

OEQC LIBRARY

FHWA-HI-EIS-76-02-F

HAWAII BELT ROAD

PROJECT NO. F-011-1(8)

involving the
construction of a highway from
Holualoa to Papa in
North and South Kona, Island of Hawaii

ADMINISTRATIVE ACTION

FINAL

ENVIRONMENTAL IMPACT STATEMENT

U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration

and

State of Hawaii Department of Transportation
Land Transportation Facilities Division

Submitted pursuant to 42 U.S.C. 4332(2)(c),
23 U.S.C. 128(a) and 49 U.S.C. 1653(f) and
16 U.S.C. 470(f)

5/28/90
Date

Neil D. [Signature]
Director, Office of Environment & Design
Federal Highway Administration, Region 9

79:470-03
00276

August 23, 1979

Mr. Donald A. Bremner
Chairman
Environmental Quality Commission
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Mr. Bremner:

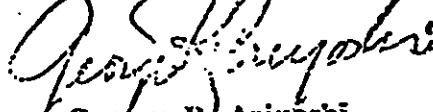
**SUBJECT: Final Environmental Impact Statement for
Hawaii Belt Road, Project No. F-011-1(8)**

Based upon the recommendation of the Office of Environmental Quality Control, I am pleased to accept the subject document as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes. This environmental impact statement will be a useful tool in the process of deciding whether or not the action described therein should or should not be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws, and does not constitute an endorsement of the proposed action.

When the decision is made regarding the proposed action itself, I expect the proposing agency to weigh carefully whether the societal benefits justify the environmental impacts which will likely occur. These impacts are adequately described in the statement, and, together with the comments made by reviewers, provide a useful analysis of alternatives to the proposed action.

With warm personal regards, I remain,

Yours very truly,


George R. Ariyoshi

cc: Honorable Ryokichi Higashionna

bcc: Office of Environmental Quality Control

FINAL ENVIRONMENTAL IMPACT STATEMENT
HAWAII BELT ROAD
HOLUALOA TO PAPA
FAP NO. F-011-1(8)

CONTENTS

	<u>Page</u>
SUMMARY	i
CHAPTER I THE PROJECT	1
CHAPTER II PROJECT DESCRIPTION	2
A. The Existing Highway	2
B. Recent Improvements	3
C. Other Land Transportation Systems	3
D. Physical Characteristics	4
E. Accident Frequency	5
F. Traffic Projections	8
G. Level of Service	8
H. Description of the Project	10
1. Alignment	10
2. Traffic Split and Number of Lanes	11
3. Design Criteria	11
4. Design Standards and Other Highway Features	13
5. Improvement of the Existing Road	14
6. Estimated Cost and Road User Benefit-Cost Ratio	14
7. Construction Considerations and Timetables	15
CHAPTER III DESCRIPTION OF SURROUNDING ENVIRONS	18
A. Physical and Hydrological Factors	18
1. Lava Flows and Soils	18
2. Rainfall	18
B. Biological Factors	19
1. Scrub	20
2. Pasture	21
3. Cultivated Land	21
4. Native Forest	22
5. Secondary Forest	23
6. New Lava Flows	23
7. Residential Areas	23
8. Birds and Animals	24
C. Socio-Economic Factors	25
1. Population	25
2. Economic Activities	26
D. Archaeological and Historical Sites	28
1. Kona Field System	30

Contents, Cont.

	<u>Page</u>
E. Summary of Land Use Plans, Policies, and Controls as Related to the Project	32
1. General Plan, County of Hawaii	32
2. Land Zoning	33
3. Land Use Commission District Boundaries	33
4. Special Management Area	34
CHAPTER IV	
ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION	35
A. Physical and Hydrological Changes	35
1. Surface Flow	35
2. Coastal and Groundwater Pollution	37
B. Utilities	37
1. Water Supply	37
2. Electric and Telephone	38
C. Biological	38
1. Forest Lands	38
2. Roadside Weeds	39
3. Scrub Vegetation	39
4. Lava Flows	39
5. Bird Population and Mammal Species	40
D. Economic Effects	40
E. Land Taking	44
F. Societal Considerations	44
G. Aesthetic Effects	46
H. Noise Impact	46
I. Air Pollution	51
J. Effect on Archaeological and Historical Resources - Section 4(f) Statement	54
CHAPTER V	
PROBABLE ADVERSE ENVIRONMENTAL EFFECT WHICH CANNOT BE AVOIDED	55
A. Special Management Area	55
B. Conservation Area	55
C. Drainage	55
D. Economic Effects	55
E. Societal	56
F. Aesthetic	56
G. Archaeological	57
H. Inconvenience to Traffic and Residents	57
CHAPTER VI	
ALTERNATIVE HIGHWAY CORRIDORS CONSIDERED	58
A. Corridor Line A	58
B. Corridor Line B	58
C. Corridor Line C	59
D. Corridor Line D	60
E. Corridor Line A-2	60
F. Corridor Line E	61
G. Corridor Line Proposed in the Preliminary Draft of the Kona Community Development Plan	61
H. No Project	61

Contents, Cont.

		<u>Page</u>
CHAPTER VII	RELATIONSHIP BETWEEN SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY	63
	A. Short-Term Uses	63
	B. Long-Term Uses	63
CHAPTER VIII	IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES	65
CHAPTER IX	MITIGATION MEASURES	66
	A. Conservation Area	66
	B. Drainage	66
	C. Economic Effects	66
	D. Aesthetic	67
	E. Archaeological	68
	F. Inconvenience to Traffic and Residents	69
	G. Noise	70
	H. Utilities	70
	I. Relocation Assistance	70
APPENDIX A	FIGURES	
APPENDIX B	REFERENCES	
APPENDIX C	CONCEPTUAL RELOCATION PROGRAM PLAN	
APPENDIX D	COORDINATION WITH OTHER AGENCIES	
APPENDIX E	PUBLIC HEARING TESTIMONIES	
APPENDIX F	DRAFT ENVIRONMENTAL IMPACT STATEMENT	
APPENDIX G	SECTION 4(f) STATEMENT	
APPENDIX H	LIST OF REQUIRED APPROVALS	
APPENDIX I	RESPONSES AND REPLIES TO FINAL ENVIRONMENTAL IMPACT STATEMENT	
APPENDIX J	U.S. FISH AND WILDLIFE BIOLOGICAL OPINION	
<u>TABLES</u>		
II-1	Accident Rates and Number of Accidents	6
II-2	Distribution of Accidents by Type	7
II-3	Traffic Volumes and Number of Lanes	12
III-1	Vegetation Types Adjacent to Corridor Line A-1	19
III-2	Population Projections	26
III-3	Value and Acreage for Selected Crop in Kona, 1973	27
IV-1	Property, Businesses, and Residents Involved in Corridor Line A-1	44
IV-2	Predicted Noise Levels (dBA) - No Improvement	47
IV-3	Predicted Noise Levels (dBA) - With Improvement	50
IV-4	Projected Vehicle Mass Emissions of Air Pollutants	53

SUMMARY

A. Check appropriate box(es)

Federal Highway Administration

Administrative Action Environmental Statement

() Draft (X) Final

(X) Section 4(f) Statement attached

B. Individuals to be contacted for further information:

Mr. Ralph Segawa
Division Administrator
Federal Highway Administration
677 Ala Moana
Honolulu, Hawaii
PH: 546-5150

Mr. Tetsuo Harano, Chief
Land Transportation Facilities Division
Hawaii Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii
PH: 548-5711

C. Brief Description:

The proposed project will consist of the realignment and improvement of segments of the existing road beginning from Holualoa and ending at Papa in the North and South Kona Districts on the Island of Hawaii. Its length is approximately 31 miles, and it will become a part of the Federal Aid Primary System of the State of Hawaii.

D. Environmental Impacts:

1. Positive Impacts

- a. Increase in highway users' safety and welfare
- b. Increase in highway capacity
- c. Provide an improved highway for local and through traffic
- d. Conducive to short- and long-term economic growth
- e. The improvement is in accordance with the General Plan of the County of Hawaii

2. Negative Impacts

- a. Properties (about 422 parcels of land) along the proposed route will be affected.
- b. A number of residences and businesses would be relocated.
- c. Section 4(f) lands, specifically the Rona Field System, may be impacted to some degree.
- d. Some forest reserve land will be affected.
- e. Some cultivated lands zoned for agriculture will be taken.
- f. During construction, there will be temporary effects on dust and noise pollution.
- g. Certain segments of the existing electrical power lines would be affected.
- h. Certain facilities along Kuakini Highway at the north end of the project will be impacted by noise.

E. Selected Corridor Line A-1

Corridor Line A-1 begins from Holualoa, follows Kuakini Highway until it reaches Kamehameha III Road, continues on the west side of the existing highway, and connects with the upper segment of the City of Refuge Road to Keokea. From Keokea, it would follow the existing road to Papa. This corridor would have less impact on existing farm lands at Captain Cook and Honaunau.

F. Summary of Major Alternatives Considered:

1. General Effects

Aside from Corridor Line A-1, seven other alternatives were considered. Each alternative differed with respect to their impacts on the acquisition of land and the effects on the existing improvements, land uses, and forest lands. All the alternatives will pass through the Kona Field System, which cannot be avoided and will impact the historical and cultural resources in that area.

2. Corridor Alternatives

- a. Corridor Line A follows the same alignment of Corridor Line A-1 from Holualoa to Captain Cook. From there, it would continue on the west side of the existing road, wind through the middle of the orchards below Honaunau, and follow the existing road south of Hookena. This corridor would have a greater impact on existing farm lands than Corridor Line A-1. It will also go through a detached parcel of land used by the City of Refuge National Park.

- b. Corridor Line B begins from Holualoa, follows Kuakini Highway along an alignment east of the existing road, and connects with the Hawaii Belt Road in the vicinity of the Hookena Beach Road. From there, it would follow the existing highway to Papa. The major adverse impact of this alternative is the removal of some of the endemic Hawaiian trees in the native and secondary forest ecosystems. It will also pass through a higher rainfall area, where the runoff flows overland in undefined water courses with little or no erosion. This drainage pattern may be changed due to the construction of culverts that may concentrate flows and cause more erosion and adversely impact some localized areas.
- c. Corridor Line C follows an alignment further west than Corridor Line A and would have the advantage of being in a drier area. It is not considered a viable alternative because it would pass through the Kealakekua Historical District, which is included in the National Register of Historic Places.
- d. Corridor Line D would follow an alignment along the existing road via Kuakini, Mamalahoa, and the Hawaii Belt Road, with a planned right of way width of 80 feet. It is not considered a viable alternative since it would dislocate 25 families and 52 organizations and businesses (half of those now situated along the existing road) and affect 691 parcels of land.
- e. Corridor Line A-2 would follow the same route as Corridor Lines A and A-1 from Kuakini Highway to Captain Cook. From there, it would follow a southeasterly direction and connect to the existing road approximately 9.5 miles from Captain Cook. This line would provide a connection nearer to Captain Cook than would Corridor Line A-1, which is desired by some people in the community, but it would have steeper grades and cut diagonally across the existing farms at Captain Cook and Honaunau.
- f. Corridor Line E is not a complete alternative but only involves the alignment between Alae and Papa at the south end of the project. This alignment would offer a more direct route toward Papa, but it would encroach more upon the ecologically important native forest area.
- g. No Project. The abandonment of the entire project is not considered a feasible alternative because it would result in a failure to serve the best interests of the residents, visitors, agriculture, and the environment. Such action would not provide for the present and projected traffic in the Kona area, and the increasing congestion in the existing highway would result in added delays, inconveniences, noise, air pollution, and higher accident rate.

G. Agencies and Organizations from Which Comments Have Been Requested:

(Refer to Mailing List, Appendix F-1)

H. Agencies and Organizations That Have Submitted Comments:

(Refer to List of Respondents, Appendix F-3)

I. Date the DEIS Was Submitted to CEQ:

The Draft Environmental Impact Statement was mailed to the Council on Environmental Quality on August 2, 1976, and a period of 45 days from that date was established for review and comment.

CHAPTER I. THE PROJECT

The project will be connected to the south end of the Kuakini Highway Realignment Project in the vicinity of Kealakowaa Heiau at Holualoa and proceed southward through North and South Kona for a distance of approximately 31 miles, terminating at the Milolii Junction at Papa.

The project is part of Route 11 of the Federal Aid Primary System of Highways in the State of Hawaii and is also a part of the State Highway System on the Island of Hawaii. The project will be financed by 75 percent federal funds and 25 percent state funds.

The project is authorized under Act 217, Session Laws of Hawaii, 1967; Act 40, Session Laws of Hawaii, 1968; Act 218, Session Laws of Hawaii, 1973; and Act 195, Session Laws of Hawaii, 1976.

The project is identified as Hawaii Belt Road, Holualoa to Papa, Project No. F-011-1(8).

The proposed project and the Kuakini Highway Realignment project have the common goal of providing a safe and efficient transportation facility, but neither is a component of the other nor is it necessary to construct one to justify construction of the other.

M&E Pacific, Inc. was retained by the State of Hawaii to prepare the Environmental Impact Statement for the project.

CHAPTER II. PROJECT DESCRIPTION

A. THE EXISTING HIGHWAY

The main highway running in the north-south direction through Kona is composed of segments of Kuakini and Mamalahoa highways and the Hawaii Belt Road, which are part of the around-the-island highway system. The project area is shown on Figure II-1.

Located one to two miles from the coastline, the existing highway traverses the slopes of Hualalai and Mauna Loa, climbing from an elevation of about 400 feet above sea level at Holualoa to about 1,500 feet at Captain Cook, then sloping gradually to about 875 feet at Honokua and climbing again to about 1,720 feet at Papa.

The highway is identified as Route 11 in the Federal Aid Primary System and the State Highway System. Although the highway is included in the State Highway System, its maintenance is under two jurisdictions; approximately 24.8 miles are under the state and 6.5 miles are under the County of Hawaii. This mixed jurisdiction is made evident by signs along the highway and is even more evident by the differences in design standards and quality of maintenance.

The county sections pass through the more heavily populated towns of Honalo, Kainaliu, Kealakekua, Captain Cook, and part of Honaunau, while the state sections pass through the sparsely populated areas.

The sections under the state's jurisdiction have been constructed with state and federal funds and are maintained with state funds; the county sections are maintained with county funds.

The existing highway runs through or near the main towns of Holualoa, Keauhou, Kainaliu, Kealakekua, Captain Cook, Napoopoo, Honaunau, Keokea, and Hookena.

Traffic through the project area is generated largely by—

1. Travel to and from adjacent properties and between towns;
2. Business and retail shops strung along the highway;

3. Kona Civic Center, which houses the state and county offices, including police and court agencies, and utility maintenance yards;
4. Federal agencies in North and South Kona;
5. Kona Hospital in Kealahou;
6. Kona High School, which contains the only high school in North and South Kona;
7. Agricultural experiment station in Kainaliu;
8. Farm products, including livestock; and
9. Tour buses and around-the-island bus service.

The existing highway is also a segment of the Hawaii Belt Road and provides transportation links to Kawaihae Harbor and Keahole Airport. Thus, the present highway may be considered a multipurpose road serving local, intra-, and interregional traffic. In terms of classification, the existing highway through Kona functionally serves as a local road, minor arterial, and primary arterial.

B. RECENT IMPROVEMENTS

The most recent improvements consist of the construction of the truck climbing lane at the upper end of Kuakini Highway, off-street parking lots in Kainaliu and post offices at Kealahou and Captain Cook, spot improvements to increase the sight distances around sharp curves, and widening certain sections of pavement. These improvements would result in better driving conditions and perhaps decrease the number of accidents in the immediate vicinity of the improvements. They would not, however, reduce the volume of traffic on the existing road, particularly between Honolulu and Captain Cook.

C. OTHER LAND TRANSPORTATION SYSTEMS

Aside from private cars, trucks, and other private vehicles, the existing road is also used by buses operated by the County of Hawaii, school buses, and car pools.

The traffic generated by private cars is expected to increase, but the traffic due to buses is not expected to increase significantly. The existing bus system operates two routes in Kona. One route runs from Honaunau to Hilo and the other, known as the Kona Koaster, runs from Honaunau to Kailua. Ridership on these buses is very low. For example, the number of passengers on the Hilo/Honaunau bus ranges from a high of 19 to a low of 6 for the inter-Kona trip and a high of 12 to a low of 1 passenger for the intra-island trip. The number of passengers on the Kona Koaster totals about 100 a day, of which 30 are hotel workers and 70 are senior citizens. The bus system is not self-sufficient; about 35 percent of the cost is recovered from the fare box and 65 percent is subsidized by the County of Hawaii. Because of the low ridership on the buses, it is not expected that they will be replaced by a more efficient mass transit system in the near future.

Traffic generated by school buses and car pools for the school is not expected to increase very much, but there is the possibility that car pooling for home to work commuting purposes may slightly increase when work centers become more centralized in Kona.

Another mode of transportation that may have some possibilities in Kona is the Van-Go. The Van-Go is best adapted for commuter trips to work centers.

Because of the low ridership on the existing bus routes and the limitations of the school buses, car pooling, and possibly the Van-Go to commuter trips, it is not anticipated that other land transportation vehicles or systems would significantly affect the traffic on the existing road.

D. PHYSICAL CHARACTERISTICS

It can be noted on Figure II-2, Highway Inventory Map, that the pavement widths of the existing highway vary from 22 feet on Kuakini Highway to 14 feet in some sections of the Hawaii Belt Road. The shoulder widths also vary from 5 feet at the north end of the highway to 0 feet at the south end. Not shown on Figure II-2 is the fact that the existing road has many sharp curves, sections with steep grades, and limited sight

distance. Perhaps the worst section is from Keokea to Kealia, where there are 47 successive curves of varying radii of 1,000 to 80 feet in a distance of 2.4 miles. Vertical sight distances are not more than 200 feet.

E. ACCIDENT FREQUENCY

The accident rates per million vehicle miles for the project area are shown in Table II-1. There appears to be no readily apparent trend in the rates with time, but the absolute number of accidents grows with increasing traffic.

Table II-2 shows the distribution of accidents by type. The number of accidents on the various segments of the existing highway and on the entire island was averaged for the period between 1970 and 1974. The percentage of collisions on the existing road, compared with the island averages, indicates the following:

1. Collisions between motor vehicles in transport occur more often between Honalo and Captain Cook.
2. There are more collisions with fixed objects on Kuakini Highway between Hualalai and Honalo and on the Hawaii Belt Road between Captain Cook and Milolii.
3. There are more collisions with pedestrians in the more densely populated region between Kainaliu and Napoopoo.
4. The absolute number of accidents due to overturning, collision with parked vehicles, and other causes may be considered relatively small but shows higher percentages in some segments of the existing highway.
5. It can also be noted in Table II-1 that the island's average accident rate of 3.02 in 1973 was exceeded by the accident rates between Honalo and the Milolii Beach access road, a continuous distance of 27.13 miles. In 1974 the island average accident rate was exceeded by the accident rates over the entire length of the project, except for a distance of 2.58 miles between Honalo and Kainaliu.

