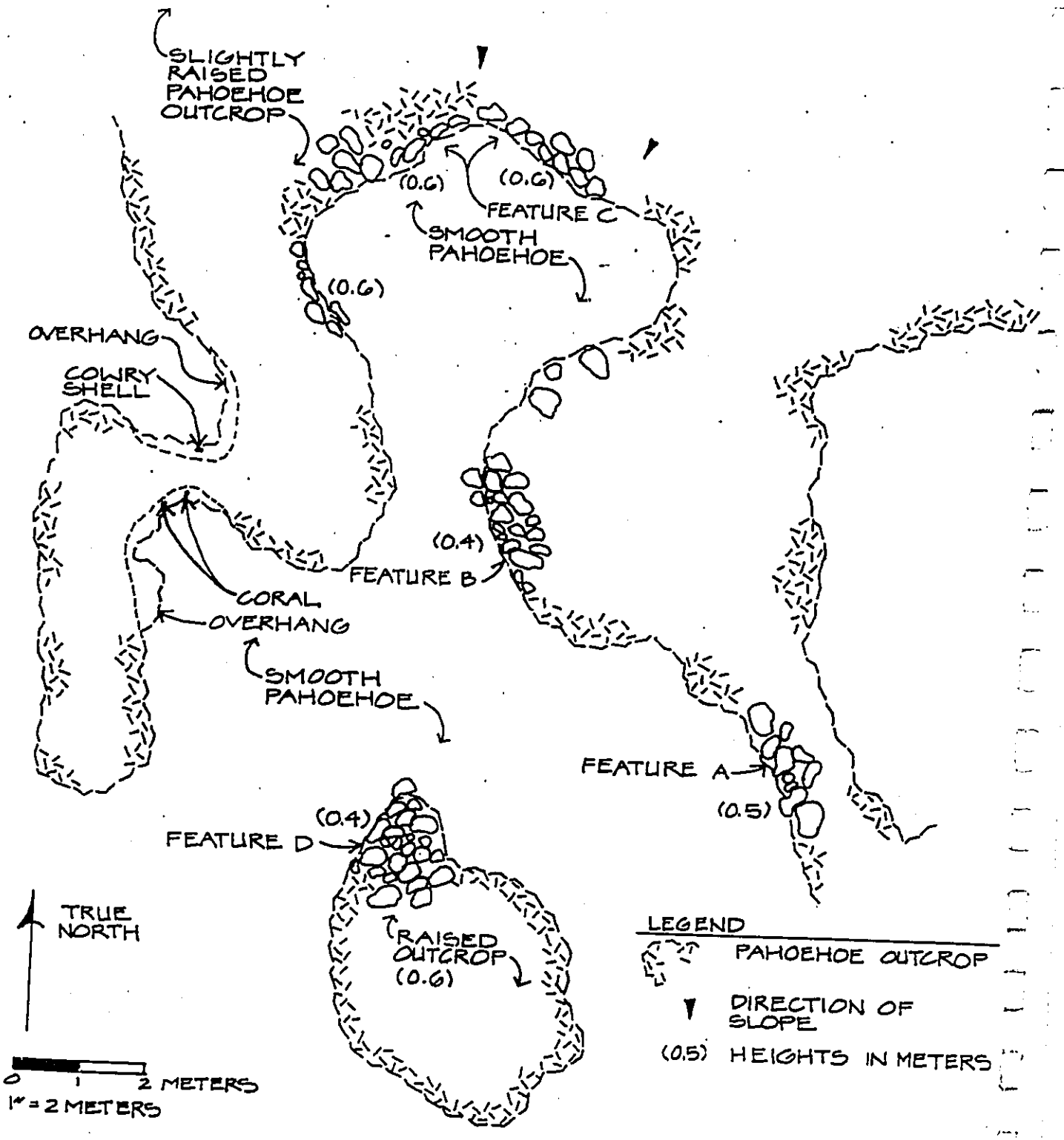


Figure 26 Site 19950 Modified Outcrop Plan View

Figure 27 Site 19951 Wall Photograph, View West

Figure 28 Site 19952 Trail Photograph, View West

pahoehoe lava terrain. Some remnant curbstones were observed along the trail where it crosses the a'a.

The trail begins approximately 125 feet (38 m.) *makai* of the highway pavement edge (the extent of bulldozing for the construction of the present highway), and can be followed *makai* for roughly 200 feet (61 m.), beyond which becomes increasingly difficult to discern. The condition of the trail is poor and it appears to have been at least partially disturbed by modern construction activities.

State Site #: 19953 **CSH Site #:** 14
Site Type: Inland-heading Trail
Function: Transportation
Features (#): 1

Description: Site 19953 consists of a slightly meandering, but generally *mauka-makai* oriented trail (Figures 29 & 30). The trail consists of a partially cleared and trodden surface over A'a lava terrain. The trail measures 0.5 to 0.6 m. wide. It begins 53 feet (16 m.) from the highway pavement edge and continues *makai* for at least 200 feet (61 m.) beyond the project area boundary. A roughly 20 foot (6 m.) section of the trail has been destroyed where it intersects with the Mamalahoa Trail at approximately 150 feet (46 m.) from the highway pavement edge.

One waterworn basalt cobble was observed on the trail 20 feet (6 m.) *makai* of a surveyor's pin (a metal nail set in concrete with "10" etched into the concrete, presumed to be a boundary marker for the National Park), and a coral abrader fragment was observed on a large boulder just to the south of the trail.

The trail is in fair to good condition and has previously been identified and flagged, probably by National Park archaeologists who, we have been informed, have done some surveying in the area and have identified several inland-heading trails. The site has not been previously recorded however, and a state site number had not been previously assigned (personal communication with National Park archaeologist Catherine Glidden 6/27/95).

State Site #: 19954 **CSH Site #:** 15
Site Type: Inland-heading Trail
Function: Transportation
Features (#): 1

Description: Site 19954 consists of a *mauka-makai* oriented trail (Figures 31 & 32). The trail begins 93 feet (28 m.) from the present highway pavement edge (extent of bulldozed portion of old right-of-way) and meanders through the A'a along the edge of a pahoehoe outcrop, then up and over an outcrop and continues *makai* beyond the project area boundary into the National Park. Some portions of the trail contain pahoehoe slabs placed as steppingstones, and it appears that the slabs were taken from the adjacent pahoehoe outcrop. The trail measures 0.4 to 0.5 m. wide.The trail is in fair to good condition and has previously been identified and flagged, probably by National Park archaeologists who, we have been informed, have done some surveying in the area and have identified several inland-heading trails. The site has not been previously recorded however, and a state site number had not been previously assigned (personal communication with National Park archaeologist Catherine Glidden 6/27/95).

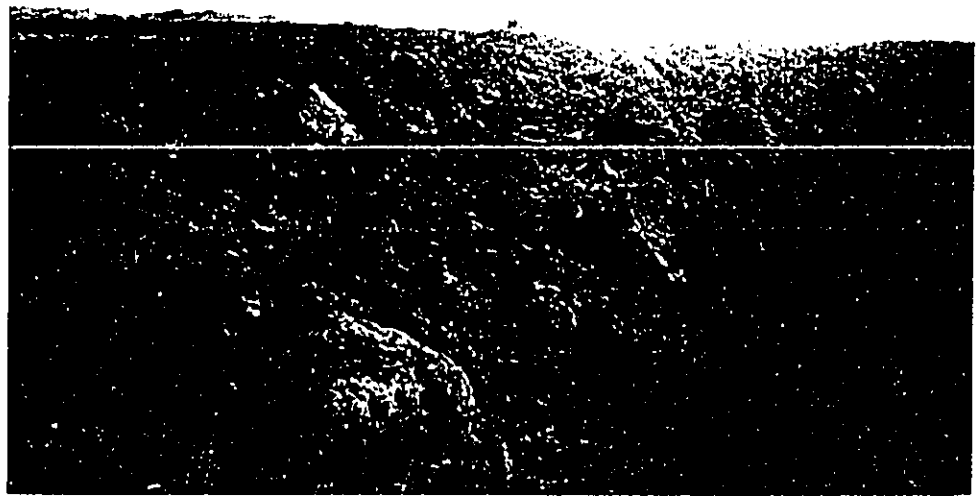


Figure 29 Site 19953 Trail Photograph, View West

Figure 30 Site 19953 Trail Photograph, View East (Note intersection with Mamalahoa Trail)