TABLE II-1

ACCIDENT RATES & NUMBER OF ACCIDENTS

Dist. Miles	From To	See Note	Y E A R									
			1967	1968	1969	1970	1971	1972	1973	1974		
6.01	Hualalai Honalo	AR NOA	3.88 22	3.30 21	4.74 43	2.44 27	4.21* 50	3.50* 45	2.99 41	3.34* 42		
2.58	Honalo Kainaliu	AR NOA	8.23	10.37 4	19.02 9	2.02 10	2.75 18	4.06* 24	3.49* 22	2.07 12		
1.13	Kainaliu Kealakekua	AR NOA	0.67 2	2.51 8	2.05 8	13.36* 29	7.71* 21	12.29* 32	7.99* 20	10.11* 23		
2.00	Kealakekua Napoopoo Road	AR NOA	0.24 4	5.79 10	5.89 12	3.14 9	2.91 10	2.43 11	3.64* 19	2.32 11		
4.30	Napoopoo Road Middle Keeli Road	AR NOA	3.14 7	2.22 5	1.49 4	2.65 13	2.46 14	2.71 27	4.42* 27	4.50* 25		
2.10	Middle Keeli Road City of Refuge Road	AR NOA	2.40 9	2.80 11	1.56 7	5.64* 5	4.45* 5	5.57* 7	10.46* 14	4.93* 6		
2.50	City of Refuge Road Hookena Beach Access Road	AR NOA	3.81 7	1.54 3	5.02 10	3.60* 2	3.19* 2	4.67* 4	5.48* 5	8.43* 7		
12.52	Hookena Beach Access Road Milolii Beach Access Road	AR NOA	7.47 1	21.51 3	10.69 2	7.78* 14	6.92* 14	1.84 5	3.80* 11	6.44* 17		
	Island of Hawaii Average on FA System	AR	NA	NA	NA	3.17	3.10	3.09	3.02	2.58		

Note: AR - Accident rates per million vehicle miles
 NOA - Number of accidents
 * - Accident rate higher than island average
 Source: Summary of Highway Accidents, State Highway System



TABLE II-2

DISTRIBUTION OF ACCIDENTS BY TYPE
(Five-year average figures 1970 to 1974)

From: To:	See Note	MV in Transport	Fixed Objects	Pedestrian	Over- Turned	Parked Vehicles	Others	Total No.
Hualalai Honalo	NOA %	22 48.9	17 37.8*	1 2.2	2 4.5*	1 2.2	2 4.4	45 100.0
Honalo Kainaliu	NOA %	12 60.0*	5 25.0	0 0	1 5.0*	2 10.0	0 0	20 100.0
Kainaliu Kealakakua	NOA %	17 65.4*	4 15.4	2 7.7*	0 0	2 7.7*	1 3.8	26 100.0
Kealakakua Napoopoo Road	NOA %	8 66.7*	3 25.0	1 8.3*	0 0	0 0	0 0	12 100.0
Napoopoo Road Middle keei Road	NOA %	10 41.7	8 33.3*	2 8.3*	1 4.2*	2 8.3*	1 4.2	8 100.0
Middle Keei Road City of Refuge	NOA %	3 37.5	4 50.0*	0 0	0 0	0 0	1 12.5*	8 100.0
City of Refuge Hookena	NOA %	1 25.0	3 75.0*	0 0	0 0	0 0	0 0	4 100.0
Hookena Milolii	NOA %	2 14.3	11 78.6*	0 0	1 7.1*	0 0	0 0	14 100.0
Island of Hawaii	NOA %	850 50.3	556 32.9	41 2.5	69 4.1	81 4.8	91 5.4	1688 100.0

Note: NOA - Number of accidents

% - Percent of total

* - Exceeds island percentage

Source: Summary of Traffic Accidents- Island of Hawaii, Highways Division, Dept. of Transportation

F. TRAFFIC PROJECTIONS

The traffic projections on the existing road are shown on Figure II-3. These projections were prepared by the State Department of Transportation using standardized techniques (as described in A Policy on Geometric Design of Rural Highways by the AASHTO committee involving historical traffic counts as well as its relationship with population and future land use). Intermediate values were estimated by straight line interpolation.

The 9-mile section of the existing highway from Holualoa to Captain Cook is densely populated. At the midpoint of this section, the average daily traffic will increase from 9,150 in 1978 to 19,850 in 1998. Through the sparsely populated area between Captain Cook and Papa, a distance of 21 miles, the average daily traffic volume ranges from 4,400 to 550 in 1978, but the projected traffic volume for 1998 would increase from 12,350 to 1,500 vehicles per day.

G. LEVEL OF SERVICE

The level of service of any highway is determined by the flow of traffic, i.e., free flow or forced flow. The degrees of free flows are categorized alphabetically as A, B, and C and forced flows as D, E, and F.

The primary factors that enter into the determination of level of service are the hourly volume of traffic, percent of trucks, widths of pavement and shoulders, steepness of grades, sight distances, speed of travel, and capacity of the existing or proposed highway.

The levels of service and flow characteristics for two-lane roads under ideal conditions are described as follows:

1. Level of Service A describes a condition of free flow with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There are few or no restrictions, and drivers can maintain their desired speeds with little or no delay.

Within this level, operating speeds must be 60 mph or higher and, if passing sight distance is always available, volumes may reach 30 percent of capacity. Under ideal conditions, a service

volume of 400 passenger cars per hour total for both directions may be achieved.

2. Level of Service B is in the zone of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speeds and change lanes.

The flow characteristics typical of this level are an operating speed of 50 mph or above and volume reaching 45 percent of capacity with continuous passing sight distance. A volume of 900 passenger cars per hour total for both directions is carried under ideal conditions.

3. Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. Most of the drivers are restricted in their freedom to select their own speeds, change lanes, or pass.

The operating speed for this level of service for uninterrupted flow on two-lane highways is 40 mph or above, with the total volume for both directions reaching 70 percent of capacity and continuous passing sight distance, or 1,400 passenger cars per hour under ideal conditions.

4. Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Drivers have little freedom to maneuver and comfort and convenience are low, but conditions can be tolerated for short periods of time.

Unstable flow is approached as the operating speed falls to 35 mph. The volume carried for both directions may reach 85 percent of capacity with continuous passing sight distance, or 1,700 passenger cars per hour under ideal conditions.

5. Level of Service E cannot be described by speed alone but represents operation at even lower speeds than in D, in the neighborhood of 30 mph. Flow is unstable, and there will be stoppages of momentary duration.

The operating speeds in this level will usually be in the neighborhood of 30 mph but may vary considerably. The volume for both directions under ideal conditions will be 2,000 passenger cars per hour.

6. Level of Service F describes forced flow operations at low speeds where volumes are below capacity. These conditions usually result from queues of vehicles backing up from a restriction upstream. Speeds are reduced substantially and stoppages may occur for short or long periods, causing both speed and volume to drop to zero.

The operating speed under this level is less than 30 mph and the volume is under 2,000 passenger cars for both directions.

Level E is frequently never attained as the volume builds up; instead, a transition into Level F occurs directly from Level D.

The levels of service were calculated on various segments of the existing highway and are shown on Figure II-3. Because of the fact that the existing road is less than ideal due to the narrow width of the pavement and shoulders and short sight distances, the calculated levels of service indicate unstable flow conditions for D, E, and F over the entire length of the project since 1974. As traffic increases, the flow conditions will become more unstable.

H. DESCRIPTION OF THE PROJECT

1. Alignment: Corridor Line A-1 (Figure II-4)

The project begins in the vicinity of Kealakowaa Heiau at Holualoa and follows Kuakini Highway until it passes Kamehameha III Road. From there it would continue on the west side of the existing highway and follow a southeasterly direction toward the east boundary of Kealakekua Historical District in the vicinity of Captain Cook. Then it would continue southwesterly until it connects and follows the existing upper segment of the City of Refuge Road to Keokea. It would follow the existing road from Keokea to Papa. This corridor line was developed subsequent

to a public hearing held on September 15, 1976 in Kailua and was discussed at a public information meeting held on January 12, 1977 at Kealahou.

Access to adjacent properties will be controlled. Intersecting public roads will be connected to the project and, aside from these, two new connecting roads to Mamalahoa Highway in the vicinity of Honalo and Kealahou will be included in the project. Connections to private roads will be discussed and agreed with the adjacent property owners during the acquisition procedure.

The total length of the project is 29.9 miles, of which 11.6 miles will be on a new alignment (Kamehameha III Road to City of Refuge Road) and 18.3 miles will follow existing roads (2.3 miles of Kuakini Highway, 1.3 miles of the City of Refuge Road, and 14.7 miles of the Hawaii Belt Road).

2. Traffic Split and Number of Lanes

Due to the fact that a long segment of Corridor Line A-1 would be located west of the existing highway from Kealahou to Keokea (about 13 miles), the vehicles traveling to and from North and South Kona would be divided between the existing road and the proposed corridor. The traffic split is shown on Figure II-5.

The volume of traffic and lane requirements for Level of Service C are shown in Table II-3 (Level C is considered the desired level of service for rural highways).

3. Design Criteria

The basic design criteria for the proposed improvement are the following, except as noted in order to best adapt them to specific segments of the proposed improvement:

Basic Design Criteria

Highway Class:	Principal rural arterial
Access Control:	Partial
Design Speed:	60 mph
Maximum Superelevation:	0.08 foot per foot
Terrain Classification:	Rolling

TABLE II-3
TRAFFIC VOLUMES AND NUMBER OF LANES

Segment	ADT (vehicles)	Percent Trucks	DHV (vehicles)	Number of Lanes
Kuakini Highway Widening Holualoa to Kahaluu (Kam III Road)	18,300	4.5	1,830	4
Kahaluu to Connector 2	14,600	4.5	1,410	See Note 1
Connector 2 to Keokea	6,830-3,200	4.5	650-320	2
Keokea to Papa	2,430-1,560	3.0	235-180	2

ADT - Average Daily Traffic; DHV - Design Hourly Volume (peak hour)

Note 1 - Two lanes will be required from 1978 to 1991. Beyond 1991, four lanes would be needed to maintain Level of Service C.

The number of lanes, typical sections, and exceptions to the basic design criteria for the various sections of the project will be as follows:

Kuakini Highway (Figure II-6). Four-lane divided highway from Holualoa to Kamehameha III Road; right-of-way width is a minimum of 120 feet.

Kamehameha III Road to Connector 2 (Figure II-7). Initial construction would consist of two lanes within a right-of-way of 150 feet. The other two lanes would be constructed by 1991.

Connector 2 to City of Refuge Road (Figure II-8). Two lanes on mountainous terrain within a minimum right-of-way width of 100 feet.

Upper Segment of City of Refuge Road. There will be no change in the existing road.

City of Refuge Road to Papa (Figure II-8). Two lanes on rolling terrain and minimum right-of-way width of 100 feet.

4. Design Standards and Other Highway Features

The latest standards of the American Association of State Highways and Transportation Officials (AASHTO) regarding curvature, sight distance, lane widths, gradients, provisions for traffic safety, etc. shall be followed in the design of the proposed improvement. The drainage system shall be designed according to the State Department of Transportation's "Interim Criteria for Highway Drainage."

The proposed partial access control will make it possible to connect intersecting private or public roads to the proposed project. Construction of driveways will be permitted in accordance with governing statutes and by mutual agreement between the landowner and the state highway engineer.

Public utility buses, when routed on the proposed improvement, should be provided with turnout lanes at locations agreed upon between the bus operator and the state highway engineer.

Turnout lanes or scenic stops should be provided at strategic locations so that residents and visitors could enjoy the panoramic scenery of the coastline.

Bicycle traffic in the project area is presently very light but is expected to increase. The stabilized shoulder of the proposed improvement can be used by both pedestrians and bicyclists.

Landscaping would be considered in the final design of the project to make the denuded areas compatible with the surrounding land.

Roadside maintenance will be the responsibility of the State Department of Transportation as well as maintenance of traffic signs and markers, pavement, structures, and all other highway appurtenances within the right of way.

5. Improvement of the Existing Road

As a separate project from the proposed Corridor Line A-1, it is suggested that improvements be made to the existing road, particularly between Honalo and Captain Cook, in order to increase its capacity and improve traffic safety. The pavement should have a uniform width of 24 feet with at least 8-foot shoulders to accommodate pedestrians and parking. Such a project is estimated to cost \$2,000,000.

6. Estimated Cost and Road User Benefit-Cost Ratio

The preliminary costs are estimated as follows:

Construction Cost	\$34,720,000
Preliminary Engineering	3,472,000
Rights-of-Way	<u>3,632,000</u>
Total Estimated Cost	\$41,824,000

The road user's benefit-to-cost ratio for this corridor was developed according to the following criteria and assumptions:

Capital recovery factor	7 percent
Road user unit costs developed by the Highway Planning Branch, State Department of Transportation	
Life of pavement	20 years

Life of grading, drainage,
and structures 40 years
Life of right of way 100 years

Construction cost of pavement,
grading, drainage, miscellaneous
construction items, engineering,
and land acquisition is based on
1974 prices

Maintenance costs:
For two lanes, per mile per year . . \$2,000
For four lanes, per mile per year . \$3,660

The calculated benefit-to-cost ratio is 1.26.

7. Construction Considerations and Timetables

The project will be funded under the Federal Aid Program for the Primary System of Highways in which the federal government will contribute 75 percent of the eligible cost of the project. The remaining 25 percent will be contributed by the state. Neither federal nor state funds are available in a lump sum amount for the entire project; therefore, the construction will have to proceed in segments. Federal funds are apportioned annually, while the state appropriates funds every two years. Consequently, the proposed highway has been divided into six segments (each individually usable). Project activities such as design, right-of-way acquisition, and construction would be staggered so that construction of successive segments can be started every 2 to 2-1/2 years. This timetable results in an estimated total construction time of 12 to 15 years. The schedule for design and right-of-way acquisition cannot be determined since further implementation of the project is subject to legislative appropriations. The proposed construction segments are shown on Figure II-9.

In order to alleviate most quickly the congestion in areas with large traffic volumes and low levels of service, the construction of the project could either be (1) phased sequentially from the beginning to the end of the project or (2) arranged in phases so that the bypass from the intersection of Kuakini Highway and Kamehameha III Road to the City of Refuge Road would be constructed in the initial phases. The limits of these phases are described as follows:

Construction Plan (1)

<u>Phase</u>	<u>Location</u>	<u>Distance (miles)</u>
1	Kealakowaa Heiau to Kamehameha III Road	2.27
2	Kamehameha III Road to Connector 2	5.95
3	Connector 2 to City of Refuge Road	5.68
4	Keokea to Honokua	4.88
5	Honokua to Ophihali 1	4.89
6	Ophihali 1 to Papa (End of Project)	4.88
7	Construct two additional lanes from Kamehameha III Road to Connector 2 (not added to total length)	
	Total Length	<u>28.55</u>

Construction Plan (2) (shown on Figure II-9)

<u>Phase</u>	<u>Location</u>	<u>Distance (miles)</u>
1	Kamehameha III Road to Connector 2	5.95
2	Connector 2 to City of Refuge Road	5.68
3	Kealakowaa Heiau to Kamehameha III Road	2.27
4	Keokea to Honokua	4.88
5	Honokua to Ophihali 1	4.89
6	Ophihali 1 to Papa (End of Project)	4.88
7	Construct two additional lanes from Kamehameha III Road to Connector 2 (not added to total length)	
	Total Length	<u>28.55</u>

Construction Plan (2) would relieve the congestion through the towns of Honolulu, Kainaliu, Kealakekua, and Captain Cook sooner than would Construction Plan (1).

The upper segment of the City of Refuge Road, 1.33 miles long, needs no further improvement and is considered an exception to the project. These construction phases could provide a new two-lane highway from Kamehameha III Road to Papa in 12 to 15 years.

Phase 7, which would be the last phase, would consist of widening to four lanes the section from Kamehameha III Road to Connector 2 because of the anticipated traffic volume on or about 1990.

CHAPTER III. DESCRIPTION OF SURROUNDING ENVIRONS

A. PHYSICAL AND HYDROLOGICAL FACTORS

The project area is located on the slopes of Hualalai and Mauna Loa. Lavas from Hualalai extend southward to Maihi Bay (west of Honalo), while Mauna Loa lava flows occur beyond that point. The general surface slope of the area is fairly steep, normally from 10 to 16 percent, and the landscape is relatively uneroded. The major topographical feature of the area is the gulch and steep rise above Kealakekua Bay. The two known fault lines in the area, Kelakekua and Kaholo faults, are considered not to be deterrents in the construction of Corridor Line A-1.

1. Lava Flows and Soils

Relatively recent Mauna Loa lava flows (1919, 1926, and 1950) have crossed Mamalahoa Highway between Hookena and Milolii. Considering this history and the continuing volcanic activity of Mauna Loa, it is quite possible that, sometime in the future, lava flows will again cross the Kona region. Since the highway alignment is approximately perpendicular to the flow gradient, it is likely that it might be overrun by lava flows in future years.

The recent lava flows in the project area are shown on Figure III-1 along with a general soils map. Although most of the soil formations shown on Figure III-1 would be crossed by Corridor Line A-1, consideration also must be given to the fact that, in the areas lower than about the 1,000-foot elevation, the surface consists of raw to lightly weather rock covered with thin, discontinuous patches of soil, while the wetter areas between about the 1,000- and 4,000-foot elevations have well-developed soils. The vegetation density increases with the greater soil cover and higher rainfall.

2. Rainfall

The average yearly rainfall distribution (Figure III-2) in the project area varies from 50 inches in the southern and western portions of the project to less than 40 inches in the northern and eastern areas. In the lower elevations, the factors of lower rainfall and higher permeability (due to less soil cover and an underlying fractured rock formation)

combine to result in almost no surface runoff reaching the coastline. This lack of flowing streams is evident in the absence of any marked erosion channels in the lower elevations. The greater rainfall and more developed soil cover of the higher elevations, on the other hand, combine to form mountain-rain forest and flood-prone areas with a more marked erosion channel development. This type of area is more evident at approximately the 1,000- to 4,000-foot elevations. It should also be noted that the maximum recorded annual rainfall in the project area is approximately double the average annual rainfall, thus indicating a large variation in the rainfall pattern.

B. BIOLOGICAL FACTORS

The plant life in the project area can be grouped into seven definable categories, each with different economic and environmental values. These classifications are noted in Table III-1 along with the percentage of Line A-1 that passes through the various types of vegetation growth.

TABLE III-1
VEGETATION TYPES ADJACENT TO CORRIDOR LINE A-1

<u>Vegetation Type</u>	<u>Percent</u> <u>A-1</u>
Scrub	61
Pasture	11
Cultivated Land	3
Native Forest	.9
Secondary Forest	10
New Lava Flows	4
Residential Areas	2

The plants and observations on the seven types of vegetation recognized in the project are listed as follows by their common and scientific names; an asterisk (*) preceding the plant name indicates that the plant is a native Hawaiian species. The status of the plants is also identified as endemic species (E), native only to Hawaii; indigenous species (I),

native to Hawaii and other parts of the world; and exotic species (X), introduced to Hawaii by man.