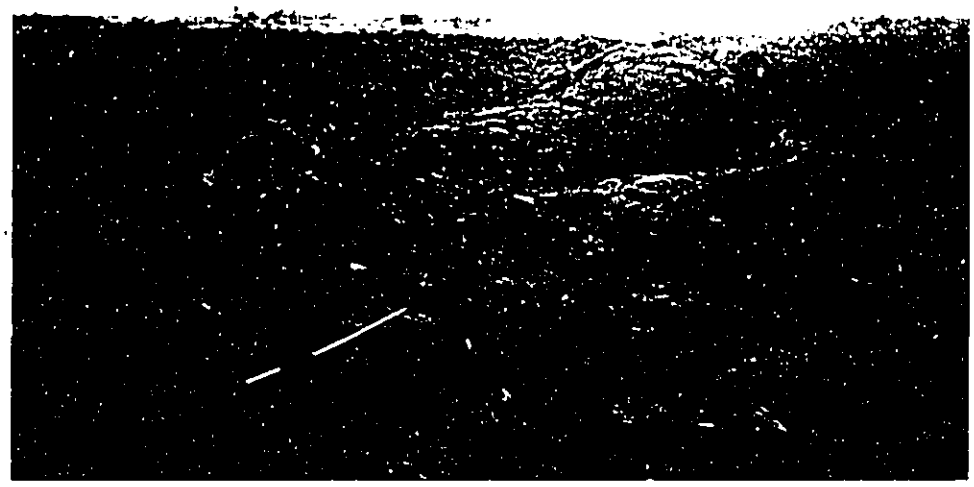


Figure 31 Site 19954 Trail Photograph, View West

Figure 32 Site 19954 Trail Photograph, View East

APPENDIX D

SUMMARY OF PUBLIC INFORMATION MEETING

R. M. TOWILL CORPORATION

420 Waiakamilo Rd. #411 Honolulu, HI 96817-4941 (808) 842-1133 Fax (808) 842-1937

MINUTES

QUEEN KAAHUMANU HIGHWAY
Kailua to Kawaihae

Project No. 19ABC-01-90

DATE/TIME: June 22, 1994, 7:00 P.M.

PLACE HELD: Kealakehe Elementary School Cafetorium

PRESENT:
Mr. Ronald Tsuzuki, D.O.T. Highway Planning Branch
Mr. Douglas Orimoto, D.O.T. Highway Planning Branch
Mr. Chester Koga, R.M. Towill Corp. (RMTC)
Mr. John Sato, R.M. Towill Corp.
Mr. Hugh Ono, D.O.T. Highways Hawaii District
Mr. Leighton Wakata,D.O.T. Highways Hawaii District
Mr. Sterling Chow, D.O.T. Highway Hawaii District
Mr. Leo Fleming, Resident
Ms. Barbara Uechi, Kona-Kohala Chamber of Commerce
Ms. Marni Herkes, Kona-Kohala Chamber of Commerce
Mr. Billy Palea, Helco
Mr. Pete L'Orange, Hawaii Leeward Planning Conference (HLPC)
Mr. Carl Simons, West Hawaii Concrete
Mr. Jim Greenwell, Lanihau Partners
Mr. Tom Pack, DPW County of Hawaii
Mr. Francis Kuailani Sr., National Park Service
Ms. Linda Kuailani, Resident
Mr. Albert Schoolsuka, Kona Transportation Company
Mr. Bart Taylor, Chaney Brooks
Ms. Ruth M. Taylor, Chaney Brooks
Mr. Burke Matsuyama, K-8 Partners
Mr. Scott Sharpe, PATH (Peoples Advocacy for Trails Hawaii)
Mr. Grant Miller, PATH
Mr. Jerry Egami, Isemoto Contracting Co. Ltd.
Mr. Keola Childs, County Council
(See Attendance Sheet)

PURPOSE: Public Informational Meeting

DISTRIBUTION:
Mr. Douglas Orimoto, D.O.T. Highway Planning Branch
Mr. Richard Wakida, R.M. Towill Corp. (RMTC)

DISCUSSIONS:

1) R. Tsuzuki (DOT) introduced the project team. C. Koga (RMTC) presented the project. (see handout)

2) R. Tsuzuki took the following questions and comments from the audience.

From S. Sharp (PATH)

Question: Will the speed limit continue to vary from 35-55 MPH for the widening?

Response: The posted speed limit will be determined during the design phase of the project.

Question: Due to expected high speed of the highway, will there be a separate bike path?

Response: No, the shoulder will be signed as a bike route.

Question: Will the shoulder pavement quality be the same as the roadway?

Response: Yes

From K. Childs (County Councilman)

Question: Will ISTEA enhancements funds be used for the project?

Response: No, STP funds will be used.

Question: Will the U-turns have acceleration and deceleration lanes?

Response: The U-turns will have deceleration lanes.

Question: Keahole airport is planning a new entrance to the north of the existing entrance. Does the project show an intersection with the new entrance?

Response: No, the project intersects the existing entrance.

Question: Is the existing right-of-way wide enough to include frontage roads?

Response: Right-of-way is needed from Palani Road to the Honokohau Boat Harbor.

Question: Can the council approve projects with the understanding that no additional right-of-way is needed for the Queen Kaahumanu corridor and that frontage roads will be placed within the right-of-way?

Response: DOT is currently developing an ultimate freeway master plan. Frontage roads will be included within the corridor's right-of-way where necessary. Some developments may not need to have frontage roads due to the development layout. Additional right-of-way is needed for interchanges.

Comment: The project should consider nightwork and other types of construction phasing.

From J. Greenwell (Lanihau Partners)
Question: Will DOT allow development of existing access permitted areas?
Response: Yes, however DOT reserves the right to dictate the intersection movements from a right turn in/out to a fully channelized intersection.
Comment: The project should follow and respect the Keahole to Kailua Development Plan. There is a 300 acre area that is zoned for light industrial that should be incorporated into the project.

From F. Kuailani (National Park Service)
Comment: F. Kuailani presented and read a written statement. (see attached written statement)
Question: Will using federal money for the project require DOT to prepare an EIS?
Response: If FHWA finds that the project does not have significant impacts, then an EIS will not be needed, and a finding of no significant impact (FONSI) will be issued.

From M. Herkes (Kona-Kohala Chamber of Commerce)
Question: What is the federal split of funds for the project.
Response: Federal funding will be 80% with the State providing 20% of the funds.
Question: Will asphalt concrete or concrete be used?
Answer: The State Department of Transportation Materials Testing Lab will analyze the materials for cost effectiveness and make recommendations during design.
Comment: Because the Queen Kaahumanu corridor is the only route available, additional maintenance and rehabilitation procedures will be necessary and should be considered when analyzing the materials for cost effectiveness.

From C. Simons (West Hawaii Concrete)
Question: Will the U-turns be able to handle semi-trailer trucks?
Response: Yes
Question: Will traffic signals be installed as part of the project?
Response: Yes, if certain requirements or warrants are met.

From A. Schoolsuka (Kona Transportation Co.)
Question: Because federal money is to be used on the project, will the federal trucking standards be used on the project?
Response: (From H. Ono, DOT Highways Hawaii District) The State has jurisdiction on trucking standards, however the State and Federal trucking standards are the same.
Question: The federal trucking standards allow for triple trailer combinations. Will triple trailer combinations be allowed on the project?
Response: (From H. Ono, DOT Highways Hawaii District) The federal trucking standards do not allow for triple trailer combinations and the State will also not allow triple trailer combinations.

From P. L'Orange (Hawaii Leeward Planning Conference)
Question: Will the medians be constructed in a manner to prevent traffic from crossing the medians to take illegal left turns, instead of U-turns?
Response: The medians will remain lava rock which should discourage illegal left turns.

From B. Matsuyama (K-8 Partners)
Question: With the tight economy and limited tax dollars, will this project compete with others for state tax dollars? The handout lists construction at $42.9 million while a newspaper article estimated the project cost at $44.0 million. What is the cost for the project?
Response: The project will be competing with others for state funding. However, only projects ready to be constructed will be considered. Hopefully, no environmental impact statement will be necessary with the State declaring a negative declaration (neg dec) and finding of no significant impact (FONSI). Project costs will vary dependent on the time of construction and economic conditions.

From T. Pack (DPW, County of Hawaii)
Question : The presentation stated that traffic signals will be installed when certain conditions or warrants are met. Currently, ducts for signals are being installed for the new Makala Boulevard intersection with Queen Kaahumanu Highway as a condition of the zone change. Is signals included in the widening project?
Response: Signals should not be installed unless warrants have been met.

From B. Palea (HELCO)

Question: Will poles need to be relocated along the project from Palani Road to Kaiwi Street?

Response: Yes

Question: Will additional right-of-way be needed for the poles?

Response: No, the project does not include work from edge of right-of-way to edge of right-of-way. However, when the highway is upgraded to freeway status, poles may need to be relocated.

John Sato

John Sato, P.E.
Senior Engineer

A.T.T.E.N.D.A.N.C.E

Group:	Location:	Date: 6/22/98
NAME	ORGANIZATION / ADDRESS	PHONE
LEO FLEMING	SELF	329-2141
STERLING CHOW	DOT-HIGHWAYS	933-4640
BARBARA UECHI	KONA-KOHALA CHAMBER OF COMMERCE	329-7688
Billy Pyles	HELCO	969-0353
Pete L'Orange	HLPC Po Box 635 K-K 96745	3292334
CARL SIMONS	WEST HAWAII CONCRETE	329-3561
JIM GREENWELL	LANIHAU PARTNERS	836-2076
TOM PACK	DPW	329-3193
Francis Kuailani	National Park Service	329-6881
Linda Kuailani	B Kona	329-8656
Albert Shiotsuka	Kona Trans Co	329-4111
BART TAYLOR	Chaney Brooks	329-3121
Ruth M Taylor	" "	" "
Burke Matsuyama	K-8 Partners	325-6132
SCOTT SHARPE	PATH PEOPLES ADVOCACY FOR TRAILS HAWAII	329-8033
Jerry Egami	Isemoto Contracting Co. LTD	3298051
Keola Childs	County Council	322-3646
Marni Herkes	Kona Kohala Chamber of Commerce	ph 329-1758
	75-5737 Kuakini Hwy #201 Kailua Kona 96740	fx 329-8564
Hugh Ono.	DOT-Hwy-Hawaii District.	933-4640
Garrett Miller	P.A.T.H. 75-5744 Alii Dr K.K. 96740	329-2290

United States Department of the Interior

NATIONAL PARK SERVICE
Kaloko-Honokohau National Historical Park
73-4786 Kanalani Street, #14
Kailua-Kona, Hawaii 96740

IN REPLY REFER TO:

D30 (KAHO)

June 22, 1994

State of Hawaii
Department of Transportation
Highway Division
P.O. Box 4277
Hilo, Hawaii 96720

Dear Sir:

The following is my statement as the Superintendent of Kaloko-Honokohau National Historical Park at the Public Information Meeting on the proposed Widening of the Queen Ka'ahumanu Highway, Wednesday, June 22, 1994.

Kaloko-Honokohau National Historical Park was authorized in 1978 by Public Law 95-625. The national park's stated purpose is "to provide a center for the preservation, interpretation, and perpetuation of traditional native Hawaiian activities and culture, and to demonstrate historic land use patterns as well as provide needed resources for the education, enjoyment, and appreciation of such traditional native Hawaiian activities, and cultural by local residents and visitors". Because of its culture significance, the national park area has been designated a national historic landmark. In addition, two endangered vertebrate species are known to nest within the park.

The Congressionally authorized boundaries of the national park encompass approximately 600 acres of Federally owned lands acquired by the National Park Service and approximately 500 acres under the jurisdiction of the State of Hawaii. The State's holdings are composed primarily of the offshore waters of Honokohau Bay plus about 26 acres of land on either side of the Honokohau Harbor. An 18-acre parcel of privately-owned land remains within the authorized boundaries. The National Park Service intends to acquire all privately-owned land within the park.

Kaloko-Honokohau National Historical Park is relatively new and remains undeveloped. In 1990, the National Park Service began the preparation of a General Management Plan to guide the future use and development of the park. The draft plan and the accompanying environmental impact statement have undergone public review and comment. We expect to have a final plan approved within the next

six months. The plan proposes the development of an entrance road to the park off of the Queen Ka'ahumanu Highway.

Upon approval of the General Management Plan, the National Park Service will be able to seek funds from Congress to begin the development of Kaloko-Honokohau. We fully expect that Kaloko-Honokohau, because of its location near the Keahole Airport and the expanding Kailua area, will be a heavily visited park, eventually receiving more than 500,000 visitors per year. Consequently, the development of public access from the Queen Ka'ahumanu Highway is of highest priority.

Our objective have been to tie in the development of our access to the national park with the State's project for the widening of the Queen Ka'ahumanu Highway. Accordingly, we have submitted to the Highways Division information regarding the location of our proposed entrance road off of the Queen Ka'ahumanu Highway. We have been informed by Highways that this location is acceptable as "access permitted" and that formal approval from the Right-of-Way Branch will be forthcoming.

The information package we submitted also requested the inclusion of turning and stacking lanes on the Queen Ka'ahumanu Highway at our proposed intersection location. For reasons of visitor safety, we believe a traffic control signal light is needed at our proposed intersection location. If this is not possible, we believe the safest alternative is to have visitors wishing to enter the park from the Kailua direction, make a U-turn at the intersection being proposed at the Kaloko Industrial Park (Hina Lani Drive). This alternative would require modifying that intersection to install a U-turn lane. Those visitors leaving the national park and heading in the direction of the Keahole Airport would be required to turn proposed signal light at the harbor entrance. Because of the high visitation expected at Kaloko-Honokohau in future years, we would request that the median in the vicinity of our proposed intersection location be designed so as to include room enough for the future construction of turning and stacking lanes there.

We have just recently learned that the widening of the Queen Ka'ahumanu Highway, originally scheduled for construction to begin in 1993, has been set back several years. Construction of the two year project is apparently now scheduled to begin during the 1998-1999 fiscal year.

Waiting this long to develop our access to Kaloko-Honokohau presents serious problem. Without access to our proposed parking lot in the disturbed area via our proposed entrance road, visitors will be forced to park either down at Honokohau Harbor or along the existing highway shoulders. The former will likely not be allowed by the Harbors Division and the latter will be a major hazard to visitor safety.

The existing access to the park via the service road to Kaloko pond is unsuitable as the principal means of visitor access to the park. There are significant Hawaiian cultural sites and features located all along this road and the disturbed area next to Kaloko pond is proposed for development as a cultural education complex for certain visitors, mainly Hawaiian, to participate in-depth cultural pursuits. This road will be closed off to visitors when our proposed entrance road is completed. In addition, we do not have "access permitted" at this location.

We intend to continue working cooperatively with the Highways Division in developing safe and timely access for visitors to Kaloko-Honokohau National Historical Park.

If you have further questions, please feel free to call me at 329-6881.

Sincerely,

Francis I. Kuailani Sr.
Superintendent

QUEEN KAAHUMANU HIGHWAY UPGRADE PROJECT

State of Hawaii ✦ Highways Division ✦ Department of Transportation

PROJECT PROPOSAL

The Department of Transportation is proposing to widen Queen Kaahumanu Highway (SR 19) from 2 lanes to 4 lanes to meet current and future demand upon the highway infrastructure in the North Kona region of the island of Hawaii. The Queen Kaahumanu Highway is the main State highway serving this area, and is surrounded by commercial, agricultural, resort, and residential land uses. The rapid growth of the resort areas, together with increased commercial and residential development and other activities in West Hawaii, has resulted in a significant increase of vehicular traffic using the existing highway. Residential, commercial, and resort developments planned in the area will further add to the existing highway traffic volume. Alternative means of meeting this increase in traffic volume between Kailua to Keahole to the year 2010 was studied.