1. Scrub

This is a vegetation type dominated by various species of shrubs, vines with only occasional trees or grassy openings. The more common and widely distributed shrubs include:

Christmasberry - Schinus terebinthifolius (X)
lantana - Lantana camara (X)
koa haole - Leucaena latisiliqua (X)
castor bean - Ricinus communis (X)
guava - Psidium guajava (X)
waiawi - Psidium cattleianum (X)

Other shrubs are somewhat less common or less widely distributed. Among these are:

*noni - Morinda citrifolia (X)
*'akia - Wikstroemia sp. (E)
*ilima - Sida fallax (I)
*a'ali'i - Dodonaea eriocarpa (E)
*pukiawe - Styphelia tameiameia (E)
*hi'aloa - Waltheria americana (I)
ma'o - Abutilon grandifolium (X)
kolomona - Cassia surattensis (X)
klu - Acacia farnesiana (X)

Vines that are common include:

*huehue - Cocculus ferrandianus (E)
*koali-'awahia (morning glory) - Ipomoea congesta (I)

A few kinds of trees are found as scattered individuals or in small groups. These include:

monkeypod - Samanea saman (X)
Chinaberry - Melia azedarach (X)
'opiuma - Pithecellobium dulce (X)
kiawe - Prosopis pallida (X)

kukui - Aleurites moluccan (X)
Java plum - Eugenia cumini (X)
*ohe makai - Reynoldsia huehuensis (E)
*lama - Dispyros ferrea ssp. sandwicensis (E)
ohi'a-lehua - Metrosideros collina ssp. polymorpha (E)

The appearance of the scrub vegetation is correlated with such factors as rainfall, temperature (elevation), soil or substrate type, and age and past history of any given site. At lower elevations, in drier areas and on more recent lava flows, the individual shrubs are only two or three feet high and widely spaced. At middle elevations, wetter areas and on well developed soils, the same species are from 12 to 15 feet tall.

Although, there are native species in the scrub vegetation, including a few rare species, this type of vegetation has very little intrinsic biological value as source of native plants or animals.

2. Pasture

The pasture lands are of economic value but have little or no intrinsic biological value. The common grasses are:

guinea grass - Panicum maximum (X)
kikuyu grass - Pennisetum clandestinum (X)

Most pastures have scattered trees such as:

monkeypod - Samanea saman (X)
Chinaberry - Melia azedarach (X)
opiuna - Pithecellobium dulce (X)
mango - Mangifera indica (X)
albizia - Albizia sp. (X)

3. Cultivated Land

Some areas are under intensive cultivation but the trees have little or no intrinsic biological value. The agriculture plants are:

coffee - Coffea arabica (X)
macadamia nut - Macadamia ternifolia var. integrifolia (X)
banana - Musa sp. (X)

papaya - Carica papaya (X)

flowering plants and truck crops of various types

4. Native Forest

Most of the native plants are found in this area and therefore are of the highest intrinsic biological value. The forest is primarily dominated by *ohi'a-lehua, Metrosideros collina ssp. polymorpha (E), trees. Other trees present are:

- *kopiko - Psychotira hawaiiensis (E)
- *mamane - Sophora chrysophylla (E)
- *alahe'e - Canthium odoratum (I)
- *'ohe makai - Reynoldsia huehuensis (E)
- *kōlea-lau-li'i - Myrsine sandwicensis (E)
- *kōlea-lau-nui - Myrsine lessertiana (E)
- *olopua - Osmantus sandwicensi (E)
- *lama - Diospyros ferrea ssp. sandwicensis (E)
- *kukui - Aleurites moluccana (X)

Shrubs include:

- *uulei - Osteomeles anthyllidifolia (E)
- ti - Cordyline terminalis (X)
- *ākia - Wikstoemia sp. (E)
- *mamaki - Pipturus hawaiiensis (E)
- *pilo - Coprosma sp. (E)
- *pūkiawe - Styphelia tameiameia (E)

Vines present are:

- *'ie'ie - Freycinetia arborea (E)
- *awikiwiki - Canvalia hawaiiensis (E)
- *huehue - Cocculus ferrandianus (E)
- *kauna'oa - Cassytha filiformis (I)

Ferns include:

- *sword fern - Nephrolepis exaltata (I)
- *hapu'u - Cibotium chamissoi, C. splendens (E)

*ama'uma'u - Sadleria cyatheoides (E)

*moa - Psilotum nudum (I)

5. Secondary Forest

The secondary forest has been disturbed in the past by land clearing activities, grazing, and other factors; however, some of the native trees that are common in the native forest occur here as scattered plants. Trees, shrubs, and herbs found in the area are:

*ohi'a-lehua - Metrosideros collina ssp. polymorpha (E)

*lama - Diospyros ferrea ssp. sandwicensis (E)

*ohe makai - Reynoldsia huehuensis (E)

kukui - Aleurites moluccana (X)

monkeypod - Samanea saman (X)

Java plum - Eugenia cumini (X)

mango - Mangifera indica (X)

ironwood - Casuarina equisetifolia (X)

silk oak - Grevillea robusta (X)

Ceara rubber - Manihot glaziovii (X)

Albizia - Albizia sp. (X)

guava - Psidium guajava (X)

waiawi - Psidium cattleianum (X)

'opiuma - Pithecellobium dulce (X)

Chinaberry - Melia azedarach (X)

6. New Lava Flows

The vegetation in the area is still in the early stages of succession and consist of scattered small trees of *ohi'a-lehua, Metrosideros collina ssp. Polymorpha (E), with *sword fern, Nephrolepis exaltata (I), and various species of lichens covering the rock. Although most of the species are native species, the biological diversity of such areas is low and the communities are not stable over long periods of time.

7. Residential Areas

Many useful and ornamental plants are cultivated in yards and gardens in residential areas along the highway. Some of the more common plants found are:

avocado - Persea americana (X)
papaya - Carica papaya (X)
poinsettia - Euphorbia pulcherrima (X)
ti - Cordyline terminalis (X)
monkeypod - Samanea saman (X)
mango - Mangifera indica (X)
African tulip tree - Spathodea complanata (X)
manienie - Cynodon dactylon (X)
mulberry - Morus nigra (X)
plumeria - Plumeria acuminata (X)
litchi - Litchi chinensis (X)
soursop - Annona muricata (X)
banana - Musa sp. (X)
breadfruit - Artocarpus altilis (X)
Various types of citrus

8. Birds and Animals

The bird population of the study area can be generally divided into native and introduced species. The native species are associated primarily with the native forest biome, while the common introduced species may be found throughout most of the project area. The birds observed were:

elapaio - Chasiempis sandwicensis sandwicensis (E)
apapane - Himatione sanguinea sanguinea (E)
i'iwi - Vestiaria coccinea (E)
amakihi - Loxops virens virens (E)
Hawaiian hawk or io - Buteo solitario (E) (endangered species)
laced-necked dove - Streptopelia chinensis chinensis (X)
barred dove - Geopelia striata striata (X)
red-billed leiothrix - Leiothrixlutea (X)
common mynah - Acridotheres tristis tristis (X)
Japanese white-eye - Zosterops japonica japonica (X)
linnet - Carpodacus mexicanus frontalis (X)
ricebird - Lonchura ouctulata (X)
house sparrow - Passer domesticus (X)

cardinal - Richmondia cardinalis (X)

Pacific golden plover - Pluvialis dominica fulva (X)

The only mammals observed were rats and mongoose. There are three types of rats and one type of mouse and mongoose. These are introduced species that occur in the area. It is also probable that the endangered species of Hawaiian bat ('Ope'ape'a), Lasiurus cinereus semotus, is found in the area; however, it was not observed during the field investigation.

The native forest vegetation type is of greatest environmental concern because it includes the most native Hawaiian species of plants and animals, many of which are unique to these islands and some of which are endangered, such as the Hawaiian hawk or Io, and the Hawaiian bat. Next in importance, in terms of environmental concern, is the secondary forest since it also contains some native species.

Cultivated land, pasture, and residential areas are the principal areas of economic importance. A highway alignment through these areas provides for the transportation needs generated by the related economic activities but often also serves as a disrupting element in terms of dividing parcels of land.

C. SOCIO-ECONOMIC FACTORS

The following discussion is a summary of the economic and social conditions in the project area.

1. Population

From 1920 to 1970 the population of the Kona area fluctuated between about 7,000 and about 9,500. The 1970 population was 8,836, but by mid-1973, had increased to about 10,000 (an increase of 14 percent). Projections by the Department of Research and Development, County of Hawaii, Data Book, 1974, indicate the following ranges for the Kona population shown in Table III-2:

TABLE III-2
POPULATION PROJECTIONS

<u>Year</u>	<u>Projected Range</u>
1970	8,836
1975	11,300 to 12,200
1980	16,300 to 18,400
1990	27,400 to 19,800

2. Economic Activities

The economically productive activities in the Kona area are primarily agriculture, the visitor industry, and the supporting commercial and professional services.

Coffee has been, and continues to be, the primary crop of the area, although projections show that coffee acreage probably will decline in the future. The most promising crop appears to be macadamia nuts. Table III-3 gives the 1973 and projected 1985 major crop distributions for the Kona area. Livestock and poultry production are expected to increase from a value of just over \$2,000,000 in 1971 to between \$4,000,000 and \$5,000,000 in 1985.

Despite these expected increases in agricultural activity, the dominant industry in Kona is, and will likely continue to be, the visitor industry. Almost all of the visitor facilities and the primary points of interest are along the coastline. The locations of planned resort developments shown in the Hawaii County General Plan indicate that the visitor industry will continue to be coastally oriented. Most of the population increase shown in Table III-2 is based on the anticipated growth of the visitor industry.

The supporting commercial, professional, and institutional facilities and activities for the resident and visitor populations are located in Kailua and along the existing highway to Captain Cook. The commercial business establishments are oriented to both the resident and visitor populations, while the professional and institutional activities are primarily resident oriented.

TABLE III-3

VALUE AND ACREAGE FOR SELECTED CROPS IN KONA, 1973

<u>Crop</u>	<u>Total Acreage</u>	<u>Bearing Acreage</u>	<u>Production (lbs)</u>	<u>Value (\$)</u>
Macadamia nuts	5,140	1,430	3,070,210	736,850
Coffee	2,900	2,500	2,710,000	1,545,000
Tomatoes	81	81	2,671,500	571,000
Cucumbers	33	33	824,400	118,000
Bananas	170	170	940,000	97,000
Avocados	150	80	595,000	86,000

MAXIMUM AND MINIMUM PROJECTIONS FOR SELECTED CROPS IN KONA, 1985

MAXIMUM

<u>Crop</u>	<u>Total Acreage</u>	<u>Bearing Acreage</u>	<u>Production (lbs)</u>	<u>Value (\$)</u>
Macadamia nuts	11,000	10,140	50,700,000	16,224,000
Coffee	1,200	1,000	2,000,000	1,260,000
Avocados	1,500	1,300	19,500,000	3,900,000
Bananas	450	450	4,500,000	765,000
Tomatoes	121	121	3,630,000	907,500
Cucumbers	63	63	1,575,000	299,250

MINIMUM

<u>Crop</u>	<u>Total Acreage</u>	<u>Bearing Acreage</u>	<u>Production (lbs)</u>	<u>Value (\$)</u>
Macadamia nuts	6,500	5,500	27,470,000	8,793,408
Coffee	1,200	1,000	2,000,000	1,260,000
Avocados	500	300	4,500,000	900,000
Bananas	300	300	3,000,000	510,000
Tomatoes	100	100	3,020,000	775,000
Cucumbers	50	50	1,249,000	236,310

Source. Frank S. Scott, Jr., Economic Potentials of Agricultural Enterprises in Kona, unpublished report prepared for Donald Wolbrink and Associates, Inc., Honolulu, October, 1974.

Because of the rainfall and soil distribution, much of the agricultural activity is on the eastern side of the existing highway while the visitor industry is oriented along the shoreline because of the drier climate. The shoreline orientation of the visitor industry indicates that its transportation needs would be met best by Corridor Line A-1.

Those businesses along the present highway between Keauhou and Captain Cook that are primarily tourist oriented would be hurt by the adoption of this corridor. The majority of businesses in that area, though, are resident oriented and should not be detrimentally affected, considering the projected increase in the resident population.

D. ARCHAEOLOGICAL AND HISTORICAL SITES

The evidence of ancient Hawaiian occupation was a prominent feature of the Kona landscape. This is especially true of the Kealahou Bay, Kahaluu, Keauhou, and coastline areas that contain many archaeological sites (see Figure III-3).

Many of the sites in the Kona districts have legendary and historical significance, and some continue to be respected by the local inhabitants. The three areas previously mentioned are especially rich in sites, so much so that two of them, Kahaluu and Kealahou Bay, have been designated state historical districts and are listed in the National Register of Historic Places. Keauhou, though not a historical district, is, nevertheless, an area of great archaeological interest because it, along with Kahaluu, was greatly favored by the Hawaiian ruling chiefs as a place of residence and recreation. The popularity of these areas is evidenced by the number, size, and quality of the heiaus found there. Later Hawaiian royalty also chose these areas for the same reasons--the beautiful landing bays for canoes, the abundance of fish, flourishing gardens in the upland areas, and the famous surf.

Among the more famous sites in the Kahaluu Historical District (see 4150 on Figure III-3) is Kuemanu Heiau, famed as the only known major heiau for surfers in the state. Surfers came here before competitions to pray for victory and, afterwards, to wash off the salt in its bathing pool Wai-kui. Keeku Heiau is said to have been built by Lono-i-ka-makahiki,

ruler of the island of Hawaii in the late sixteenth and early seventeenth centuries. This heiau served as both luakini (place of human sacrifice) and pu'uhonua (place of refuge), though probably at different times. Hapaiali'i Heiau is reputed to have been built by Kamehameha I after the Battle of Moku'ohai but was probably built during an earlier period, as local knowledge indicates it is older than the nearby Keeku Heiau. More likely, it was reconstructured and reconsecrated by Kamehameha. Besides heiaus, there is the Kahaluu Breakwater built by Kalai-kini, an engineering feat that once enclosed Kahaluu Bay. Less famous sites include the Kauaiilii Complex, which was used to plant sweet potatoes, platforms, puoas (burial cairns), petroglyphs, and caves.

On the way south to Keauhou, there is the Keauhou Holua, the best preserved slide in the islands and the largest, covering approximately ten acres. The Keauhou Heiau is also in this area, while the Kumahaula Heiau is in the nearby Heeia Bay Complex. Keauhou also has its share of platforms, petroglyphs, and habitation sites.

All along this coastal area there are a number of large sites. Farther south at Kealakekua Bay, the Kuamoo Burial Ground, set aside for the warriors of the Kuamoo Battle, has been designated as highly valuable in both the Hawaii State and National Registers of Historic Places. The Honalo Complex around Maihi Bay is an extensive habitation complex with burials, a heiau, and a holua.

Kealakekua Bay is famous for its historical significance. It was here that Captain James Cook made his historic landing in the Hawaiian Islands, and it was at the nearby Puhina-OLono Heiau (or Cook's Heiau, as it is more commonly known) that his body was prepared for distribution according to ancient Hawaiian custom. Kealakekua Bay is also important in that here one can witness an untouched, native culture gradually transforming itself into a hybrid as it comes into increasing contact with the influence of western culture.

Of the numerous archaeological sites known, the majority are located on the coast. Inland are Kealakowaa Heiau near Kuakini Highway in the Holualoa ahupua'a (land division), the Keauhou Holua east of the coast highway (State 18), and the aboriginal field system above Kealakekua Bay

(see following section). This does not mean, however, that no sites exist at all farther inland. The inland areas of the Kona districts are virgin territories not yet surveyed by archaeologists, mainly because of the dense vegetation covering the regions and their inaccessibility. As these districts were highly favored by the chiefs, chances are that unknown sites will be found along the proposed corridors.

1. Kona Field System

Essential to any discussion of the archaeological resources of the Kona districts is the Kona Field System, the most extensive and monumental work of ancient Hawaii. An integrated complex of remains in an area measuring 3 by 18 miles in size, the system can only be seen in its entirety from the air or by means of aerial photos.

The fields form a patterned network of elongated rectangles lying as a band parallel to the sea. Ground inspections in the Kealahou Bay area have shown that the patterning is caused by earthen and rock ridges that enclose rectangular field areas, generally oriented with their long axes perpendicular to the sea. This places the long sides of each rectangular field perpendicular to the topographic contours and parallel to the terrain slope.

Individual fields vary in size from 30 feet wide by 50 feet long to 150 feet by 1,000 feet. Field boundaries vary from wellconstructed stacked stone to simple mounds of earth and rock, all ranging in height from about 1.5 feet to 3 feet. The width of these field boundaries varies from about 3 feet for the stone walls to about 9 feet for the rounded earthen mounds.

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

The general symmetry of the Kealahou fields, and of the whole Kona system, is well designed to take advantage of the western Hawaiian Island environment. The alignment maximizes the available sunlight and exposure to periodic rain showers. Onshore winds are generally light, so

physical damage or excessive plant evapotranspiration would not have been a crucial factor in field alignment.

Excellent historical documentation exists for the Kona Field System, primarily through the journal of Archibald Menzies, surgeon and naturalist, who periodically visited the area between 1792 and 1794. Menzies made two trips inland through portions of the system from the coast to the upper elevations. In his walk through the northern portion, going toward Hualalai, he noted breadfruit plantations and edible roots and vegetables industriously cultivated. Heading back toward Kaawaloa, he found the edge of the forest bounded by rich plantain and banana plantations. In another trip beginning at Kealakekua Bay in the southern portion of the system, he noted breadfruit plantations, with plantings in between the trees of sweet potatoes and wauke (cloth plant). As the land became more fertile, he noted the land was divided into plantations of "ili, wauke, sweet potatoes, and taro, with boundaries composed of sugar cane and ti.

According to the Hawaii Register of Historic Places, the Kona Field System is without equal in Hawaii and probably in the nation in terms of the mound of land that was modified by prehistoric inhabitants. In its complexity and size, it is comparable to the well-known field systems of Central and South America, although differing in specific characteristics. It is a physical demonstration of the highly developed farming economy of ancient Hawaii, and it illustrates the complexity and advanced state of aboriginal Hawaiian culture.

The study of environmental and crop factors shows the ancient Hawaiians were knowledgeable and adept in molding their needs to live in harmony with nature. The Kona Field System is a dramatic illustration of their dependence upon the production of land foods, their primary subsistence source. Historical records show a strong appreciation of good conservation measures, such as fallowing and mulching.

The vastness and complexity of the system also show the excellent practical engineering knowledge of these people as well as the highly evolved social organization that could coordinate the work of so many individuals to create and maintain such a system. Within the overall

system, it is still possible to see clearly the boundaries of the traditional 'ili and ahupua'a land divisions. This gives an unparalleled opportunity for research into the organization and interrelationships of ancient Hawaiian society.

The innumerable remains of the habitations and of complete assemblages of other physical remains, such as burial areas, heiaus, cave shelters and refuges, animal enclosures, and work platforms all contribute to the importance of this system to archaeological research.

Urban development and modern agriculture have caused moderate damage to the system, but ample physical remains are sufficiently well preserved to define the system's boundaries and to make it an invaluable addition to the Hawaiian heritage.

E. SUMMARY OF LAND USE PLANS, POLICIES, AND CONTROLS AS RELATED TO THE PROJECT

1. General Plan, County of Hawaii

The transportation element of the general plan lists the improvement of the present Kona-Kau Road as one of the courses of action for the improvement of the road systems in Kona.

The route shown on the General Plan Facilities Map is closely parallel to and west of the existing highway from Keauhou to north of Kealakekua, where it would cross to the eastern side and continue to a point south of Captain Cook, then recross the present highway and proceed on the west side to Keokea. After that point, it would follow the existing highway but in a straighter alignment.

The proposed Corridor Line A-1 differs in two respects with the proposed route in the general plan. These differences are as follows:

a. Corridor Line A-1 would continue on the west side of Captain Cook instead of crossing and recrossing the existing road. Aside from the steep grades it would no longer be feasible to follow the master plan route because it would go through the existing civic center and playground complex in Captain Cook.

b. The master plan route is located west of the existing road between Captain Cook and Keokea where it would intersect the existing road north of the existing City of Refuge Road. Corridor Line A-1, however, will be located further west and will be connected to the upper segment of the City of Refuge Road in order to avoid going through the cultivated farms and having another intersection with the Hawaii Belt Road immediately north of the City of Refuge Road intersection. With these minor differences the general alignment of Corridor Line A-1 is essentially similar to the master plan route.