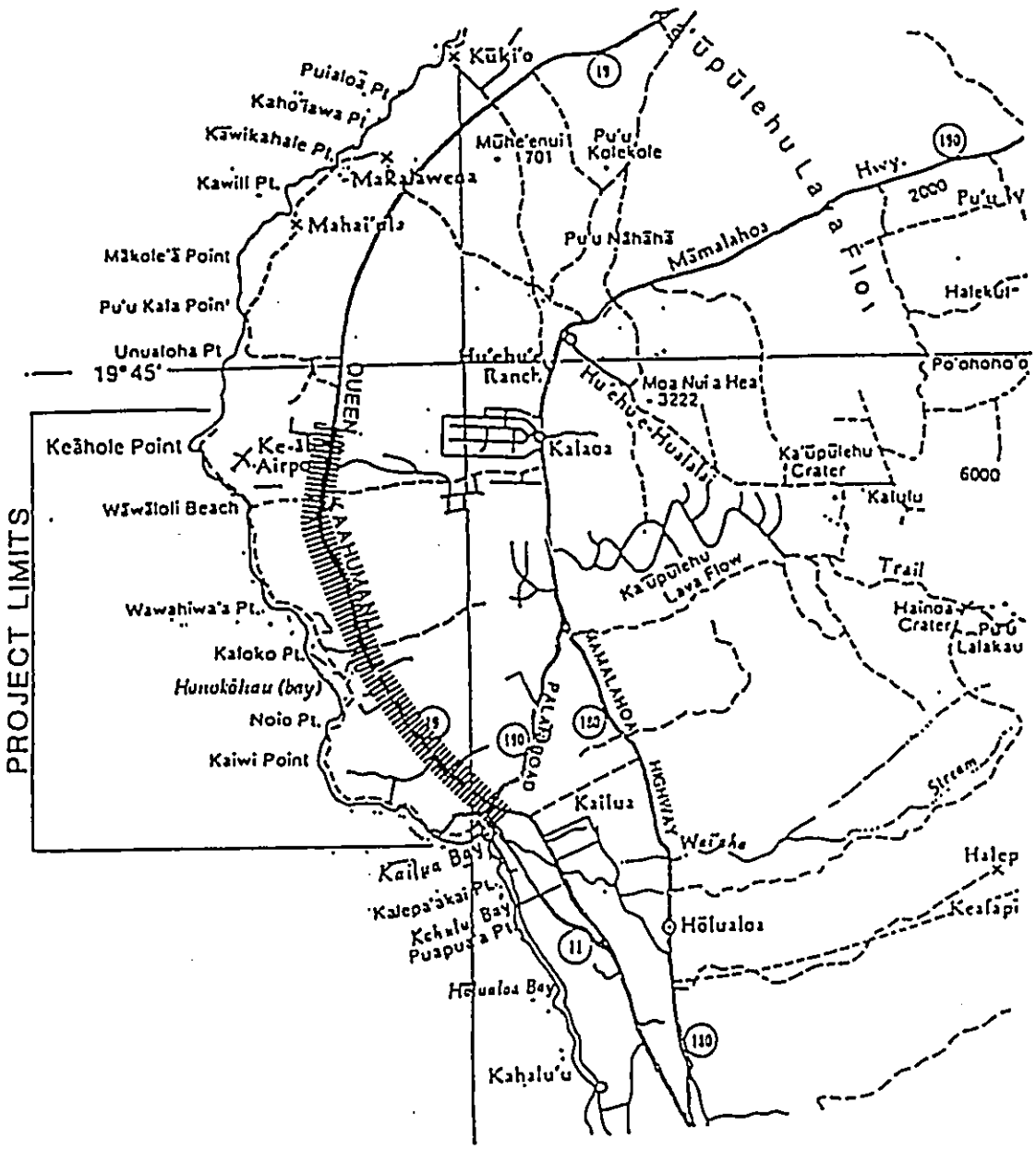
PROJECT LOCATION

Queen Kaahumanu Highway is located within the North Kona and South Kohala districts of the County of Hawaii and extends from Kailua to Kawaihae. The portion of the highway that will be upgraded extends from Kailua (Henry Street) to the Keahole Airport, a distance of approximately seven (7) miles (See Figure 1). The major existing intersections along this highway occur at Palani Road, Kaiwi Street, Honokohau Harbor, Hina Lani Drive (Kaloko industrial area), Kaiminani Drive, and Keahole Airport access road.

HISTORICAL PERSPECTIVE

Queen Kaahumanu Highway opened in 1970 to connect the rapidly growing Kailua area with Kawaihae Harbor. Previously, the only route between Kailua, Kohala, and Hamakua was the Mamalahoa Highway/Hawaii Belt Road (SR 190) which is accessed from Kailua via Palani Road and runs northward to Waimea. The Mamalahoa Highway/Hawaii Belt Road is still in use, though its distance from coastal development and numerous curves keep it from being a viable alternative to accessing the coastal region along the Queen Kaahumanu Highway.

Development in the area prompted the closure of the Kona Airport and the construction of the Keahole Airport in 1969. Keahole Airport, located north of Kailua along the Queen Kaahumanu Highway, has surpassed Hilo's General Lyman Field in air traffic. Keahole Airport and Kawaihae Harbor opened the road to development along the coastal region between Kailua and Kawaihae. As a result, industrial parks were created between Kailua town and Keahole Airport and residential development blossomed in the upland northeast of Kailua.



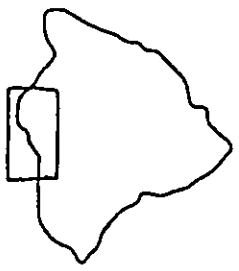


Figure 1
EXISTING HIGHWAY ALIGNMENT
Queen Kaahumanu Highway Widening
Department of Transportation - Highways Division

0 2 4 6 KILOMETER
0 2 4 MILES

R. M. TOWILL CORPORATION

LAND USE PLANS

Projected traffic volumes were based on the State's M-K population projections, State Land Use Districts, the Kailua to Keahole Development Plan, and the County of Hawaii General Plan. In addition to these land use plans, developers and landowners were interviewed to ascertain the timing and scale of their proposed projects. The plans cited above were used to establish facilities needs to the year 2010. The Kailua to Keahole plan was used to define the proposed roadway network in the study area. In addition, the findings cited in the 1991 Island of Hawaii Long-Range Highway Plan (LRHP) were examined for consistency. Based on data collected, it was determined that the Queen Kaahumanu Highway between Keahole Airport and Palani Road would require upgrading to accommodate the projected traffic.

PROJECT PLANS

The proposed action will entail widening of Queen Kaahumanu Highway from its existing two lanes to a four lane divided highway from Henry Street to Keahole Airport.

The existing highway right-of-way width within the project limits ranges from 80 feet (near Kailua) to 300 feet. The highway segment from Henry Street to the entry to the Honokohau Boat Harbor has a right-of-way width that varies from 80 to 150 feet. From the Harbor to Keahole Airport access road, the right-of-way width is 300 feet.

The typical road section for the upgraded Queen Kaahumanu Highway (between Henry Street and Honokohau Harbor) is shown in Figure 2. The highway in this section is proposed to be improved from its current two lanes to a four lane divided highway with dedicated left and right turn lanes. The right-of-way between Henry Street and the entrance to the Honokohau Harbor will be expanded from its current width of 80 feet to 300 feet. Lands will be acquired on the mauka (east) side of the existing highway right-of-way. The highway right-of-way between the boat harbor and the Keahole Airport is adequate for the proposed improvements without acquisition of additional right-of-way.

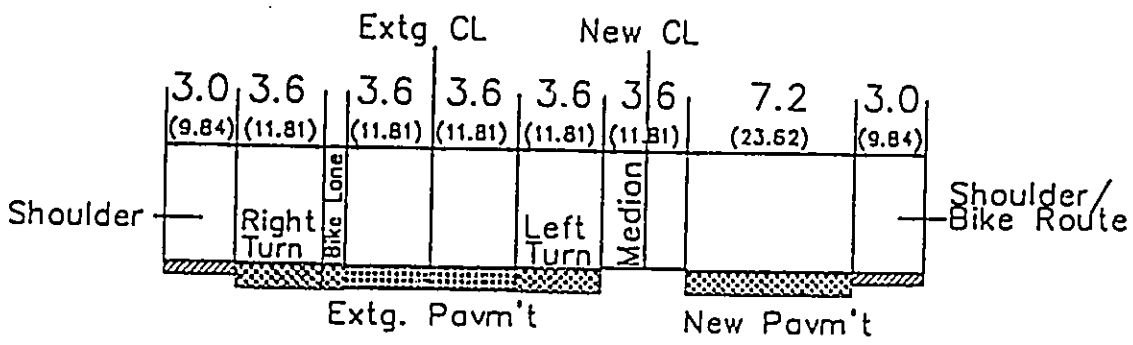


FIG. 2. TYPICAL 4 LANE ROAD SECTION
(Between Henry Street and Honokohau Harbor)

NOTE: All dimensions are in meters (feet)

The road segment between the Honokohau Harbor and the Keahole Airport will also be upgraded from it current two lanes to a four lane divided highway. The road section is shown in Figure 3. The expanded median is being proposed to accommodate future highway expansion without the need to disturb property along the right-of-way.

The estimated cost of construction is $42.9 million.

PROJECT IMPLEMENTATION

The tentative schedule for this project is as follows:

a. Design - July 1995 - September 1996
b. Right-of-Way Acquisition - January 1996 - September 1996
c. Construction - December 1996 - December 1998

An environmental assessment (EA) is being prepared for this project and will be made available for public review. The EA will describe the project, describe potential impacts on the environment such as botanical resources, archaeological sites, noise impacts, and propose mitigation measures.

PROJECT CONTACT

For additional information, comments, questions please contact the following:

Kenneth Au, Advance Planning Engineer
Highways Division
Department of Transportation
Telephone: 587-1843 (Oahu)
Neighbor Islands: 1-800-468-4644-587-1843

Written comments should be directed to:

Mr. Tetsuo Harano, Chief
Highways Division
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Consultant:
Mr. Richard Wakida, P.E.
R.M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817

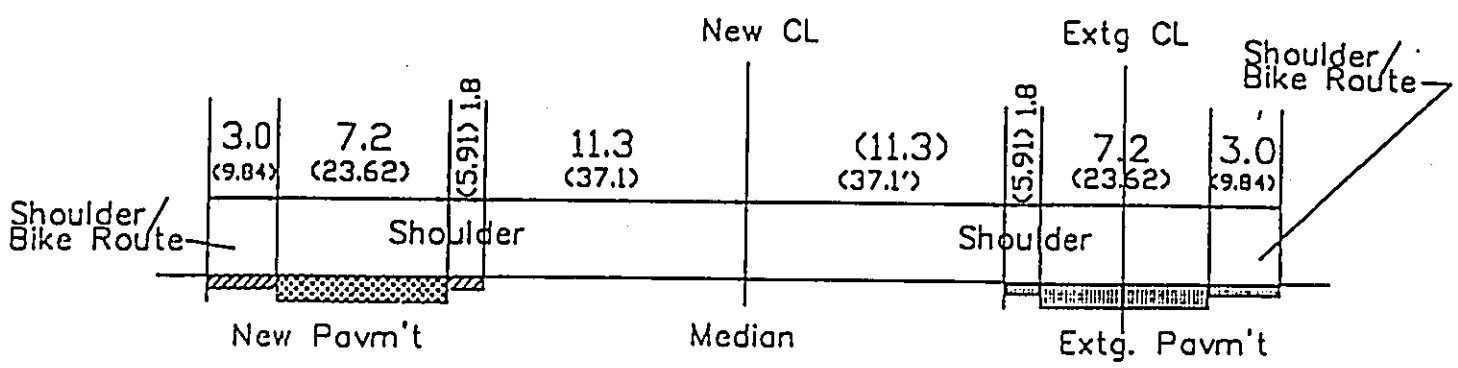


FIG. 3. TYPICAL 4 LANE ROAD SECTION
(Honokohau Harbor to Keahole Airport)

NOTE: All dimensions are in meters (feet)

MAILING LIST

QUEEN KAAHUMANU HIGHWAY WIDENING
Public Information Meeting

Mr. Nathaniel Conner
State Conservationist
U.S. Soil Conservation Service
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Mr. Francis I. Kualani, Sr.
Superintendent
Kaloko-Honokohau National
Historical park
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73-4786 Kanalani Street
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Ms. Margo Stahl
U.S. Fish and Wildlife Service
Pacific Islands Office
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The Honorable Herman M. Aizawa
Superintendent
Department of Education
1390 Miller Street
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Mr. Joseph K. Conant
Executive Director
Department of Housing Finance
and Development Corporation
677 Queen Street, Suite 300
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Mr. Harry Bryan, Director
Pacific Area, National Park Service
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677 Ala Moana Boulevard, Suite 415
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The Honorable Keith Ahue, Chairman
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220 South King Street, 4th Floor
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The Honorable Hoaliku L. Drake
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Hawaiian Homes Commission
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Hawaii District Superintendent
Department of Education
75 Aupuni Street, Room 203
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Environmental Coordinator
University of Hawaii
Environmental Center
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State Historic Preservation Division
33 South King Street, 6th Floor
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Director
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District Engineer
County of Hawaii
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Major General Edward V. Richardson
Adjutant General and
Director of Civil Defense
Department of Defense
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Planning Department
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County Council
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Mr. Jim Rath
County Council
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Mr. Spencer Kalani Schutte
Council Chair
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Hilo, Hawaii 96720

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75-311 Nani Kailua Drive
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Hawaii Island Burial Council
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Mr. Ian Birnie, District Manager
Honokohau Harbor Advisory Group
Harbors, Port of Hilo
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Kealakehe School Community Council
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Kona Traffic Safety
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Orchid Marine
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Mr. Peter Greenwell
Honokohau Enterprises
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Kona-Kohala Chamber of Commerce
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Isemoto Contracting
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Native Hawaiian Legal Corporation
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Hawaii Audubon Society
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Executive Director
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Center-Liliuokalani Trust
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Na Ala Hele Big Island Council
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Zuzak & Associates
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Conservation Council of Hawaii
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Honolulu, Hawaii 96802

Mr. Albert Shoolsuka
Kona Trans
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Kailua-Kona, Hawaii 96740

Mr. Curtis Tyler
West Hawaii Committee
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Kailua-Kona, Hawaii 96745

Mr. Hans Antal, President
M&M Ventures, Inc.
P.O. Box 1235
Captain Cook, Hawaii 96704

LEVELS OF SERVICE*

A qualitative measure used by traffic engineers to describe traffic operational conditions is the *level-of-service (LOS)*. Six levels have been defined, from LOS A (best operating conditions) to LOS F (worst). The Highway Capacity Manual describes analysis procedures for different types of facilities. For short segments of arterial roadways, capacities are determined at critical signalized intersections and levels of service are estimates from the ration of volume to capacity.

LOS A	represents free flow. Travel at desired speeds is unimpeded and usually limited by speed limits.
LOS B	describe stable flow. While some constraint on movement occurs, ravel is at near free flow speeds.
LOS C	also describes stable flow; however, the operation of individual users becomes significantly affected by other in the traffic stream.
LOS D	represents high-density, but stable flow. Speed and freedom to maneuver are severely restricted and small increases in traffic volume are noticeable.
LOS E	represents operating conditions at or near capacity level. Speeds are reduced to a low, but uniform value.
LOS F	is used to define forced or breakdown flow. LOS F is used to describe conditions where the volume exceeds capacity.

* Transportation Research Board, National Research Council, Highway Capacity Manual, Special Report 209, Washington, D.C. 1985

R. M. TOWILL CORPORATION

420 Waiakamilo Rd. #411 Honolulu, HI 96817-4941 (808) 842-1133 Fax (808) 842-1937

MINUTES

QUEEN KAAHUMANU HIGHWAY
Kailua to Kawaihae

Project No. 19ABC-01-90

DATE/TIME: June 22, 1994, 7:00 P.M.