The Planning Department of the County of Hawaii advised that an amendment to the General Plan is not necessary because of the differences in alignment between Line A-1 and the line shown on the General Plan.

2. Land Zoning

Corridor Line A-1 passes through land zoned by the County of Hawaii for different purposes as shown on Figure II-4. The length of the segments passing through the zoned areas are as follows:

Residential, along Kuakini Highway	1.19 miles
Unplanned, Kuakini to Kelakekua	6.76
Agricultural, Kealakekua to Honaunau	4.92
Unplanned, Honaunau	1.02
Agricultural, Upper Section of City of Refuge Rd.	1.33
Agricultural, Keokea to Kealia	1.44
Agricultural/Unplanned, Kealia toward Papa	9.75
Forest Reserve, Kealia toward Papa	2.00
Agricultural/Unplanned, Kealia toward Papa	<u>1.48</u>
Total Distance	29.89

3. Land Use Commission District Boundaries

The State Land Use Commission divided all the lands in the State into four districts and established their boundaries. The districts are designated as urban, rural, agricultural, and conservation. From its beginning and ending, the proposed project will traverse the following districts:

Urban/Agricultural, Kuakini Hwy. (Kuakini Highway serves as the boundary between the urban and agricultural districts)	1.19 miles
Agricultural, Kuakini Highway to Captain Cook	8.28
Urban, Captain Cook	0.57
Agricultural, Captain Cook toward Papa	16.37
Conservation, Captain Cook toward Papa	2.00
Agricultural, Captain Cook toward Papa	<u>1.48</u>
	29.89

The alignment through the Conservation District near the end of the project cannot be avoided since this district extends from the coast to the upper slopes of Mauna Loa. The project will follow the existing road which now goes through the Conservation District but on a straighter alignment.

4. Special Management Area (SMA)

Special Management Areas are setback lines from the shoreline established according to the State policy to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawaii. The responsibility of establishing the boundaries of special management areas and promulgation of the rules and regulations affecting these areas was delegated to the County by the State.

The County of Hawaii has established the SMA along the Kona Coast. The proposed project would infringe on the northeast corner of the SMA around Kelakekua Bay. This corner extends 4,800 feet inshore to elevation 1,280 feet above mean sea level and within 500 feet from the existing road at Captain Cook. The proposed project would follow the 1,100-foot contour and would sever a triangular lot measuring about 3,000 feet along the proposed project.

CHAPTER IV. ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

The environmental impacts of Corridor Line A-1 are discussed in this chapter. Most of the basic background information for these discussions was presented in Chapter III, and more detailed analyses of many of the factors discussed in this environmental impact statement were taken from the following references:

Economic Impact of Alternative Kona Highway Proposals,
Louis A. Rose, Ph.D., University of Hawaii

Social Impact Assessment - Kona Highway, Morris Fox,
Public Affairs Advisory Services, Inc.

Biological Element of the Environmental Impact Statement,
Charles H. Lamoureux, Ph.D., University of Hawaii

Hydrogeology Element of Environmental Impact Statement,
John Mink, Consultant Hydrogeologist

Identification of Historical Resources Located in the
Kona Highway Project Area, Sunn, Low, Tom & Hara, Inc.

A. PHYSICAL AND HYDROLOGICAL CHANGES

Corridor Line A-1 does not occupy a large percentage of the land area in the North and South Kona regions since the nominal width of the right-of-way is only 100 to 150 feet.

1. Surface Flow

The surface flow in the area through which Line A-1 will pass is very small. The flows from two streams, Waiaha Stream north of the project and the intermittent Kiilae Stream near Keokea, are very small. The runoff/rainfall proportion for Waiaha Stream ranges from 1.8 to 3.5 percent; for Kiilae Stream, the proportion is 5.4 percent. These low proportions indicate high infiltration rates, although heavy showers produce small flash floods at higher elevations of 1,000 to 3,000 feet. Downslope toward the sea, especially where relatively flat lava aprons have formed near the coast, even the heaviest storms produce only a small volume of runoff that reaches the sea.

The specific area affected by flash floods is east of the existing highway above the towns of Keauhou, Honalo, and Kainaliu, where as much as 3 inches of rainfall intensity per hour occurs at 50-year

intervals. The flash floods will have very little effect on the proposed project, which is located on the lava apron at elevations of 700 to 1,000 feet and about 3,000 to 3,000 feet below these towns. Most of the runoff would seep into the ground before it reaches the proposed project because of the intervening porous ground.

The primary physical effect of the highway is not directly a function of how much area it occupies and the quantity of runoff but, rather, of the fact that it cuts across the surface drainage flow direction. This results in the interception and concentration of any surface runoff at those points where culverts pass the flow under the highway. During the design of the highway, a sufficient number of culverts will be provided and carefully located to spread the flow, thus preventing excessive erosion or flooding below these flow concentration points. With adequate spreading, there should continue to be enough infiltration as the flow moves toward the coastline and no increase in the incidence of flooding above what it would be without the highway. It would not be a good idea to contain the flow in lined channels since this would further concentrate the flow and markedly reduce the infiltration, with a consequent increase in the risk of flooding at the end of the channel.

These considerations were taken into account in the formulation of the proposed drainage plans for the project. It is estimated that about 170 culverts of various types and sizes spaced according to the size of the upstream drainage area would be needed. The number of culverts was determined for planning purposes only; the sizes and locations of the drainage structures would be determined more carefully during the design phase. Each location should be based on the extent and the upstream and downstream characteristics of each individual drainage area.

Seepage pits should be provided at the downstream ends of the culverts so that the runoff would not flow as a stream and create new channels. The seepage pits would also serve as a facility for returning the water into the ground.

The final alignment of the highway will take into consideration drainage improvements already made. Existing structures will be preserved as much as possible to maintain current drainage patterns and reduce the cost of new drainage facilities.

The project alignment would not disturb the vegetation-soil-rock equilibrium to the extent that surface runoff and sediment loads would increase and groundwater infiltration rates would decrease. The area to be occupied by the highway would not be large enough to cause such a problem. Because of the generally lower elevation, Corridor Line A-1 would pass through a fewer number of flood-prone areas than an alignment east of the existing highway.

2. Coastal and Groundwater Pollution

The coastal waters would not be affected by the runoff from the road surface due to the high infiltration of the basaltic rock. Runoff from the road, however, will rinse contaminants from its surface, and some of the contaminants will eventually reach the groundwater. The quantity, though, will be minute relative to the flux of water in the basal lens, and the effects on groundwater quality will probably not be measurable. An example of contamination under exaggeratedly bad conditions would be to assume that the quality of the runoff from the road would be the same as that of storm runoff of a typical city. According to Vitale and Sprey (1974), the average toxic pollutant load per curb mile per day of city storm runoff is:

Pb (lead)	0.38 lbs/curb mile/day
Zn (zinc)	0.53 lbs/curb mile/day
Hg (mercury)	0.016 lbs/curb mile/day

If these values were applied to Kona, they would add 0.009 ppm Pb, 0.013 ppm Zn, and 0.004 ppm Hg to the groundwater, all very much below acceptable limits. Actually, the contaminant load would be far less than the values computed above because runoff from a rural region would not accumulate the high pollutant load characteristic of drainage from city streets.

B. UTILITIES

1. Water Supply

The sources of domestic water for North and South Kona are the well fields at Kahaluu and Keei. The water is pumped from these wells

into a system of reservoirs and distribution mains along the existing highway, with laterals to the shore areas at Kahaluu, Keauhou, Napoopoo, and the City of Refuge at Honaunau. The new well at Kahaluu was recently completed.

The water wells, pumping stations, and reservoirs will not be affected by the project. The project will be about 1,600 feet west of the Kahaluu wells. The nearest water source facilities are the new well at Kahaluu (500 feet east), Keel well site no. 1 (500 feet west), and Keel well site no. 2 (500 feet west).

The water transmission lines and laterals installed in the existing roads, such as Kuakini and Hawaii Belt Road east of the City of Refuge, may be affected in certain areas due to the adjustment of the profile and alignment of the existing road. This would be determined more precisely during the design stages of the project.

2. Electric and Telephone

The effect on electrical and telephone transmission lines will be similar to the effect on the water transmission lines in that only those facilities in the existing road will be affected. It is estimated that 18.3 miles of the existing overhead electrical and telephone lines may need adjustment.

C. BIOLOGICAL

1. Forest Lands

The land that will be traversed by the project is covered with scrub growth, pasture, cultivated land, native forest, secondary forest, new lava flows, and residential areas.

Of these, the native forest has the highest intrinsic biological value because it is where the native plants, animals, and birds are found in abundance. The secondary forest is an area that has been disturbed by man and has regrown. Some native trees and plants that are common in the native forest are scattered in this forest and provide habitation for a few native birds. The secondary forest has a much lower intrinsic biological value than the native forest. The forest areas are also

significant in that they constitute the best existing representation of the pre-Captain Cook ecosystem of the Kona district.

The project will pass through about 2 miles of forest reserve land centered about 3 miles north of Papa. Since the alignment of the existing highway will be followed through this area, no significant additional impact is anticipated from the highway improvement, except within the additional right of way required.

There is, however, the danger of forest fires that cannot be avoided under the present and future conditions of the road, although the wider shoulder areas of the proposed project would provide a greater distance between the forest and the travelways. This may be a factor in preventing fires.

2. Roadside Weeds

Other biological effects would be the increase in roadside weeds and an increase in the exposure of plants in the immediate vicinity of the highway to air pollutants. There is also the possibility that localized changes in the drainage pattern will affect the ecological makeup in that area.

The percentage of the total distance of Corridor Line A-1 through each of seven vegetation types is shown in Table III-1).

3. Scrub Vegetation

Approximately 61 percent of the proposed project will go through land covered with scrub vegetation. No significant detrimental impact is expected as a result of building a highway through the scrub vegetation areas since this is not a rare ecosystemic type and is not particularly fragile.

4. Lava Flows

The four to five percent of the project that passes through new lava flows will not have any significant biological impact since the organisms in these areas are few in number and type. Because the ecosystem of the lava flows is in the very early stages of succession and is controlled primarily by the type of substratum (i.e., the lack of

substantial amount of soil), it would not be affected except for the actual area of the right of way where roadside weeds may develop.

5. Bird Population and Mammal Species

The bird population of the study area can be generally divided into native and introduced species. The native species are associated primarily with the native forest biome, while the common introduced species may be found throughout most of the project area. The native bird species would be affected by highway construction insofar as their native forest habitat is disturbed, while the introduced species are not expected to be notably affected by the project. The impact on the bird population is considered minimal since birds can relocate to other areas.

In addition, none of the introduced mammal species in the area are likely to be significantly affected by the project.

Consultation under Section 7 of the Endangered Species Act of 1973 which represents a biological opinion of the U.S. Fish and Wildlife service is contained in Appendix J.

D. ECONOMIC EFFECTS

The desirable primary effects of this project would be a decrease in traffic congestion, a reduction in accident rate, and an increase in convenience of travel in the Kona area resulting in an overall economic benefit to the road user and the local economy.

Other economic impacts in Kona will result in altered travel, production, and land use behavior and the redistribution of wealth. Some of the resulting impacts would be as follows:

1. The proposed improvement would reduce the cost of travel but will generate additional travel volume. The number of trips taken to the same destinations will increase, and trips will be taken to new destinations for shopping, employment, and recreation.
2. The centers of population and economic activity are now in the Kailua-Keauhou and Honalo-Captain Cook areas. The Kailua-Keauhou shore-oriented area will grow to accommodate the increasing number of visitors, thereby providing employment for residents and inducing residents and other commercial developments there. It follows from this that the bulk of trips will either

be within the Kailua-Keauhou area, the Honalo-Captain Cook area, between these two areas, or between the recreation and shore-oriented points of visitor interest.

3. The production in Kona is comprised mostly of agricultural goods, visitor services, and other commercial-professional services. The reduced price of transportation would induce many changes in the amount and mix of goods and services produced. The initial impact would be an increase in production. The most obvious example is the increase in production of residential housing, services, or agricultural goods on previously inaccessible land. ("Previously inaccessible" means that the price of travel to a location was so high before the highway that it was not worthwhile to use the land.)
4. There would also be numerous production-decreasing effects because production in one location or industry would be transferred to production in another location or industry. Almost all of these transfers would take place within Kona, so most of the production-increasing and production-decreasing effects would "balance out" for the Kona region as a whole. There would nevertheless be a net increase in the region's production.
5. Some of the highway-induced net production increase would result from the employment of previously unemployed or underemployed Kona labor. Some of the increase would also result from the importation of capital and labor from other regions, largely because the increase in accessible land in Kona would increase the productivity of capital and labor in Kona relative to other regions.
6. It is doubtful that portions of the Big Island outside of Kona will experience a significant production impact from the highway. Exceptions to this rule will be few. Kawaihae Harbor may experience an increase in shipping activities due to increased production. Development of the southern portion of the island may be encouraged. The visitor industry at other points on the island may be affected by whatever impetus it receives in Kona

as a result of the highway. Perhaps some labor would migrate from other portions of the island to Kona, but by far the greater portion of labor and all of the capital that would migrate to Kona would come from beyond the island. Kona's relative isolation from the rest of the island reinforces the belief that practically all of the highway production impact would be experienced within Kona's bounds.

7. The project would do the most to induce additional resort center developments. When unused land is made more accessible, some of it will be developed for residential use (small lot subdivisions, or 1-, 2-, or 5-acre plots), and some of it will be planted in crops. When a farm's or pasture's accessibility is improved, it could also conceivably be converted to residential or other nonfarm use.

Most, although not all, of the land in the vicinity of the project is suitable for agricultural and residential use. Market forces will determine the value of the opened up land in the alternative uses, and the market will dictate what will be produced on it. It is likely that production and land use will increase on all fronts, residential, commercial, and agricultural.

8. The project would detrimentally affect business production in the Honalo-Captain Cook area because so much traffic would be diverted from Mamalahoa Highway. The construction of a highway bypassing neighboring Holualoa 20 years ago undoubtedly contributed significantly to the present decadent appearance of its business community. It is not believed that the Honalo-Captain Cook area would experience such an absolute decline in production because the resident population in that area is quite large enough to support a sizeable business sector and is expected to grow. The growth of population and economic activity in Kona generally, and in this area specifically, will ameliorate the bypass impact, enabling the Honalo-Captain Cook business community to survive and perhaps even improve.

9. Kona's wealth inheres in private, government, common property, and rights to use resources such as real property, labor, the environment, etc. The distribution of Kona's wealth is determined by both the amount of property and the value of each unit of it. The project would affect both of these variables and thereby redistribute the wealth among private property owners, government, and the public.

Part of the benefits created by the highway improvements would remain with their initial recipients, the highway users. Most of the benefits, however, would be involuntarily transferred to the private owners of real property in the vicinity of the improvement. All these wealth redistributive effects would be a consequence of market forces operating to change the value of land and structures.

10. Roughly three-fourths of the land between the Kealakowaa Heiau and Papa are owned by five major interests: Bishop Estate, Kealakekua Ranch, Frank Greenwell, W.H. Greenwell, and the McCandless heirs. The ownership of most of the land and structures immediately adjacent to the existing highway is fragmented; so is a considerable portion of land east and west of the existing highway between Honalo and Captain Cook. These smaller property owners, along with the large property owners and the 45-year lessees of Bishop Estate property south of Captain Cook, would experience significant wealth changes. Most of the people in Kona do not own real property, so their wealth would not be directly or significantly affected in this way.

Owners of some nonreal property would also experience wealth changes through the highway-induced reorganization of productive activities and the associated changes in relative prices of factors. Some owners of labor and capital useful in production related to transportation services, highway construction, and housing construction would experience increases in wealth.

Kona's wealth is partly comprised of a physical-social environment. To some extent this wealth inheres in the privately owned

real property of the region. Some of the land, however, is "owned" commonly. The project would accelerate a wealth redistributive process already in progress and the transfer of the common property from those who prefer the amenities of a rural environment to those who prefer the amenities of a relatively more urban environment. Some residents of Kona value the rural environment higher than they would a more urban one. Others value the more urban environment more.

11. The government taxes real property. Because the net long-run effect of any of the highway alternatives would be to increase the value of Kona real property, the county would experience an increase in wealth. Of course, wider use of land for residential and commercial purposes also leads to greater county expenditure on public facilities.

E. LAND TAKING

The taking of land for the construction of the highway will involve the severances shown in Table IV-1.

TABLE IV-1
PROPERTY, BUSINESSES, AND RESIDENTS INVOLVED
IN CORRIDOR LINE A-1

Parcels of Land Involved	422
Residential Units Displaced (Families and Individuals)	3
Businesses and Organizations Affected	2

F. SOCIETAL CONSIDERATIONS

Many of the societal changes that might result from the construction of the project are related to the economic changes discussed in the previous section, while other such changes are related to the social, aesthetic, noise, and air pollution considerations discussed in the following section.

The main social effects are described in the following paragraphs.

1. Because the project will bypass the major towns and densely populated sections of Kona between Honalo and Captain Cook and due to the fact that the project offers a more direct route to the visitor destination areas in Keauhou and Kailua, there would be a reduction in the interaction between visitors and the resident population. The bulk of the transit vehicles can be expected to travel nonstop on the new road, thus bypassing the present location of most roadside shops, gardens, and residences along the existing road. It would also mean that some tourists will miss seeing much of the character of the populated countryside that is colorful and picturesque.
2. Shortening the commuting time between South Kona and Keauhou-Kailua may encourage a few more local residents, especially wives and children, to raise family incomes by working in the resort areas. In some instances, there will be family discord and break up as a secondary impact.
3. This project will have a beneficial impact on the health condition in Kona because of the reduction in accidents, emergencies resulting from fires, accidents, natural disasters, and critical illnesses can be more rapidly reached by emergency vehicles; public health services should reach more people; the level of emotional tension caused by traffic frustration should diminish; and the level of air pollution will be reduced.
4. On the social aspects, the project would provide more ready access to recreational areas; improve the accessibility of social services; allow for more pleasant vehicular cruising along Mamalahoa Highway; increase opportunities for residents to participate in community affairs; encourage more people to serve as volunteers in community service programs; reduce busing time for school children; allow quicker response of police calls for help or investigation; and allow for more pleasant shopping along Mamalahoa Highway.

5. Some adverse impacts can be anticipated, such as reduction of privacy and quiet for those families and individuals in the proximity of the new road; higher rates of social disturbances and crimes as more people "take to the road"; increased problem of apprehending criminal suspects in the central Kona area as the new highway would provide an escape route; and feeling of being bypassed (consigned to the "old" and left out of the "new") on the part of some who reside along Mamalahoa Highway and watch the development of the project.

G. AESTHETIC EFFECTS

The project would help preserve the visual character of the roadside along the existing road between Honalo and Honaunau, but it would change the view of the mountainside by cutting through areas that are relatively unscarred fields. Those traveling on the new route would have more unobstructed views of the Kona coast. Selection of scenic stops will be part of the design phase, and a probable site will be located above Kealakekua Bay.

The project, however, will be prominently visible to residents and travelers above and below the project. The project will intervene but not interrupt the line of sight to the coastline and vice versa because the proposed highway will have a low profile. In time, the road scars will be covered by volunteer growth, and landscaping to make the denuded areas compatible with the surrounding land will be considered in the final design of the project.

H. NOISE IMPACT

The evaluation of the noise impact was made according to standards and procedures of the Federal Aid Highway Program Manual (FHPM) 7-7-3, Report No. DOT-TSC-FHWA-72-1, Manual for Highway Noise Prediction and National Cooperative Highway Research Program Report 117, Highway Noise, A Design Guide for Highway Engineers.

A summary of the results of the noise study is given in Table IV-2. The values are expressed in A-scale decibels, which are exceeded only

TABLE IV-2

PREDICTED NOISE LEVELS (dBA) - NO IMPROVEMENT

	<u>L₁₀</u> <u>Computed</u> <u>1978</u>	<u>Impact</u>	<u>1998</u>	<u>Impact</u>
Kona View Sea Lots	(1) 75	+ 5 M	(1) 79	+ 9 G
Kuakini Heights Subdivision	(1) 72	+ 2 N	(1) 79	+ 9 G
Teshima Complex	(1) 80	+10 G	(1) 84	+14 G
Mokuaikaua Congregational Church	(1) 72	+ 2 M	(1) 75	+ 5 M
Hawaii Baptist Convention	(1) 76	+ 6 G	(1) 80	+10 G
Daifukuji Soto Mission	(1) 77	+ 7 G	(1) 82	+12 G
Roman Catholic Church	66	- 4 N	(1) 71	+ 1 M
Kona Lanakila Church	(1) 76	+ 6 G	(1) 81	+11 G
Kona Hospital	66	- 4 N	(1) 72	+ 2 M
Honpa Hongwanji Mission	(1) 73	+ 3 M	(1) 77	+ 7 G
Konawaena High School	62	- 8 N	68	- 2 N
Kona Public Library	(1) 74	+ 4 M	(1) 78	+ 8 G
Roman Catholic Church in Kealakekua	(1) 74	+ 4 M	(1) 79	+ 9 G
Manago Hotel	(1) 82	+12 G	(1) 87	+17 G
Yano Memorial Hall	(1) 78	+ 8 G	(1) 82	+12 G
Kealakekua Park	(1) 71	+ 1 M	(1) 76	+ 6 G
Honaunau School	68	- 2 N	(1) 72	+ 2 M
Honaunau Buddhist Church	(1) 75	+ 5 M	(1) 78	+ 8 G
Hookena School	62	- 8 N	64	- 6 N
Alae School	65	- 5 N	68	- 2 N

NOTE: The figures under the impact column are the differences between the FHWA criterion of 70 dBA for Category B and the computed L₁₀ noise level. G indicates great impact, M is moderate impact, and N is no impact.

(1) Facilities that were impacted in 1978 or will be impacted in 1998.

10 percent of the time (L_{10}). This measure is designated to represent the magnitude of the loudest and most annoying sounds.

The effect of noise is determined by the standards established according to the degrees of impact and categories of land use. The degrees of impact are described in Report 117 by the National Highway Research Program as follows:

- . No impact - less than the criterion level and less than 6 dBA increase above the ambient
- . Moderate impact - up to 5 dBA above the criterion level
- . Great impact - 6 dBA or more above the criterion level

The design noise levels and activity relationships are categorized according to FHPM 7-7-3 as follows:

DESIGN NOISE LEVEL/ACTIVITY RELATIONSHIPS

<u>Activity Category</u>	<u>¹Design Noise Levels dBA - $L_{10}(h)$</u>	<u>Description of Activity Category</u>
A	60 (Exterior)	Tracts of land in which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, open spaces, or historic districts which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quite.
B	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, and parks that are not included in Category A and residences, motels, hotels, public meeting rooms, schools, churches, libraries, and hospitals.
C	75 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D		For requirements on undeveloped lands see footnote (2).

E 55 (Interior) Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

- (1) L_{eq} design noise levels are not included in this column. Either L_{10} or L_{eq} may be used, but not both.
- (2) Noise abatement is not required for lands that are undeveloped on the date of public knowledge of the proposed highway. There are, however, certain conditions when undeveloped land may be considered as developed land.

When the design noise level is exceeded by the predicted noise level on a certain facility, that facility is considered to be impacted. Almost all of the selected areas in the existing highway fall into Category B.

The effect of noise on 20 selected facilities along the existing highway was calculated, and the results are shown in Tables IV-2 and IV-3.

Table IV-2 shows that the noise levels at 14 facilities exceed 70 dBA and are therefore either moderately or greatly impacted under the 1978 traffic conditions. By 1998, without the improvement, the number of impacted facilities will increase to 17. The facilities that are not now impacted but will become impacted are the Roman Catholic Church, Kona Hospital, and Honaunau School. Residences adjacent to these facilities will be similarly impacted.

Although much of the traffic growth increment will be diverted from the existing road from Honalo to Honaunau, there will also be a slight increase of traffic between these towns. Table IV-3 shows that the differences in the ambient noise levels from the Daifukuji Soto Mission in Honalo to the Honaunau Buddhist Church are marginal. Table IV-3 also shows that, even with the improvement, the facilities that are presently impacted will continue to be impacted at more or less the same level.

Exceptions are the Kona View Sea Lots and Kuakini Heights Subdivision that are located along the lower segment of Kuakini Highway, where the proposed improvement will be along the same alignment. Exterior noise levels with or without the improvement in these two residential areas are 79 and 80 dBA. For discussion purposes, the exterior noise level at these two locations is considered to be 80 dBA. The noise reduction factors for light-frame buildings are 10 dBA with open windows and 20 dBA with ordinary

TABLE IV-3

PREDICTED NOISE LEVELS (dBA) - WITH IMPROVEMENT
EXISTING ROAD AND LINE A-1

	Existing Road			Line A-1	
	<u>L₁₀</u> <u>Computed</u> <u>1978</u>	<u>1998</u>	<u>Impact</u>	<u>1998</u>	<u>Impact</u>
Kona View Sea Lots	(1) 75	(1) 79	+ 5 G	79	+ 9 G
Kuakini Heights Subdivision	(1) 72	(1) 80	+10 G	80	+10 G
Teshima Complex	(1) 80	(1) 84	+14 G	79	+ 9 G
Mokuaikaua Congregational Church	(1) 72	(1) 73	+ 3 M	60	N
Hawaii Baptist Convention	(1) 76	(1) 79	+ 9 G	61	N
Daifukuji Soto Mission	(1) 77	(1) 77	+ 7 G	60	N
Roman Catholic Church	66	66	- 4 N	60	N
Kona Lanakila Church	(1) 76	(1) 76	+ 6 G	60	N
Kona Hospital	66	67	- 3 M	60	N
Honpa Hongwanji Mission	(1) 73	(1) 72	+ 2 M	60	N
Konawaena High School	62	62	- 8 N	60	N
Kona Public Library	(1) 74	(1) 73	+ 3 M	60	N
Roman Catholic Church in Kealakekua	(1) 74	(1) 73	+ 3 M	60	N
Manago Hotel	(1) 82	(1) 83	+13 G	60	N
Yano Memorial Hall	(1) 78	(1) 79	+ 9 G	60	N
Kealakekua Park	(1) 71	(1) 72	+ 2 M	60	N
Honaunau School	68	69	- 1 N	60	N
Honaunau Buddhist Church	(1) 75	(1) 75	+ 5 M	60	N
Hookena School	62	61	- 9 N	60	N
Alae School	65	70	0 N	70	N

NOTE: The figures under the impact column are the differences between the FHWA criterion of 70 dBA for Category B and the computed L₁₀ noise level. G indicates great impact, M is moderate impact, and N is no impact.

(1) Facilities that were impacted in 1978 or will be impacted in 1998.

sash in closed position. Thus, the interior noise level with open windows will be 70 dBA and with closed windows, 60 dBA. These values are still higher than the figure of 55 dBA for Category E.

The 80 dBA cited above was calculated on the basis of the projected average daily traffic for 1998 of 14,600 vehicles and a design hourly volume of 1,410 vehicles. The design hour density will occur during the daylight hours and, when the traffic density decreases to about 600 vehicles per hour, the noise level with windows closed will decrease by 55 dBA. By applying the percent of the hourly distribution of traffic derived from a traffic survey made by the State Department of Transportation in April 1976 to the projected daily traffic, these facilities will be moderately impacted between the hours of 7:00 AM and 7:00 PM. During the early evening and morning hours, the interior noise levels will be below 55 dBA.

I. AIR POLLUTION

The proposed highway improvement is not expected to have any adverse impact on the local air quality, according to a study made by the Land Transportation Facilities Division of the State Department of Transportation. The area will be cleared and grubbed prior to highway construction, and measures such as watering and application of dust palliatives will be taken to minimize dust problems as the project gets underway. Additionally, the standard specifications of the Land Transportation Facilities Division do not allow any burning of rubbish, trees, etc. on the project.

The projections of vehicle emissions were made on the assumption that improved vehicle emission control devices will be in common use by 1998.

Estimates of one-hour and eight-hour concentrations of carbon monoxide (CO) were calculated for receptor locations along the right of way. The Environmental Protection Agency's "HIWAY" computerized model was used to determine the highest one-hour CO resulting from vehicular traffic under the assumptions of with or without the improvement. The results, shown on Figures IV-1 to IV-3, indicate that in 1998 the highest one-hour concentration along the existing road will be 10.1 milligrams per cubic meter without the improvement. This concentration will slightly exceed

the state's standard of 10 milligrams per cubic meter but will be under the federal standard of 40 milligrams per cubic meter.

With the construction of Line A-1, the highest concentration on the existing road would be 4.5 milligrams per cubic meter in 1978. Line A-1's highest concentration would be 5.9 milligrams per cubic meter in 1998. These levels are well below the state and federal requirements. Construction of Line A-1 and improvement of the existing highway will create a definite decrease in CO levels for the peak one-hour concentration.

Translab's California Line Source Model "Caline-2" for EPA was used to determine the projected CO levels for any eight-hour vehicular traffic under the worst conditions. The results are shown on Figures IV-4 to IV-6. They indicate that "without the improvement" the CO concentrations along the existing road between Hualaloa and Captain Cook will be dense enough to exceed the state's standard of 5.0 milligrams per cubic meter. The CO concentrations will, however, be below the federal standard of 10 milligrams per cubic meter. Construction of Line A-1 will produce concentrations below the Hawaii air quality standards.

Another projection of the vehicle mass emissions of air pollutants consisting of carbon dioxide, hydrocarbons, and nitrogen oxide was also made utilizing a burden analysis method proposed by the State Department of Health. The results are tabulated in Table IV-4.

According to the 1988 projections, construction of Line A-1 would result in approximate mass emission reductions of 24 percent for carbon monoxide and 14 percent for hydrocarbons, but an increase of 16 percent for nitrogen oxide.

Similarly for 1998, construction of Line A-1 would reduce mass emissions of carbon monoxide and hydrocarbons by 14 and 11 percent respectively. Nitrogen oxide, however, will increase by 15 percent.

With the expected decrease in emission levels after construction of this project and with no change in ambient levels, the design year (1998) pollutant levels would not exceed state and federal air quality standards.

The State Department of Health raised no objections to this project. Coordination with the Department of Health in regard to air, noise, and water quality has been and will be a continuing activity.

TABLE IV-4

PROJECTED VEHICLE MASS EMISSIONS OF AIR POLLUTANTS

	Carbon Monoxide	Hydro- Carbon	Nitrogen Oxide
1978 Emission Levels (g/day)			
Existing highway; no improvements	3,581,677	628,481	654,572
1988 Emission Levels (g/day)			
(1) Existing highway; no improvements	1,940,578	364,940	533,728
(2) Existing highway; with improvements	858,025	164,669	282,558
(3) Line A-1	<u>613,313</u>	<u>149,163</u>	<u>334,323</u>
(4) Total (2) and (3)	1,471,340	313,832	616,881
Difference between (1) and (4)	(-) 24%	(-) 14%	(+) 16%
1998 Emission Levels (g/day)			
(1) Existing highway; no improvements	2,381,039	443,369	649,995
(2) Existing highway; with improvements	967,092	184,816	314,186
(3) Line A-1	<u>1,071,645</u>	<u>207,736</u>	<u>435,678</u>
(4) Total (2) and (3)	2,038,737	392,552	749,864
Difference between (1) and (4)	(-) 14%	(-) 11%	(+) 15%

J. EFFECT ON ARCHAEOLOGICAL AND HISTORICAL RESOURCES - SECTION 4(f)
STATEMENT

The route of the project was chosen partly to avoid interfering with any of the known archaeological and historical sites along the coastline and other sites that are listed in the National Register of Historic Places, such as the Kahaluu and Kealahou historical districts.

The Kona Field System occupies an area of 54 square miles. From the coastline it extends 3 miles inland and includes the ribbon of urbanized areas along the existing road for a distance of 18 miles. The existing villages and towns that would be served by the proposed highway are located approximately 1.5 and 2 miles inland. Thus, it would not be possible to avoid the Kona Field System (see Figure III-3), which has been nominated to the National Register of Historic Places, and still provide for the transportation needs of North and South Kona.

Since Corridor Line A-1 will use land from a historic property that is eligible for inclusion in the National Register of Historic Places, a Section 4(f) statement has been prepared and is included in Appendix G.

The 4(f) statement documents the considerations and consultations among the State of Hawaii Historic Preservation Officer, Advisory Council on Historic Preservation, U.S. Departments of the Interior, Housing and Urban Development, and Agriculture, and the Federal Highway Administration of the U.S. Department of Transportation.

These agencies recognized that there is no prudent or feasible alternative that could avoid the Kona Field System and that a memorandum of agreement concerning the mitigation of adverse effects has been executed by the Advisory Council, Federal Highway Administration, and the State Historic Preservation Officer.

The memorandum of agreement is included in the Section 4(f) statement.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

CHAPTER V. PROBABLE ADVERSE ENVIRONMENTAL EFFECT WHICH CANNOT BE AVOIDED

A. SPECIAL MANAGEMENT AREA

The project will infringe on the northeast corner of the special management area above Kealakekua Bay. This corner is located approximately 4,800 from the shoreline and at an elevation of about 1,280 feet above sea level. The project will not significantly affect the special management area because of its distance and height from the shoreline. A permit will be obtained from the County of Hawaii during the design stage if the boundaries of the special management area have not been amended at that time.

B. CONSERVATION AREA

Additional right-of-way taking will be needed along the conservation district and native forest on a two-mile segment of the project that runs along the existing road near the end of the project. Because of the small taking of land, it would not significantly affect the native forest ecosystem.

C. DRAINAGE

Generally, the runoff in the Kona region flows overland in undefined water courses with little or no erosion. The drainage pattern may be changed due to the construction of culverts that may concentrate flows, thus causing more erosion and adversely impacting some localized areas. This effect will be minimized by the construction of seepage pits in the downstream side of the culverts. In addition, the drainage facilities will be evaluated based on a 100-year storm.

D. ECONOMIC EFFECTS

Between Kuakini Highway (south of the Kamehameha III Road) and Keokea, the project will be located west of the existing highway. It will bypass 13.7 miles of the existing road and all the villages from Honalo to Keokea. The bypass will go through about 7.8 miles and 4.8 miles of lands that are zoned as "unplanned" and "agricultural" respectively. Consequently, there may be increased pressures on the rezoning of

land from "unplanned" and "agricultural" to "urban" because the lands along 12.6 miles of the project that are now inaccessible will become accessible. Zoning changes may be accompanied by increase in land prices.

Some of the stores and service shops that serve the local population also serve tourists and are partially dependent on the tourist trade. It is not expected that those stores that serve the local population will be significantly impacted because the resident population is quite large enough and is expected to grow. On the other hand, the number of residents that are shopping beyond the project area may increase due to improved driving conditions on the new road. Those stores that cater to the tourist trade may be severely impacted because the project will provide a faster route from Keokea to the resort areas in Keauhou and Kailua.

E. SOCIETAL

The construction of the bypass will have beneficial effects but there will also be adverse effects which cannot be avoided. Among these are the fact that there would be a reduction in the interaction between visitors and the resident population. The bulk of tourist vehicles are expected to travel non-stop on the new road, thus by-passing the present location of most roadside shops, gardens and residences along the existing road. It would also mean that the tourists would miss seeing much of the character of the populated countryside that is colorful and picturesque.

Reduction of privacy and quietness for those families and individuals that will be in the immediate proximity of the new road; higher rates of social disturbances and crimes as more persons, "take to the road;" increased problem of apprehending criminals because the new road would provide an escape route; and feeling of being by-passed (consigned to the "old" and left out the "new") on the part of some who reside along Mamalahoa Highway and watch the development of the project.

F. AESTHETIC

The rural character of the countryside will be distracted by the project for a distance of about 12.6 miles.

G. ARCHAEOLOGICAL

There will be an infringement in the Kona Field System which may be compounded by developments along the roadsides.

H. INCOVENIENCE TO TRAFFIC AND RESIDENTS

There will be temporary inconvenience to traffic and nearby residents when the project is under construction along Kuakini Highway from Holualoa to Kamehameha III Road, and from the City of Refuge Road to Papa.

Residents may be inconvenienced by the noise of construction equipment and dust.

CHAPTER VI. ALTERNATIVE HIGHWAY CORRIDORS CONSIDERED

The other alternate alignments investigated in this study are as follows.

A. CORRIDOR LINE A (Figures II-4, III-1, and III-3)

Line A would be connected with Kuakini Highway until it passes Kamehameha III Road. At that point, it would leave the existing highway and continue south on the west side of the highway until it connects with Hawaii Belt Road at Waiea, west of Hookena. This alignment would be on the east side of an abandoned railroad bed in Keauhou, skirt the western boundary of the farms and orchards below Kainaliu, Kealakekua, and Captain Cook, wind through the middle of the orchards below Honaunau, and follow the existing highway south of Hookena. It would connect with intersecting roads and include two new connections to the existing highways: one would connect with Kuakini Highway north of Honalo and the other to Mamalahoa Highway between Konawaena School and Captain Cook.

From the beginning of the project at Holualoa to Captain Cook, the alignment of this project is similar to the alignment of Corridor Line A-1.

This line is not considered feasible because it would pass through the middle of the existing productive coffee orchards below Honaunau and through a detached parcel of the City of Refuge National Park, a national register site, used as an upland garden area and native plant nursery. Since this parcel is also protected by Section 4(f) of the Dept. of Transportation Act, this line is not considered as a prudent alternative because it can be adjusted to avoid the detached parcel of the City of Refuge National Park and other alternatives are also available.

B. CORRIDOR LINE B (Figures II-4, III-1, and III-3)

Somewhat shorter than Line A, Line B runs along an alignment east of the existing highway. As with Line A, the northern and southern ends of this line would connect with Kuakini Highway and the Hawaii Belt Road in the vicinities of Honalo and Hookena Beach Road respectively. It would run above the Agricultural Station in Kainaliu, the Kona Hospital in

Kealahou, and the Konawaena School in Kealahou and across the coffee farms and orchards 2,000 to 3,000 feet east of the existing highway.

The major adverse impact attributable to this alternative is the removal of some of the endemic Hawaiian trees in the native forest ecosystem and on the secondary forest ecosystem. Although the adverse effect directly attributable to the road is confined principally to the right-of-way, its existence may result in the increase of roadside development that would have an even greater disrupting effect on the native forest.