PLACE HELD: Kealakehe Elementary School Cafetorium

PRESENT:
Mr. Ronald Tsuzuki, D.O.T. Highway Planning Branch
Mr. Douglas Orimoto, D.O.T. Highway Planning Branch
Mr. Chester Koga, R.M. Towill Corp. (RMTC)
Mr. John Sato, R.M. Towill Corp.
Mr. Hugh Ono, D.O.T. Highways Hawaii District
Mr. Leighton Wakata,D.O.T. Highways Hawaii District
Mr. Sterling Chow, D.O.T. Highway Hawaii District
Mr. Leo Fleming, Resident
Ms. Barbara Uechi, Kona-Kohala Chamber of Commerce
Ms. Marni Herkes, Kona-Kohala Chamber of Commerce
Mr. Billy Palea, Helco
Mr. Pete L'Orange, Hawaii Leeward Planning Conference (HLPC)
Mr. Carl Simons, West Hawaii Concrete
Mr. Jim Greenwell, Lanihau Partners
Mr. Tom Pack, DPW County of Hawaii
Mr. Francis Kuailani Sr., National Park Service
Ms. Linda Kuailani, Resident
Mr. Albert Schoolsuka, Kona Transportation Company
Mr. Bart Taylor, Chaney Brooks
Ms. Ruth M. Taylor, Chaney Brooks
Mr. Burke Matsuyama, K-8 Partners
Mr. Scott Sharpe, PATH (Peoples Advocacy for Trails Hawaii)
Mr. Grant Miller, PATH
.Mr. Jerry Egami, Isemoto Contracting Co. Ltd.
Mr. Keola Childs, County Council
(See Attendance Sheet)

PURPOSE: Public Informational Meeting

DISTRIBUTION:
Mr. Douglas Orimoto, D.O.T. Highway Planning Branch
Mr. Richard Wakida, R.M. Towill Corp. (RMTC)

DISCUSSIONS:

1) R. Tsuzuki (DOT) introduced the project team. C. Koga (RMTC) presented the project. (see handout)

2) R. Tsuzuki took the following questions and comments from the audience.

From S. Sharp (PATH)

Question: Will the speed limit continue to vary from 35-55 MPH for the widening?

Response: The posted speed limit will be determined during the design phase of the project.

Question: Due to expected high speed of the highway, will there be a separate bike path?

Response: No, the shoulder will be signed as a bike route.

Question: Will the shoulder pavement quality be the same as the roadway?

Response: Yes

From K. Childs (County Councilman)

Question: Will ISTEA enhancements funds be used for the project?

Response: No, STP funds will be used.

Question: Will the U-turns have acceleration and deceleration lanes?

Response: The U-turns will have deceleration lanes.

Question: Keahole airport is planning a new entrance to the north of the existing entrance. Does the project show an intersection with the new entrance?

Response: No, the project intersects the existing entrance.

Question: Is the existing right-of-way wide enough to include frontage roads?

Response: Right-of-way is needed from Palani Road to the Honokohau Boat Harbor.

Question: Can the council approve projects with the understanding that no additional right-of-way is needed for the Queen Kaahumanu corridor and that frontage roads will be placed within the right-of-way?

Response: DOT is currently developing an ultimate freeway master plan. Frontage roads will be included within the corridor's right-of-way where necessary. Some developments may not need to have frontage roads due to the development layout. Additional right-of-way is needed for interchanges.

Comment: The project should consider nightwork and other types of construction phasing.

From J. Greenwell (Lanihau Partners)

Question: Will DOT allow development of existing access permitted areas?

Response: Yes, however DOT reserves the right to dictate the intersection movements from a right turn in/out to a fully channelized intersection.

Comment: The project should follow and respect the Keahole to Kailua Development Plan. There is a 300 acre area that is zoned for light industrial that should be incorporated into the project.

From F. Kuailani (National Park Service)

Comment: F. Kuailani presented and read a written statement. (see attached written statement)

Question: Will using federal money for the project require DOT to prepare an EIS?

Response: If FHWA finds that the project does not have significant impacts, then an EIS will not be needed, and a finding of no significant impact (FONSI) will be issued.

From M. Herkes (Kona-Kohala Chamber of Commerce)

Question: What is the federal split of funds for the project.

Response: Federal funding will be 80% with the State providing 20% of the funds.

Question: Will asphalt concrete or concrete be used?

Answer: The State Department of Transportation Materials Testing Lab will analyze the materials for cost effectiveness and make recommendations during design.

Comment: Because the Queen Kaahumanu corridor is the only route available, additional maintenance and rehabilitation procedures will be necessary and should be considered when analyzing the materials for cost effectiveness.

From C. Simons (West Hawaii Concrete)

Question: Will the U-turns be able to handle semi-trailer trucks?

Response: Yes

Question: Will traffic signals be installed as part of the project?

Response: Yes, if certain requirements or warrants are met.

From A. Schoolsuka (Kona Transportation Co.)

Question: Because federal money is to be used on the project, will the federal trucking standards be used on the project?

Response: (From H. Ono, DOT Highways Hawaii District) The State has jurisdiction on trucking standards, however the State and Federal trucking standards are the same.

Question: The federal trucking standards allow for triple trailer combinations. Will triple trailer combinations be allowed on the project?

Response: (From H. Ono, DOT Highways Hawaii District) The federal trucking standards do not allow for triple trailer combinations and the State will also not allow triple trailer combinations.

From P. L'Orange (Hawaii Leeward Planning Conference)

Question: Will the medians be constructed in a manner to prevent traffic from crossing the medians to take illegal left turns, instead of U-turns?

Response: The medians will remain lava rock which should discourage illegal left turns.

From B. Matsuyama (K-8 Partners)

Question: With the tight economy and limited tax dollars, will this project compete with others for state tax dollars? The handout lists construction at $42.9 million while a newspaper article estimated the project cost at $44.0 million. What is the cost for the project?

Response: The project will be competing with others for state funding. However, only projects ready to be constructed will be considered. Hopefully, no environmental impact statement will be necessary with the State declaring a negative declaration (neg dec) and finding of no significant impact (FONSI). Project costs will vary dependent on the time of construction and economic conditions.

From T. Pack (DPW, County of Hawaii)

Question : The presentation stated that traffic signals will be installed when certain conditions or warrants are met. Currently, ducts for signals are being installed for the new Makala Boulevard intersection with Queen Kaahumanu Highway as a condition of the zone change. Is signals included in the widening project?

Response: Signals should not be installed unless warrants have been met.

From B. Palea (HELCO)

Question: Will poles need to be relocated along the project from Palani Road to Kaiwi Street?

Response: Yes

Question: Will additional right-of-way be needed for the poles?

Response: No, the project does not include work from edge of right-of-way to edge of right-of-way. However, when the highway is upgraded to freeway status, poles may need to be relocated.

John Sato

John Sato, P.E.
Senior Engineer

A.T.T.E.N.D.A.N.C.E

Group:	Location:	Date: 6/22/94
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BART TAYLOR	Chaney Brooks	329-3121
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HUGH GOO.	DOT-HWY-Hawaii District	933-AC40
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United States Department of the Interior

NATIONAL PARK SERVICE
Kaloko-Honokohau National Historical Park
73-4786 Kanalani Street, #14
Kailua-Kona, Hawaii 96740

IN REPLY REFER TO:

D30 (KAHO)

June 22, 1994

State of Hawaii
Department of Transportation
Highway Division
P.O. Box 4277
Hilo, Hawaii 96720

Dear Sir:

The following is my statement as the Superintendent of Kaloko-Honokohau National Historical Park at the Public Information Meeting on the proposed Widening of the Queen Ka'ahumanu Highway, Wednesday, June 22, 1994.

Kaloko-Honokohau National Historical Park was authorized in 1978 by Public Law 95-625. The national park's stated purpose is "to provide a center for the preservation, interpretation, and perpetuation of traditional native Hawaiian activities and culture, and to demonstrate historic land use patterns as well as provide needed resources for the education, enjoyment, and appreciation of such traditional native Hawaiian activities, and cultural by local residents and visitors". Because of its culture significance, the national park area has been designated a national historic landmark. In addition, two endangered vertebrate species are known to nest within the park.

The Congressionally authorized boundaries of the national park encompass approximately 600 acres of Federally owned lands acquired by the National Park Service and approximately 500 acres under the jurisdiction of the State of Hawaii. The State's holdings are composed primarily of the offshore waters of Honokohau Bay plus about 26 acres of land on either side of the Honokohau Harbor. An 18-acre parcel of privately-owned land remains within the authorized boundaries. The National Park Service intends to acquire all privately-owned land within the park.

Kaloko-Honokohau National Historical Park is relatively new and remains undeveloped. In 1990, the National Park Service began the preparation of a General Management Plan to guide the future use and development of the park. The draft plan and the accompanying environmental impact statement have undergone public review and comment. We expect to have a final plan approved within the next

six months. The plan proposes the development of an entrance road to the park off of the Queen Ka'ahumanu Highway.