This corridor would pass a higher rainfall area where the runoff flows overland in undefined water courses with little or no erosion. This drainage pattern would be changed due to the construction of culverts that concentrate flows, thus causing more erosion and adversely impacting some localized areas.

C. CORRIDOR LINE C (Figure III-3)

The 1971 County General Plan and the 1960 plan for Kona show a coastal road between Kealahou and the City of Refuge at Honaunau. The general highway map of the state of Hawaii also shows a Federal Aid Secondary County Highway along the coast between Kealahou Bay and the City of Refuge. The roads shown on these documents are intended to provide access to beach and recreation areas as well as to open up areas with developmental possibilities.

Line C was selected as an alternate corridor to provide access to historical sites and the proposed park areas at Hookena, Palemano Point, and other locations. This line will traverse the existing pastures and land areas, which are marginal in nature. It is located farther west than Corridor Line A and would have the advantage of being in a drier area, but it is not considered feasible and prudent alternative because it would pass through the Kealahou Historical District, which is included in the National Register of Historic Places. Adverse impact on the historical district can be avoided by changing the location of the proposed project or through selection of another alternative.

D. CORRIDOR LINE D (Figures III-1 and III-3)

This alternative alignment is developed along the existing route-- Kuakini Highway, Mamalahoa Highway, and the Hawaii Belt Road--with a right-of-way width of 80 feet. The additional right-of-way taking will be along either the western or eastern sides or on both sides of the existing highway, depending on the types of development along the existing right-of-way.

This line has the least detrimental impact on the natural environment but was eliminated for the following reasons:

1. This corridor would pass through the urbanized areas from Honalo to Captain Cook, and the desired improvement should consist of a four-lane undivided roadway with shoulder areas of 16 feet on each side for parking and a sidewalk. As the traffic increases, it may be necessary to widen the roadway to six lanes.
2. The initial widening of the existing road to 80 feet would dislocate 25 families and 52 organizations and businesses (half of those now situated along the road) and take 691 parcels of land. Subsequent widening would increase the number of residents and businesses affected.
3. There are indications that about 50 structures of historical and archaeological significance may be affected.
4. The projected traffic would aggravate and intensify the existing dust and noise conditions, varying now from moderate to great.
5. The prevailing pastoral and charming environment created by the residences and community facilities now located along a strip on both sides of the existing road, interspersed with pastures, farms, and orchards, would be destroyed by widening the road.

E. CORRIDOR LINE A-2 (Figures II-4, III-1, and III-3)

This corridor would follow the same route of Corridor Lines A and A-1 from Kuakini Highway to Captain Cook. From Captain Cook, it would follow a southeasterly direction and connect with the existing road approximately 2.3 miles south of Captain Cook. This line would provide a connection

nearer to Captain Cook than Corridor Line A-1, as desired by some people in the community, but it would cut diagonally across existing farms. Moreover, the connecting grades with the existing road would be on the order of 8 to 10 percent.

F. CORRIDOR LINE E (Figure III-3)

This alignment is not a complete alternative but only involves the stretch between Alae and Papa. In that area, Line E would involve a route east of the existing highway. This alignment would offer a more direct route toward Papa, but it would encroach more upon the ecologically important native forest area. This alignment would also involve more right-of-way taking and construction activity, resulting in a higher overall project cost. Finally, its construction would result in a situation in which there would be two closely located parallel highways, requiring additional maintenance and repair costs but providing no extra benefits to residents and motorists. For these reasons, it was not considered a desirable alignment.

G. CORRIDOR LINE PROPOSED IN THE PRELIMINARY DRAFT OF THE KONA COMMUNITY DEVELOPMENT PLAN

This plan was prepared for the County of Hawaii but it has not yet been adopted by that county.

The alignment proposed in this plan is similar to the selected Corridor Line A-1, A-2, and A as far as Captain Cook. From there it would cut sharply toward the east to a connection with the existing road much closer to Captain Cook than the connection of Line A-2. This would result in steeper grades of more than 10 percent that limit the speeds to less than 30 mph. It would have the same effect on the farms as Line A-2.

H. NO PROJECT

The abandonment of the entire project is not considered as feasible alternative because it would result in a failure to serve the best interests of the residents, visitors, agriculture, and the environment. Such action would not provide for the present and projected traffic in the Kona

area, and the increasing congestion on the existing highway would result in added delays, inconvenience, noise, air pollution, and a higher accident rate.

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

A. SHORT-TERM USES

The proposed project will overlap the existing two-lane Kuakini Highway from Holualoa to Kamehameha III Road (2.3 miles) and from the City of Refuge Road to Papa (14.7 miles). Consequently, there will be some degree of inconvenience to the road users and property owners of adjoining properties along these segments. The construction will be phased so that the inconvenience would be reduced to a minimum.

There will be no change in traffic pattern through these segments of the project.

B. LONG-TERM USES

1. The bypass between Kamehameha III and Keokea (about 13 miles) will provide options to road users of either continuing on the existing road or turning-off at the bypass. Since the bypass will be 0.7 miles shorter than the old road, many road users travelling north or south beyond these points will use the bypass. Thus, there would be a split in traffic patterns and changes in the functional classification of the road. The bypass would serve as an arterial and the existing road will serve the dual purpose of being a collector and a local road. This change in traffic pattern would detrimentally affect the businesses along the existing road because in the long run more traffic will be diverted from the existing road.
2. The proposed project will involve the use of a strip of land about 30 miles long and 100 to 150 feet wide for a highway to help provide for the transportation needs of the residents and visitor populations of the Kona area. This should not detrimentally affect the long term natural productivity of important ecosystems of the area since the project will affect only the edges of the native forest at the end of the project.

3. The project will maintain and enhance the economic productivity of the Kona area by reducing the cost of transportation, reducing congestion, and increasing traffic safety.
4. The reduction in the cost of transportation would promote the urbanization of vacant lands along the project. This may set a long-term change on the uses of the land near the project.

CHAPTER VIII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The construction of the project would commit capital, labor, material, and land. The capital and material used in the project would be largely irretrievable, while the labor required to build the project would be completely irretrievable. The land used could conceivably be recon-verted to another use if the highway is abandoned, but such reconversion is unlikely to occur, so that the land used must be considered to constitute a long-term, if not irretrievable, commitment.

Although mitigation measures will be taken to minimize the impact of the project upon the Kona Field System, the intangible historical atmosphere that inheres with the land will be irretrievable.

CHAPTER IX. MITIGATION MEASURES

A. CONSERVATION AREA

All unusable debris and waste materials particularly from forest and wooded areas shall be hauled away to disposal areas before they become dry to minimize forest fire hazards and insect and rodent buildup. Burning of rubbish at the project site will be prohibited.

B. DRAINAGE

The possibility of flooding or erosion due to the intersection of the proposed highway with the natural runoff pattern will be minimized by careful design and location of culverts in order to maintain the existing drainage pattern and eliminate concentration of flow. The construction of seepage pits at the downstream end of the culverts would return some of the runoff into the land and decrease the quantity of overland flow. The drainage facilities will be designed according to the State Department of Transportation's "Interim Design Criteria for Highway Drainage."

C. ECONOMIC EFFECTS

Increased pressures on the rezoning of the land adjacent to the project may be mitigated particularly by those policies and procedures of the Zoning Code of the County of Hawaii that require public participation. Opinions of the public, for or against amendments in district (zone) boundaries, can be made at the public hearings conducted by the County Planning Commission. Active public participation at these hearings may help mitigate the rapid urbanization and land speculation along the project.

D. AESTHETIC

The proposed project may appear incongruous with the landscape during and immediately after its construction. Some measures will be taken to lessen this impact. Landscaping to make the denuded areas compatible with the surrounding land will be considered in the final design of the project. The landscaping together with natural growth will eventually cover the road scars and lessen the visual impact of the project. The state's

highway maintenance program, involving control of roadside weeds and litter, will also help improve the aesthetics of the highway and reduce fire hazard to the countryside.

E. ARCHAEOLOGICAL

The project will infringe upon and adversely impact the Kona Field System because there is no other feasible or prudent alternative to the proposed project. After a review by the Advisory Council on Historic Preservations, the Federal Highway Administration and the State Historic Preservation Officer, it was agreed among these participants that certain measures shall be taken to minimize harm to the Kona Field System. The stipulation in the memorandum of agreement signed January 23, 1978 by the Chairman of the Advisory Council on Historic Preservation and other stipulations proposed by the Federal Highway Administration are as follows:

Stipulations from the executed Memorandum of Agreement:

- "1. Should an archaeological recovery program requiring excavation become necessary it will be based on a detailed and systematic research design, meeting standard levels of professional acceptability including provisions for curation of the artifacts and other findings of the research project, which must be reviewed and approved by the Hawaii State Historic Preservation Officer prior to excavation; and
2. Should the Secretary of Transportation determine, after review of the report prepared by the Federal Highway Administration pursuant to Section 4(f) of the Department of Transportation Act of 1966, that the project must be changed from that which has been described to the Executive Director, the Federal Highway Administration will so advise the Council and again request comments in accordance with the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) as appropriate prior to proceeding with the proposed undertaking."

Stipulations in a letter dated September 8, 1977 from Federal Highway Administration:

- "1. If Alignment A or B is selected, a preliminary archaeological reconnaissance survey will be conducted. Such a preliminary survey will minimally consist of:
 - a. An on-foot visual survey of the proposed corridor of such intensity that the number and kind of archaeological sites can reliably be estimated ($\pm 10\%$).
 - b. A map of the proposed corridor showing the estimated location of sites and site concentrations and relating such locations to terrain features.
 - c. Certification of areas where no archaeological sites exist.
 - d. Description of each site or concentration of sites sufficient to document the need for further archaeological survey or excavation.
 - e. Recommendations for further work, if necessary.
2. Individual archaeological features, identified by the archaeological survey, which have substantial individual potential to yield information important in the prehistory or history of Hawaii which may be altered or destroyed by this project or any action ancillary to the project construction (such as spoil or borrow areas; access, storage or turn around areas for machinery) shall be tested by rigorous archaeological methods, and if such tests confirm their importance, they shall be recommended for total scientific data retrieval to the State Historic Preservation Officer.
3. If the Historic Preservation Officer accepts the recommendation for total scientific data retrieval, the U.S. Department of Transportation will set aside time and funds for such work and will undertake to do or have such work done.
4. The scope of work for historical/archaeological surveys will be reviewed by the State Historical Preservation Officer prior to initiation."

F. INCONVENIENCE TO TRAFFIC AND RESIDENTS

During construction of the highway, there will be inconvenience to the public and other short-term detrimental effects involving noise, dust,

erosion, disposal of rubbish, and other nuisances. The construction process itself will be divided in usable lengths of five and six miles. Procedural and standard measures contained in the state's "Standard Specification for Road and Bridge Construction" will insure the minimizing of adverse effects during construction. Measures such as the following will be taken:

1. Dust will be kept down at all times by sprinkling water, using dust palliatives, limiting the area of construction activity, and curtailing construction during strong wind conditions.
2. All internal combustion engine-powered equipment will have mufflers to minimize noise.
3. Necessary signs, lights, flares, barricades, markers, and cones will be provided for the convenience and safety of public traffic.
4. Construction along the existing highway will be restricted during peak traffic.
5. Sites for borrow pits, if required, will be carefully selected to avoid adverse environmental effects and will be graded and planted to provide adequate drainage and minimize erosion.
6. Clearing and grubbing will be limited to the areas within the roadway prism.

G. NOISE

Although construction of a new alignment will have a more beneficial effect on the noise levels along the entire length of the existing highway than if there were no improvement, there will be areas in which the noise standard is expected to be exceeded. Those areas are located along Kuakini Highway at the north end of the project, where this improvement will be made on the alignment of the existing road.

Noise abatement measures, such as barriers, depressed road profiles, elevated and grade-separated highway sections, taking of additional rights-of-way, and landscaped buffer zones, were considered for possible application to the areas in question. Because of the close proximity of

the existing facilities to the existing road, however, it appears that these measures cannot be effectively applied in these areas. Soundproofing or renovating the existing facilities would be effective in decreasing the noise levels.

H. UTILITIES

The final highway alignment will be selected to minimize its effect on the water, telephone, and power utilities. Those utilities affected will be relocated according to the "Rules and Regulations Relating to the Accommodation and Installation of Utilities on State Highways and Federal Aid Secondary County Highways."

I. RELOCATION ASSISTANCE

Wherever families, individuals, businesses, or farms are required to be displaced, the state's relocation assistance and relocation payments program will materially mitigate financial hardship.

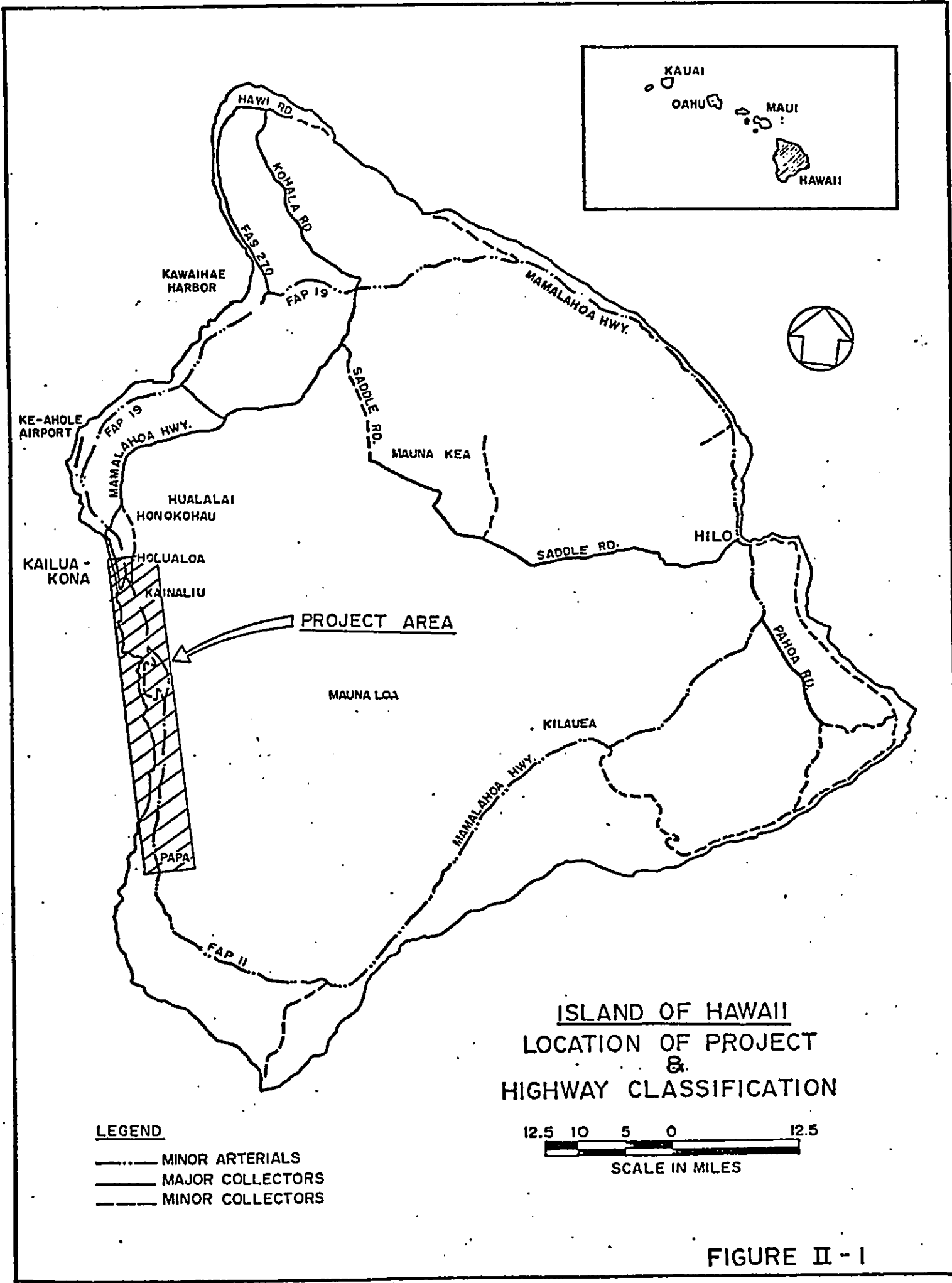
A P P E N D I X A

Figures

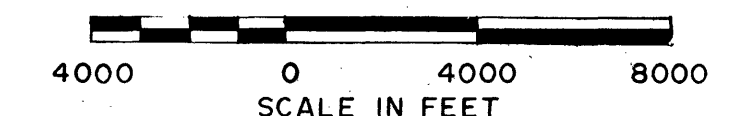
APPENDIX A

FIGURES

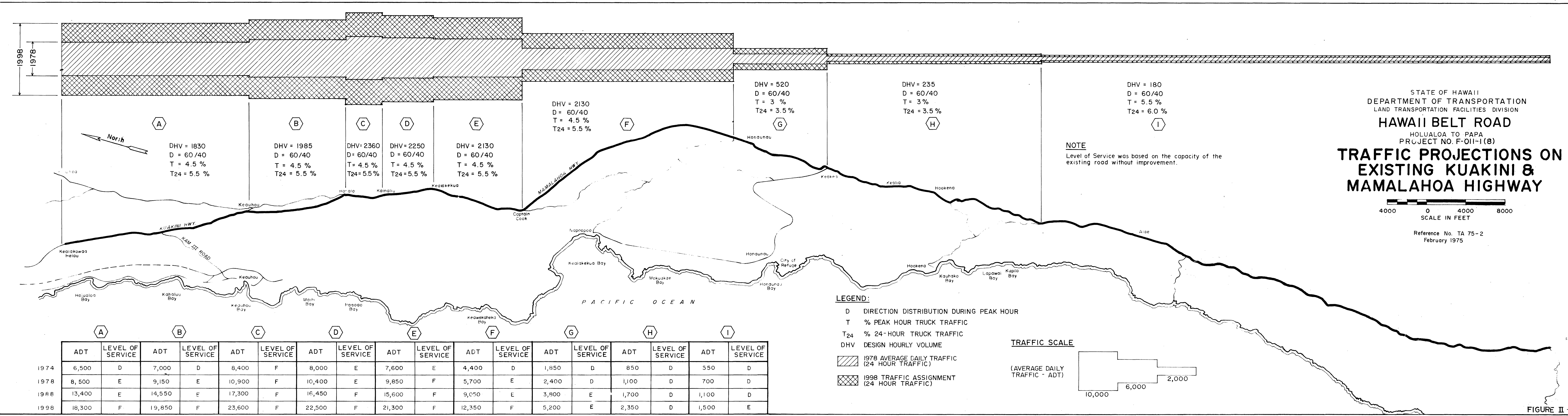
- II-1 Location of Project and Highway Classification
- II-2 Highway Inventory
- II-3 Traffic Projections on Existing Kuakini and Mamalahoa Highway
- II-4 Generalized County Zone Map and Alternative Corridors
- II-5 Traffic Projections
- II-6 Typical Section - Kuakini Highway Widening
- II-7 Typical Section - Kam III Road to Connector 2
- II-8 Typical Section - Connector 2 to City of Refuge Road
City of Refuge Road (Keokea to Papa)
- II-9 Construction Segment
- III-1 Soils Map and Alternative Corridors
- III-2 Average Annual Rainfall Isohyetal Map
- III-3 Historic Resources and Alternative Corridors
- IV-1 Highest Level of CO Concentration - One Hour Period 1978
- IV-2 Highest Level of CO Concentration - One Hour Period 1988
- IV-3 Highest Level of CO Concentration - One Hour Period 1998
- IV-4 Highest Level of CO Concentration - Eight Hour Period 1978
- IV-5 Highest Level of CO Concentration - Eight Hour Period 1988
- IV-6 Highest Level of CO Concentration - Eight Hour Period 1998
and State of Hawaii Control Strategy for Carbon Monoxide



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
HAWAII BELT ROAD
 HONOLULOA TO PAPA
 PROJECT NO. F-011-1(8)
**TRAFFIC PROJECTIONS ON
 EXISTING KUAKINI &
 MAMALAHOA HIGHWAY**

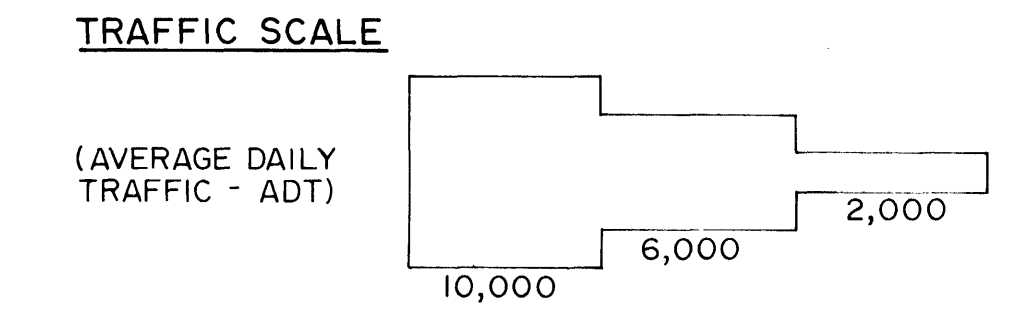


Reference No. TA 75-2
 February 1975



NOTE
 Level of Service was based on the capacity of the existing road without improvement.