Upon approval of the General Management Plan, the National Park Service will be able to seek funds from Congress to begin the development of Kaloko-Honokohau. We fully expect that Kaloko-Honokohau, because of its location near the Keahole Airport and the expanding Kailua area, will be a heavily visited park, eventually receiving more than 500,000 visitors per year. Consequently, the development of public access from the Queen Ka'ahumanu Highway is of highest priority.

Our objective have been to tie in the development of our access to the national park with the State's project for the widening of the Queen Ka'ahumanu Highway. Accordingly, we have submitted to the Highways Division information regarding the location of our proposed entrance road off of the Queen Ka'ahumanu Highway. We have been informed by Highways that this location is acceptable as "access permitted" and that formal approval from the Right-of-Way Branch will be forthcoming.

The information package we submitted also requested the inclusion of turning and stacking lanes on the Queen Ka'ahumanu Highway at our proposed intersection location. For reasons of visitor safety, we believe a traffic control signal light is needed at our proposed intersection location. If this is not possible, we believe the safest alternative is to have visitors wishing to enter the park from the Kailua direction, make a U-turn at the intersection being proposed at the Kaloko Industrial Park (Hina Lani Drive). This alternative would require modifying that intersection to install a U-turn lane. Those visitors leaving the national park and heading in the direction of the Keahole Airport would be required to turn proposed signal light at the harbor entrance. Because of the high visitation expected at Kaloko-Honokohau in future years, we would request that the median in the vicinity of our proposed intersection location be designed so as to include room enough for the future construction of turning and stacking lanes there.

We have just recently learned that the widening of the Queen Ka'ahumanu Highway, originally scheduled for construction to begin in 1993, has been set back several years. Construction of the two year project is apparently now scheduled to begin during the 1998-1999 fiscal year.

Waiting this long to develop our access to Kaloko-Honokohau presents serious problem. Without access to our proposed parking lot in the disturbed area via our proposed entrance road, visitors will be forced to park either down at Honokohau Harbor or along the existing highway shoulders. The former will likely not be allowed by the Harbors Division and the latter will be a major hazard to visitor safety.

The existing access to the park via the service road to Kaloko pond is unsuitable as the principal means of visitor access to the park. There are significant Hawaiian cultural sites and features located all along this road and the disturbed area next to Kaloko pond is proposed for development as a cultural education complex for certain visitors, mainly Hawaiian, to participate in-depth cultural pursuits. This road will be closed off to visitors when our proposed entrance road is completed. In addition, we do not have "access permitted" at this location.

We intend to continue working cooperatively with the Highways Division in developing safe and timely access for visitors to Kaloko-Honokohau National Historical Park.

If you have further questions, please feel free to call me at 329-6881.

Sincerely,

Francis I. Kuailani Sr.
Superintendent

QUEEN KAAHUMANU HIGHWAY UPGRADE PROJECT

State of Hawaii ✦ Highways Division ✦ Department of Transportation

PROJECT PROPOSAL

The Department of Transportation is proposing to widen Queen Kaahumanu Highway (SR 19) from 2 lanes to 4 lanes to meet current and future demand upon the highway infrastructure in the North Kona region of the island of Hawaii. The Queen Kaahumanu Highway is the main State highway serving this area, and is surrounded by commercial, agricultural, resort, and residential land uses. The rapid growth of the resort areas, together with increased commercial and residential development and other activities in West Hawaii, has resulted in a significant increase of vehicular traffic using the existing highway. Residential, commercial, and resort developments planned in the area will further add to the existing highway traffic volume. Alternative means of meeting this increase in traffic volume between Kailua to Keahole to the year 2010 was studied.

PROJECT LOCATION

Queen Kaahumanu Highway is located within the North Kona and South Kohala districts of the County of Hawaii and extends from Kailua to Kawaihae. The portion of the highway that will be upgraded extends from Kailua (Henry Street) to the Keahole Airport, a distance of approximately seven (7) miles (See Figure 1). The major existing intersections along this highway occur at Palani Road, Kaiwi Street, Honokohau Harbor, Hina Lani Drive (Kaloko industrial area), Kaiminani Drive, and Keahole Airport access road.

HISTORICAL PERSPECTIVE

Queen Kaahumanu Highway opened in 1970 to connect the rapidly growing Kailua area with Kawaihae Harbor. Previously, the only route between Kailua, Kohala, and Hamakua was the Mamalahoa Highway/Hawaii Belt Road (SR 190) which is accessed from Kailua via Palani Road and runs northward to Waimea. The Mamalahoa Highway/Hawaii Belt Road is still in use, though its distance from coastal development and numerous curves keep it from being a viable alternative to accessing the coastal region along the Queen Kaahumanu Highway.

Development in the area prompted the closure of the Kona Airport and the construction of the Keahole Airport in 1969. Keahole Airport, located north of Kailua along the Queen Kaahumanu Highway, has surpassed Hilo's General Lyman Field in air traffic. Keahole Airport and Kawaihae Harbor opened the road to development along the coastal region between Kailua and Kawaihae. As a result, industrial parks were created between Kailua town and Keahole Airport and residential development blossomed in the upland northeast of Kailua.

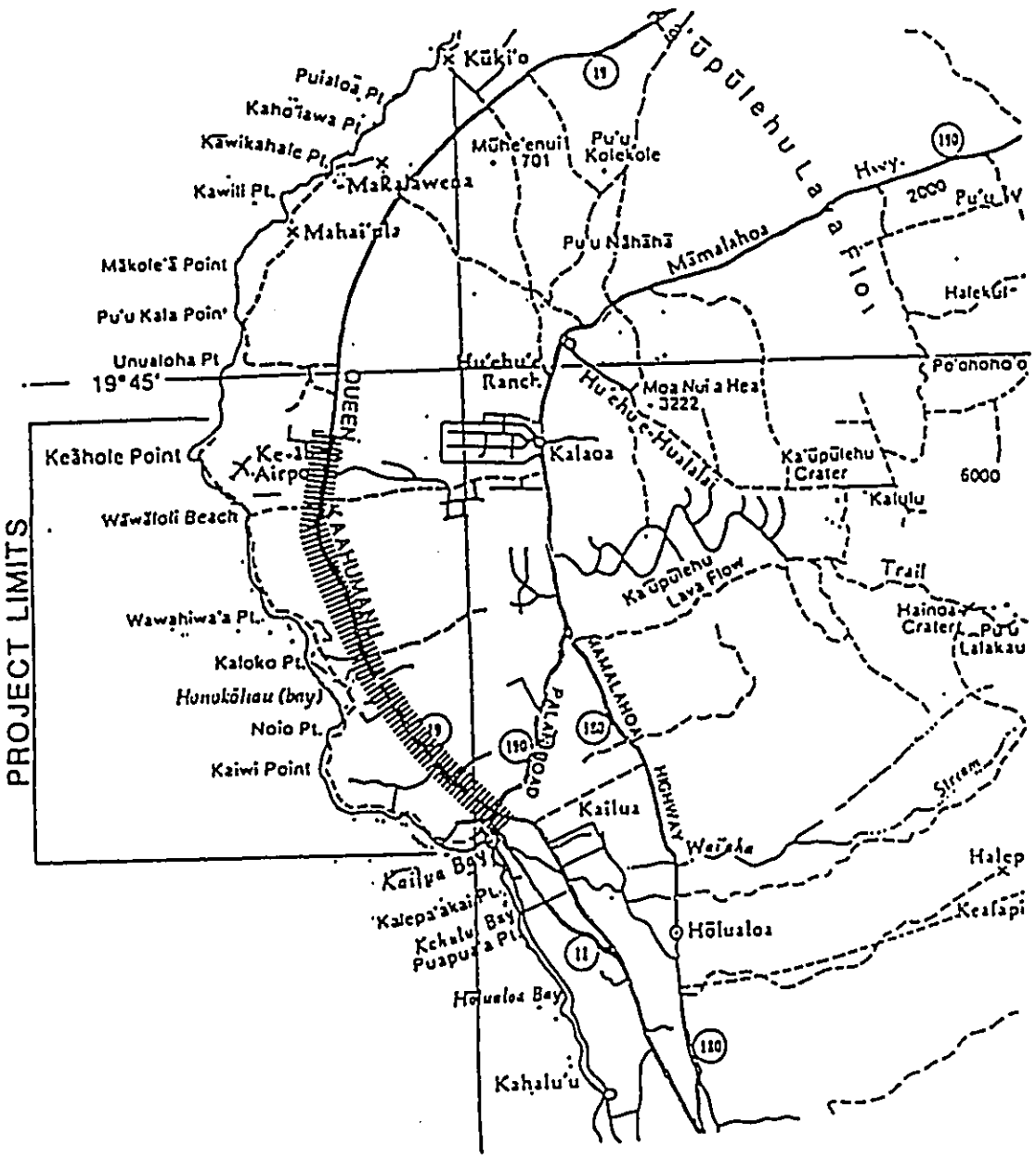

Figure 1
EXISTING HIGHWAY ALIGNMENT
Queen Kaahumanu Highway Widening
Department of Transportation - Highways Division