- LEGEND:**
- D DIRECTION DISTRIBUTION DURING PEAK HOUR
 - T % PEAK HOUR TRUCK TRAFFIC
 - T₂₄ % 24-HOUR TRUCK TRAFFIC
 - DHV DESIGN HOURLY VOLUME
 - 1978 AVERAGE DAILY TRAFFIC (24 HOUR TRAFFIC)
 - 1998 TRAFFIC ASSIGNMENT (24 HOUR TRAFFIC)

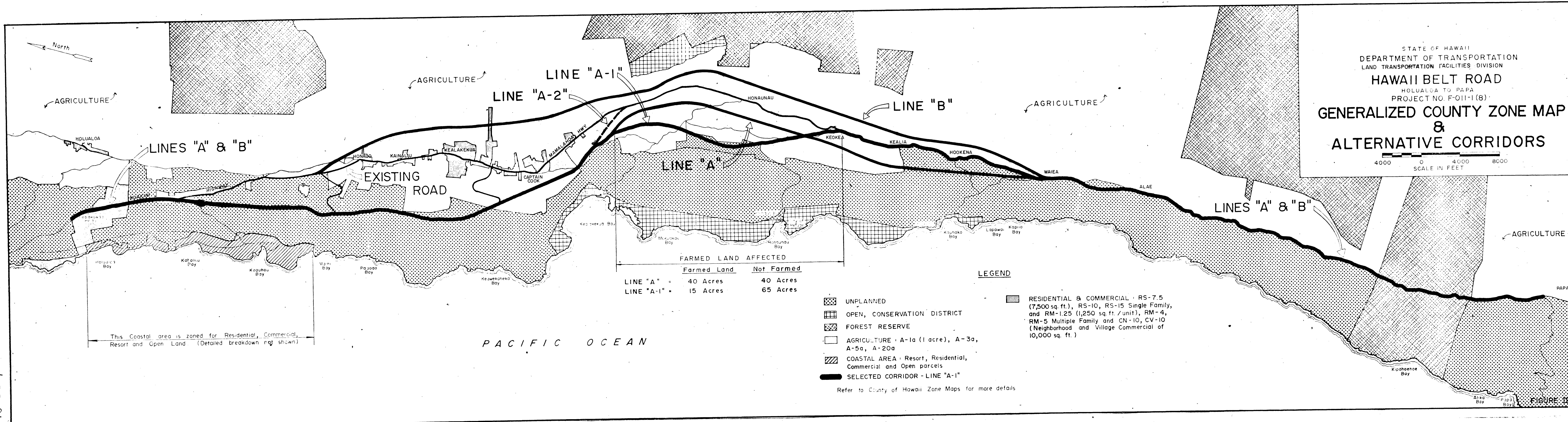
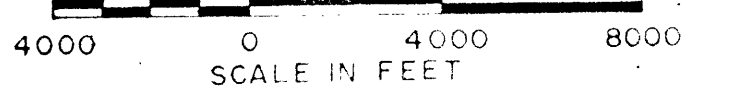


	A		B		C		D		E		F		G		H		I	
	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE
1974	6,500	D	7,000	D	8,400	F	8,000	E	7,600	E	4,400	D	1,850	D	850	D	550	D
1978	8,500	E	9,150	E	10,900	F	10,400	E	9,850	F	5,700	E	2,400	D	1,100	D	700	D
1988	13,400	E	14,550	E	17,300	F	16,450	F	15,600	F	9,050	E	3,800	E	1,700	D	1,100	D
1998	18,300	F	19,850	F	23,600	F	22,500	F	21,300	F	12,350	F	5,200	E	2,350	D	1,500	E

98-003

FIGURE II - 3

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
HAWAII BELT ROAD
 HONOLULUA TO PAPA
 PROJECT NO. F-011-1(8)
GENERALIZED COUNTY ZONE MAP
&
ALTERNATIVE CORRIDORS



FARMED LAND AFFECTED

	Farmed Land	Not Farmed
LINE "A" =	40 Acres	40 Acres
LINE "A-1" =	15 Acres	65 Acres

LEGEND

- UNPLANNED
 - OPEN, CONSERVATION DISTRICT
 - FOREST RESERVE
 - AGRICULTURE - A-1a (1 acre), A-3a, A-5a, A-20a
 - COASTAL AREA - Resort, Residential, Commercial and Open parcels
 - SELECTED CORRIDOR - LINE "A-1"
- RESIDENTIAL & COMMERCIAL - RS-7.5 (7,500 sq. ft.), RS-10, RS-15 Single Family, and RM-1.25 (1,250 sq. ft./unit), RM-4, RM-5 Multiple Family and CN-10, CV-10 (Neighborhood and Village Commercial of 10,000 sq. ft.)

Refer to County of Hawaii Zone Maps for more details

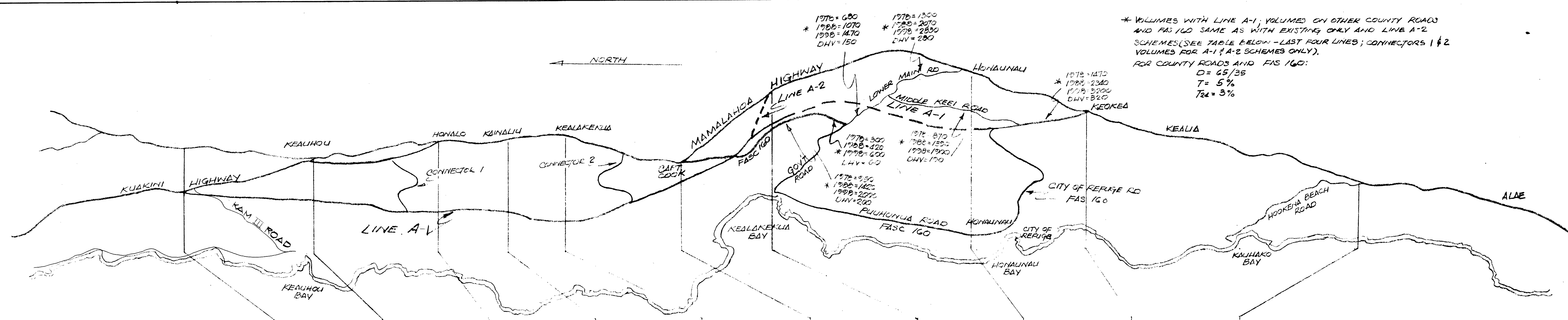
This Coastal area is zoned for Residential, Commercial, Resort and Open Land (Detailed breakdown not shown)

7900-88

FIGURE II-4

98-005

IC

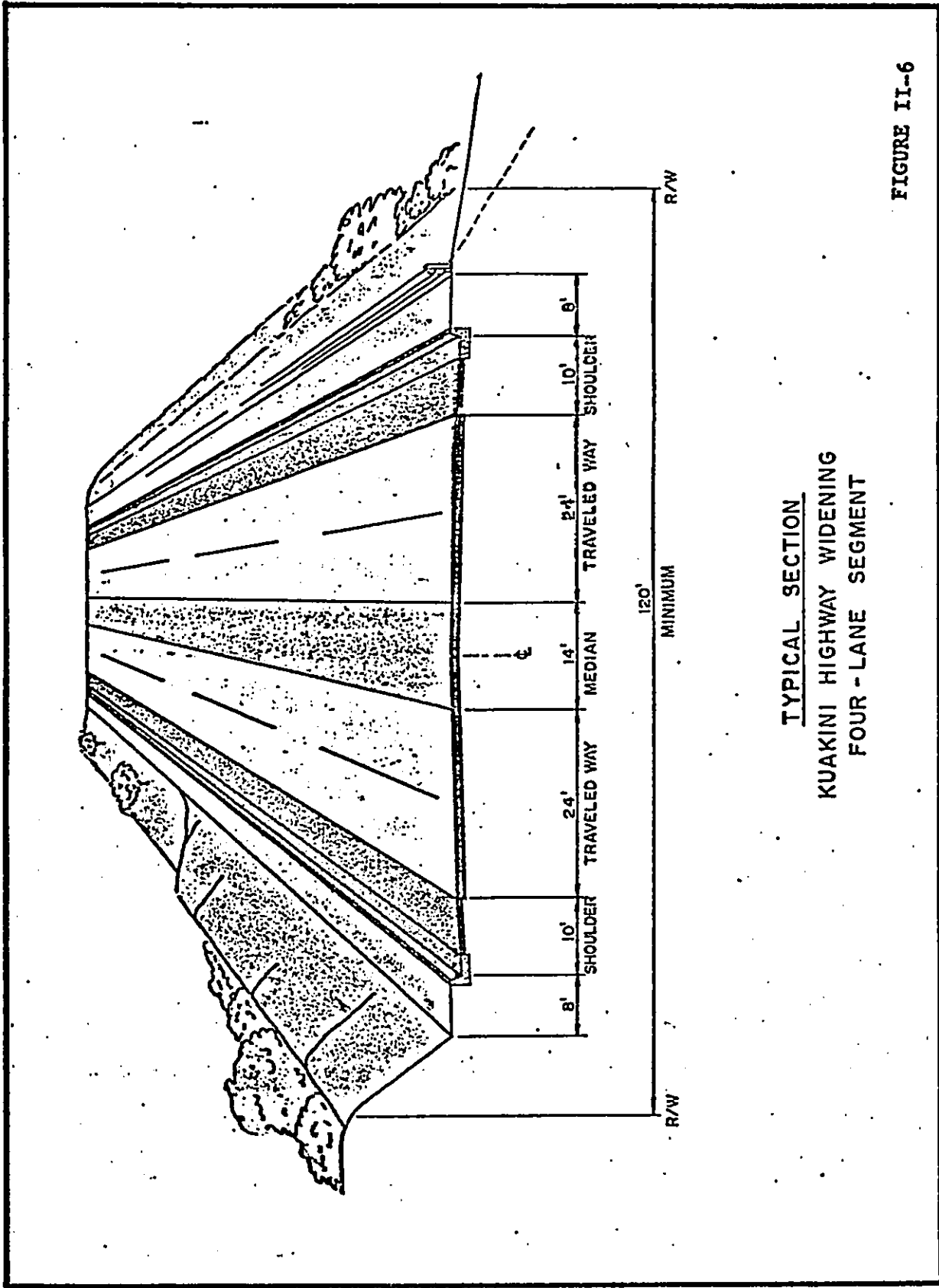


* VOLUMES WITH LINE A-1; VOLUMES ON OTHER COUNTY ROADS AND FAS 160 SAME AS WITH EXISTING ONLY AND LINE A-2 SCHEMES (SEE TABLE BELOW - LAST FOUR LINES; CONNECTORS 1 & 2 VOLUMES FOR A-1 & A-2 SCHEMES ONLY).
 FOR COUNTY ROADS AND FAS 160:
 D = 65/35
 T = 5%
 T₂₄ = 3%

YEAR SCHEME	A				B				C				D				E				F				G				H															
	1978	1988	1998	DHV	1978	1988	1998	DHV	1978	1988	1998	DHV	1978	1988	1998	DHV	1978	1988	1998	DHV	1978	1988	1998	DHV	1978	1988	1998	DHV	1978	1988	1998	DHV												
KUAKINI	900	1075	1250	120	1050	1350	1550	150	6550	8175	9700	950	6050	7325	8600	840	5500	6475	7400	720	2700	4250	5850	590	2700	4250	5850	590	1050	1650	2250	220	1140	1760	2430	235	730	1140	1560	180				
MAMALAHOA	4850	5750	6650	650	5500	6325	7150	800	6550	8175	9700	950	6050	7325	8600	840	5500	6475	7400	720	2700	4250	5850	590	2700	4250	5850	590	1050	1650	2250	220	1140	1760	2430	235	730	1140	1560	180				
LINE A-1	4570	9580	14600	1410	4570	9580	14600	1410	4570	9580	14600	1410	4570	9580	14600	1410	4570	9580	14600	1410	3150	4990	6830	650	2000	3000	4500	450	1170	2310	3200	320	-	-	-	-	-	-	-	-	-	-	-	-
KUAKINI	900	1075	1250	120	1050	1350	1550	150	6550	8175	9700	950	6050	7325	8600	840	5500	6475	7400	720	2700	4250	5850	590	5850	9240	12680	1210	2470	3910	5350	520	1140	1760	2430	235	730	1140	1560	180				
MAMALAHOA	4850	5750	6650	650	5500	6325	7150	800	6550	8175	9700	950	6050	7325	8600	840	5500	6475	7400	720	2700	4250	5850	590	5850	9240	12680	1210	2470	3910	5350	520	1140	1760	2430	235	730	1140	1560	180				
LINE A-2	4570	9580	14600	1410	4570	9580	14600	1410	4570	9580	14600	1410	4570	9580	14600	1410	4570	9580	14600	1410	3150	4990	6830	650	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D = 60/40 T = 4.5 T ₂₄ = 5.5 D = 60/40 T = 3.0 T ₂₄ = 3.5 D = 60/40 T = 5.5 T ₂₄ = 6.0																																												
① WITH IMPROVED FAS 160																																												
FAS 160 : CAPT. COOK TO NARDOPOO SCHOOL 1978 = 1500, 1988 = 2300, 1998 = 3200, DHV = 320 NARDOPOO SCHOOL TO GOV'T RD 1978 = 850, 1988 = 1300, 1998 = 1800, DHV = 180 GOV'T RD TO CITY OF REFUGE 1978 = 500, 1988 = 800, 1998 = 1100, DHV = 110																																												
FAS 160 : CITY OF REFUGE TO MIDDLE KEEI RD 1978 = 700, 1988 = 1100, 1998 = 1400, DHV = 140 MIDDLE KEEI RD. TO KECKEA 1978 = 1000, 1988 = 1600, 1998 = 2100, DHV = 210 MIDDLE KEEI RD : 1978 = 1100, 1988 = 1800, 1998 = 2400, DHV = 240																																												
LOWER MAIN ROAD: HONOLULU TO MIDDLE KEEI RD 1978 = 700, 1988 = 1100, 1998 = 1500, DHV = 150 MIDDLE KEEI RD TO FAS 160 1978 = 500, 1988 = 750, 1998 = 1000, DHV = 100 HOOKENA BEACH RD: 1978 = 210, 1988 = 330, 1998 = 460, DHV = 50																																												
CONNECTOR 1 : 1978 = 200, 1988 = 300, 1998 = 400, DHV = 40, D = 60/40 CONNECTOR 2 : 1978 = 750, 1988 = 3200, 1998 = 5700, DHV = 570, D = 60/40																																												

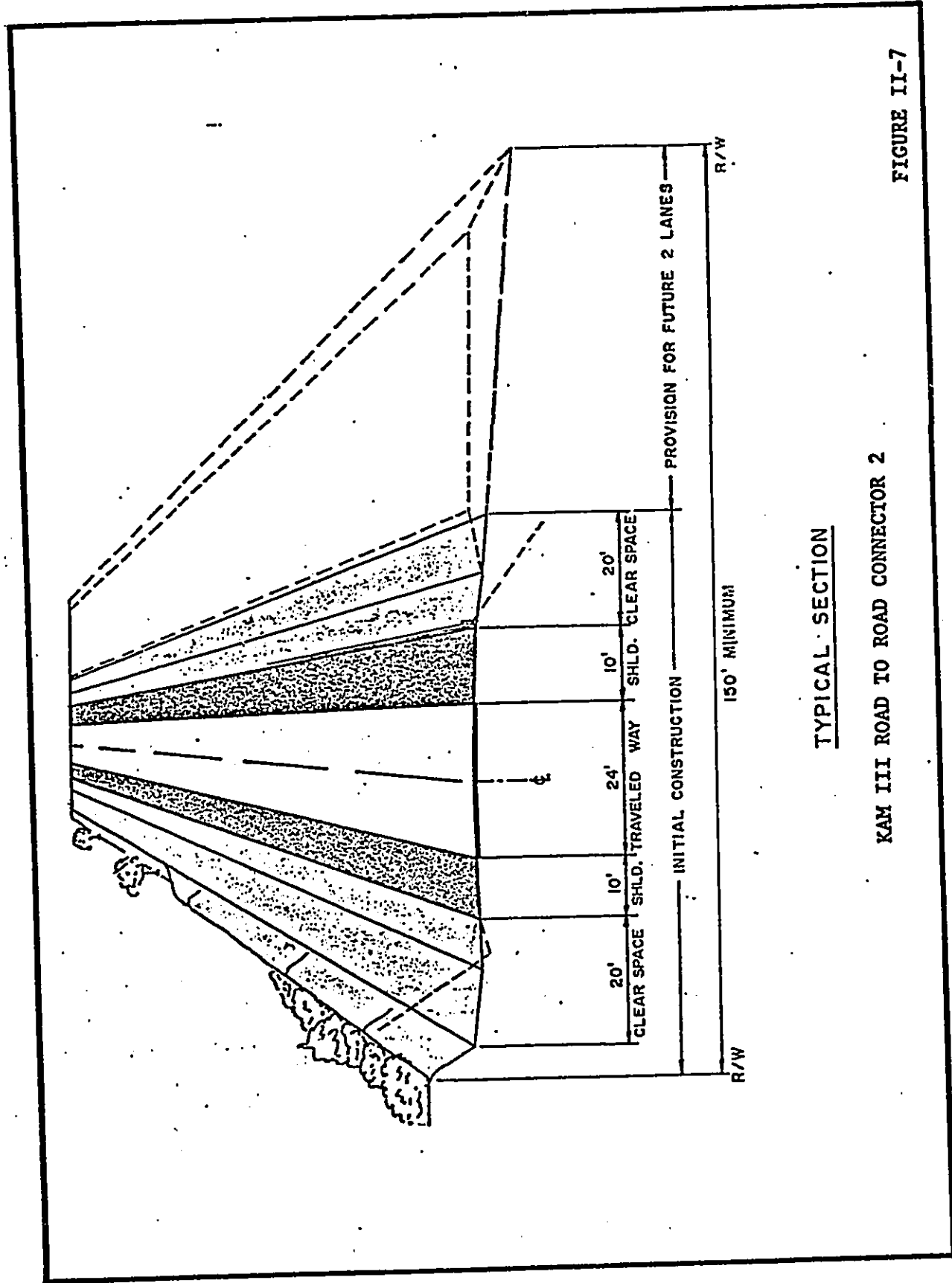
HAWAII BELT ROAD
HOLILOLO TO PAPA
 STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
 PREPARED BY THE
 HIGHWAY PLANNING BRANCH
 IN COOPERATION WITH THE
 U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 PROJECT NO. F-011-1(B)
 DECEMBER 1976
 REF. NO. TA 76-24
TRAFFIC PROJECTION