R. M. TOWILL CORPORATION

LAND USE PLANS

Projected traffic volumes were based on the State's M-K population projections, State Land Use Districts, the Kailua to Keahole Development Plan, and the County of Hawaii General Plan. In addition to these land use plans, developers and landowners were interviewed to ascertain the timing and scale of their proposed projects. The plans cited above were used to establish facilities needs to the year 2010. The Kailua to Keahole plan was used to define the proposed roadway network in the study area. In addition, the findings cited in the 1991 Island of Hawaii Long-Range Highway Plan (LRHP) were examined for consistency. Based on data collected, it was determined that the Queen Kaahumanu Highway between Keahole Airport and Palani Road would require upgrading to accommodate the projected traffic.

PROJECT PLANS

The proposed action will entail widening of Queen Kaahumanu Highway from its existing two lanes to a four lane divided highway from Henry Street to Keahole Airport.

The existing highway right-of-way width within the project limits ranges from 80 feet (near Kailua) to 300 feet. The highway segment from Henry Street to the entry to the Honokohau Boat Harbor has a right-of-way width that varies from 80 to 150 feet. From the Harbor to Keahole Airport access road, the right-of-way width is 300 feet.

The typical road section for the upgraded Queen Kaahumanu Highway (between Henry Street and Honokohau Harbor) is shown in Figure 2. The highway in this section is proposed to be improved from its current two lanes to a four lane divided highway with dedicated left and right turn lanes. The right-of-way between Henry Street and the entrance to the Honokohau Harbor will be expanded from its current width of 80 feet to 300 feet. Lands will be acquired on the mauka (east) side of the existing highway right-of-way. The highway right-of-way between the boat harbor and the Keahole Airport is adequate for the proposed improvements without acquisition of additional right-of-way.

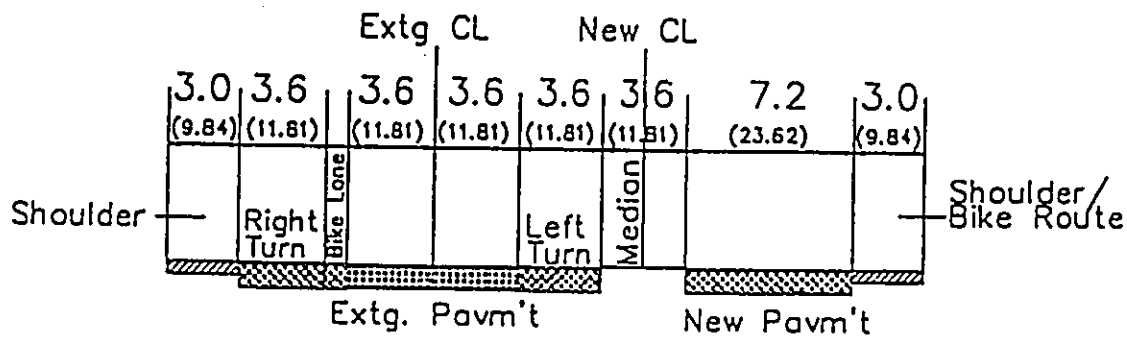

FIG. 2. TYPICAL 4 LANE ROAD SECTION
(Between Henry Street and Honokohau Harbor)

NOTE: All dimensions are in meters (feet)

The road segment between the Honokohau Harbor and the Keahole Airport will also be upgraded from it current two lanes to a four lane divided highway. The road section is shown in Figure 3. The expanded median is being proposed to accommodate future highway expansion without the need to disturb property along the right-of-way.

The estimated cost of construction is $42.9 million.

PROJECT IMPLEMENTATION

The tentative schedule for this project is as follows:

a. Design - July 1995 - September 1996
b. Right-of-Way Acquisition - January 1996 - September 1996
c. Construction - December 1996 - December 1998

An environmental assessment (EA) is being prepared for this project and will be made available for public review. The EA will describe the project, describe potential impacts on the environment such as botanical resources, archaeological sites, noise impacts, and propose mitigation measures.

PROJECT CONTACT

For additional information, comments, questions please contact the following:

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Department of Transportation
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Written comments should be directed to:

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Highways Division
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Consultant:
Mr. Richard Wakida, P.E.
R.M. Towill Corporation
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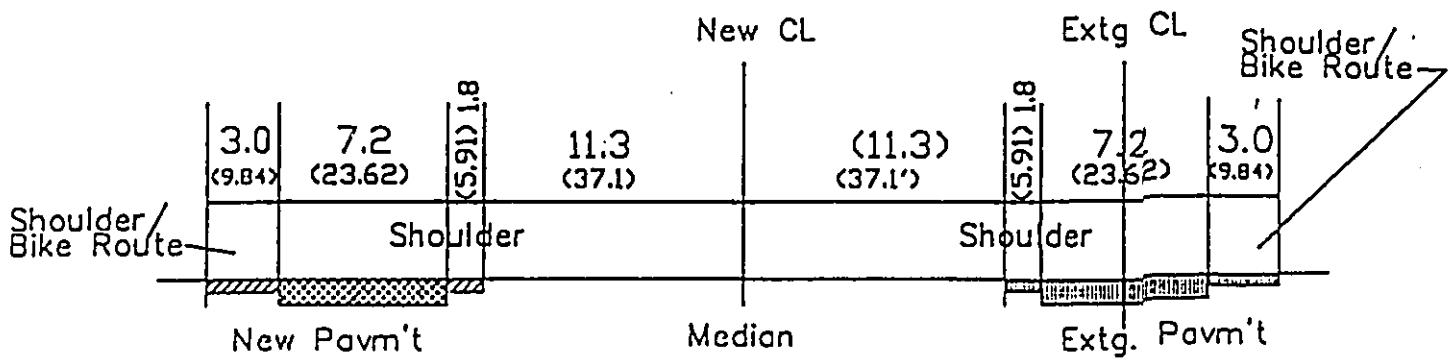

FIG. 3. TYPICAL 4 LANE ROAD SECTION
(Honokohau Harbor to Keahole Airport)

NOTE: All dimensions are in meters (feet)

MAILING LIST

QUEEN KAAHUMANU HIGHWAY WIDENING
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APPENDIX E

LEVEL OF SERVICE

LEVELS OF SERVICE*

A qualitative measure used by traffic engineers to describe traffic operational conditions is the *level-of-service (LOS)*. Six levels have been defined, from LOS A (best operating conditions) to LOS F (worst). The Highway Capacity Manual describes analysis procedures for different types of facilities. For short segments of arterial roadways, capacities are determined at critical signalized intersections and levels of service are estimates from the ration of volume to capacity.

LOS A	represents free flow. Travel at desired speeds is unimpeded and usually limited by speed limits.
LOS B	describe stable flow. While some constraint on movement occurs, ravel is at near free flow speeds.
LOS C	also describes stable flow; however, the operation of individual users becomes significantly affected by other in the traffic stream.
LOS D	represents high-density, but stable flow. Speed and freedom to maneuver are severely restricted and small increases in traffic volume are noticeable.
LOS E	represents operating conditions at or near capacity level. Speeds are reduced to a low, but uniform value.
LOS F	is used to define forced or breakdown flow. LOS F is used to describe conditions where the volume exceeds capacity.

* Transportation Research Board, National Research Council, Highway Capacity Manual, Special Report 209, Washington, D.C. 1985