FIGURE II-5



TYPICAL SECTION
KUAKINI HIGHWAY WIDENING
FOUR - LANE SEGMENT

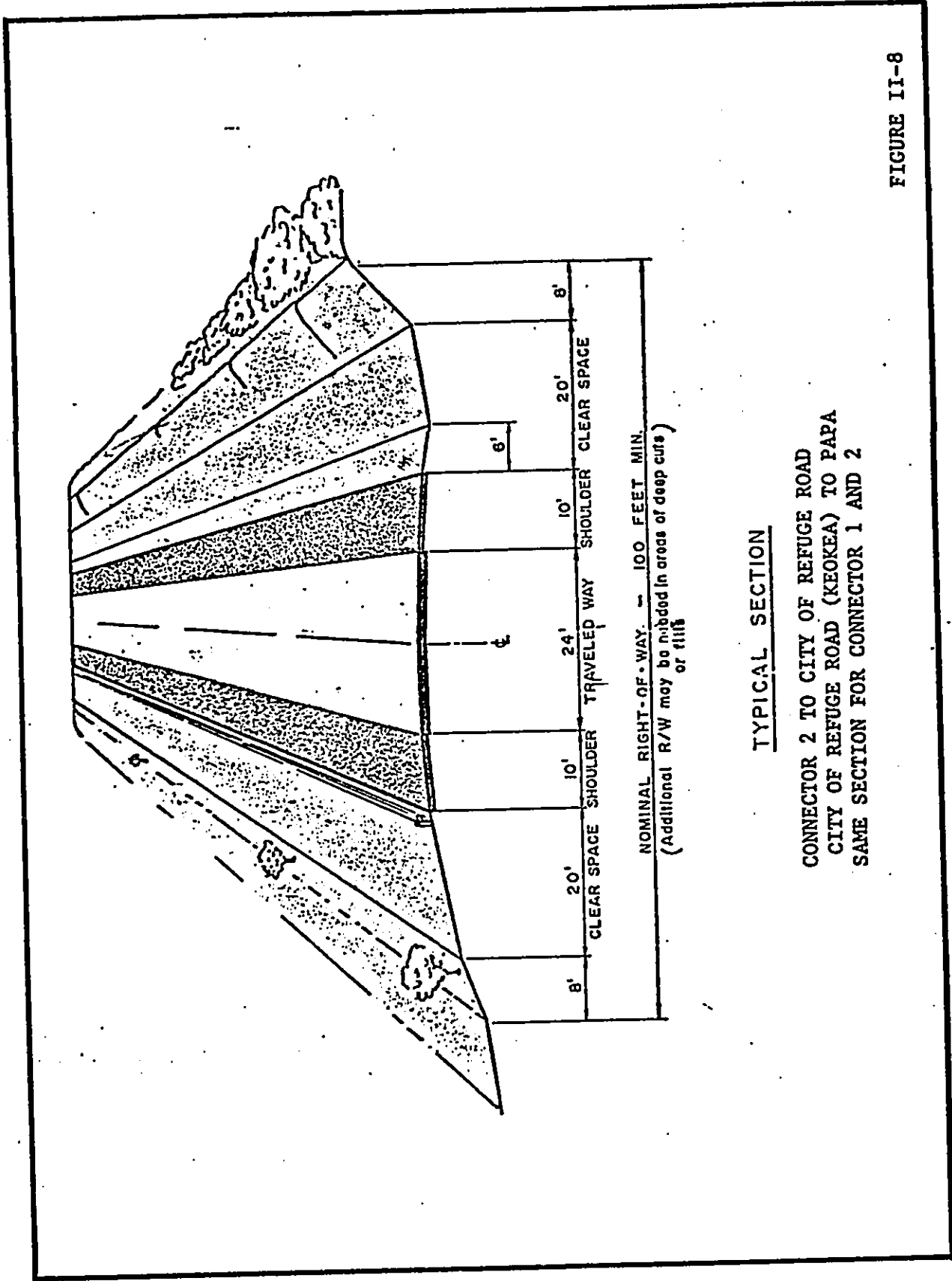
FIGURE II-6



TYPICAL SECTION

KAM III ROAD TO ROAD CONNECTOR 2

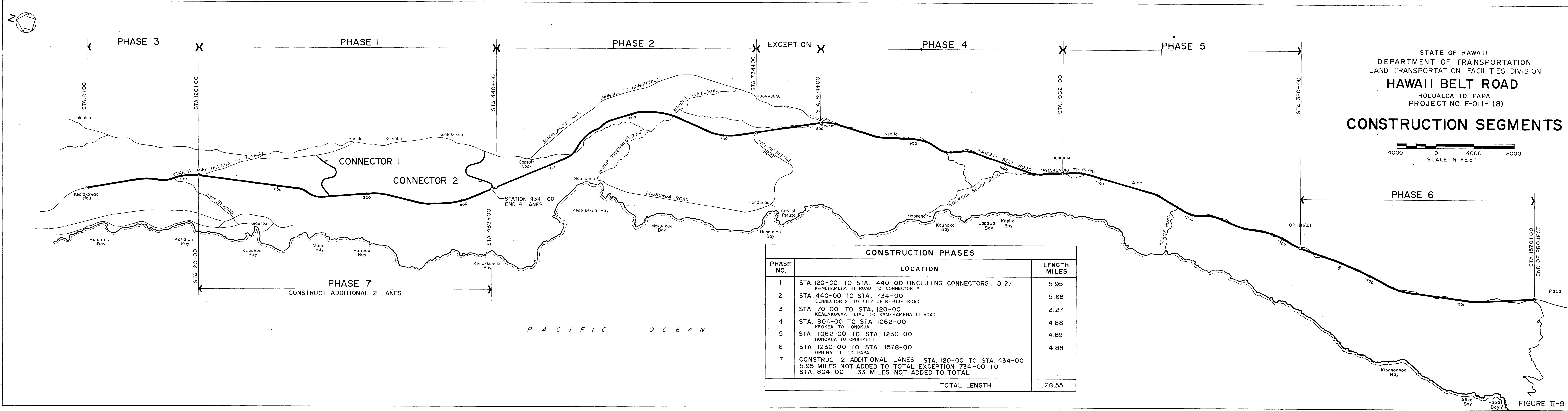
FIGURE II-7



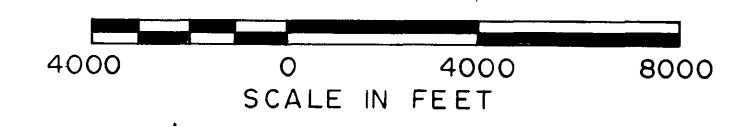
TYPICAL SECTION

CONNECTOR 2 TO CITY OF REFUGE ROAD
 CITY OF REFUGE ROAD (KEOKEA) TO PAPA
 SAME SECTION FOR CONNECTOR 1 AND 2

FIGURE II-8



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
HAWAII BELT ROAD
 HOLUALOA TO PAPA
 PROJECT NO. F-011-1(8)
CONSTRUCTION SEGMENTS

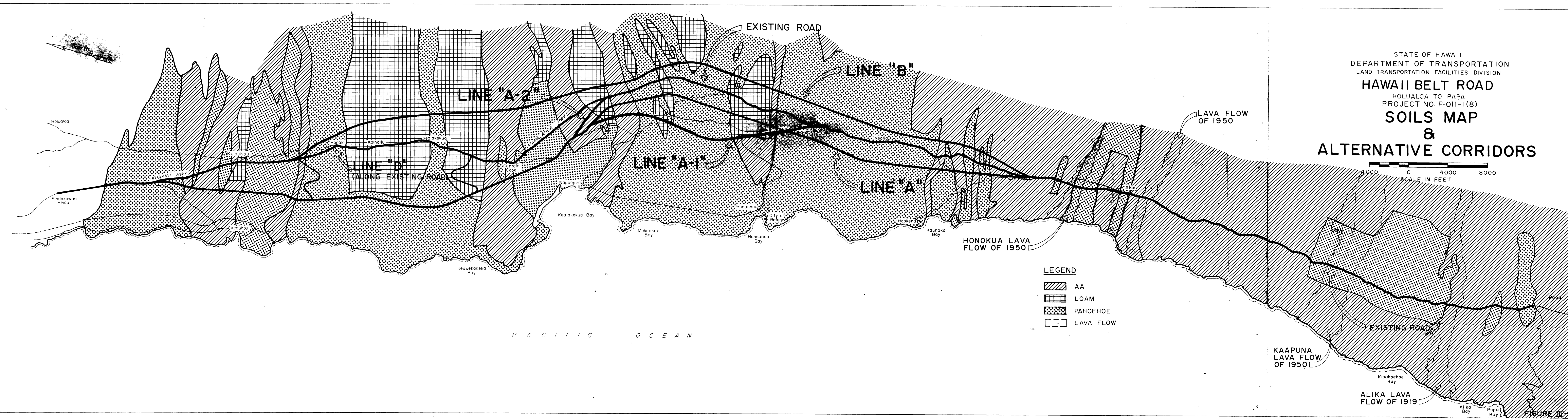


CONSTRUCTION PHASES		
PHASE NO.	LOCATION	LENGTH MILES
1	STA. 120-00 TO STA. 440-00 (INCLUDING CONNECTORS 1 & 2) KAMEHAMEHA III ROAD TO CONNECTOR 2	5.95
2	STA. 440-00 TO STA. 734-00 CONNECTOR 2 TO CITY OF REFUGE ROAD	5.68
3	STA. 70-00 TO STA. 120-00 KEALAKOWAA HEIAU TO KAMEHAMEHA III ROAD	2.27
4	STA. 804-00 TO STA. 1062-00 KEOKEA TO HONOKUA	4.88
5	STA. 1062-00 TO STA. 1230-00 HONOKUA TO OPHIHALI I	4.89
6	STA. 1230-00 TO STA. 1578-00 OPHIHALI I TO PAPA	4.88
7	CONSTRUCT 2 ADDITIONAL LANES STA. 120-00 TO STA. 434-00 5.95 MILES NOT ADDED TO TOTAL EXCEPTION 734-00 TO STA. 804-00 - 1.33 MILES NOT ADDED TO TOTAL	
TOTAL LENGTH		28.55

98-006

FIGURE II-9

98-007
2A



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
HAWAII BELT ROAD
 HOLUALOA TO PAPA
 PROJECT NO. F-011-1(8)
SOILS MAP
 &
ALTERNATIVE CORRIDORS

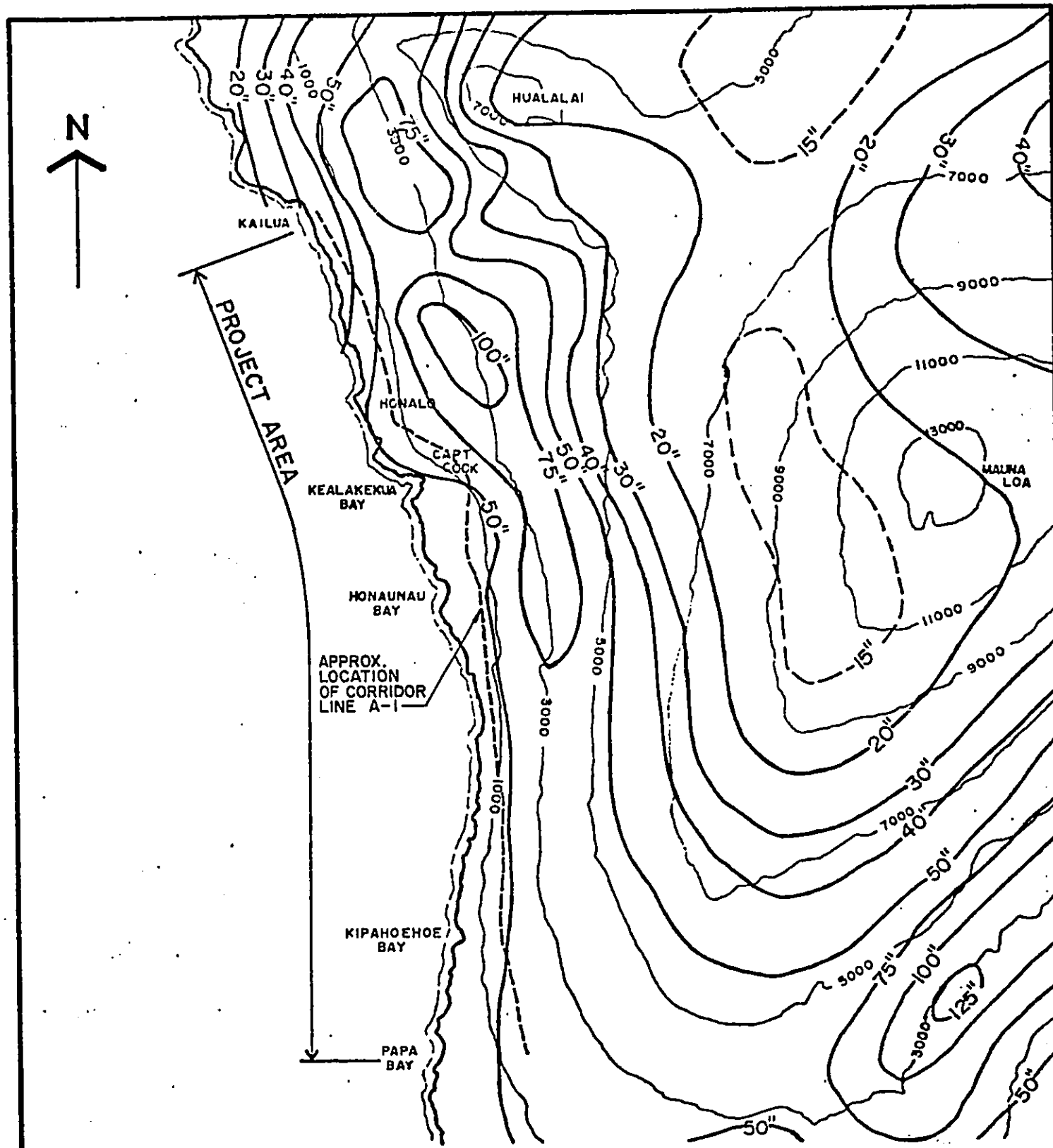
SCALE IN FEET
 0 4000 8000

- LEGEND**
- AA
 - LOAM
 - PAHOEHOE
 - LAVA FLOW

KAAPUNA
LAVA FLOW
OF 1950

ALIKA LAVA
FLOW OF 1919

FIGURE II



ISLAND OF HAWAII

AVERAGE ANNUAL RAINFALL ISOHYETAL MAP
NOT TO SCALE

FIGURE III-2

29

HIGHEST LEVEL OF CO CONCENTRATION

FOR ONE HOUR PERIOD

LINE A-1

1978

R/W

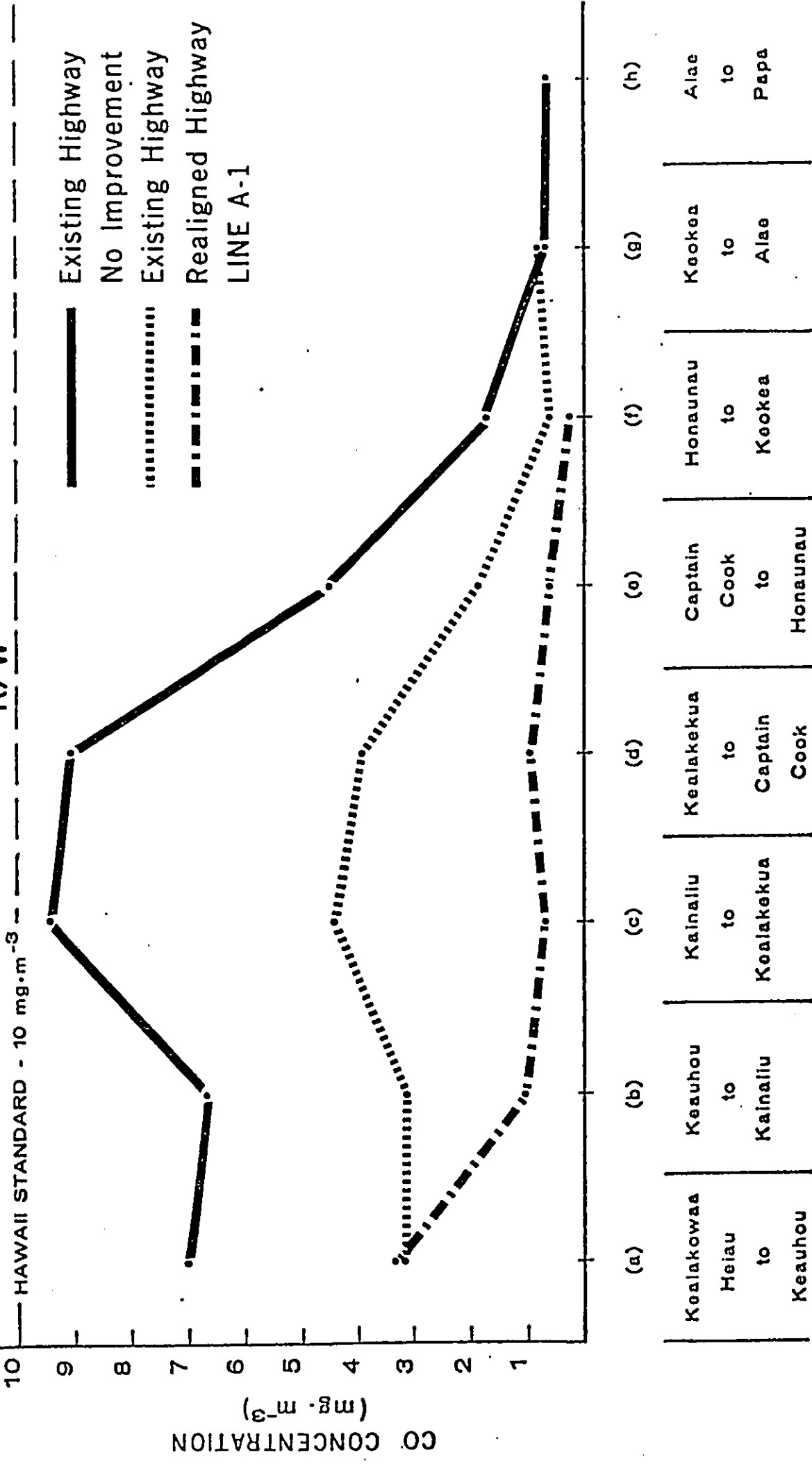
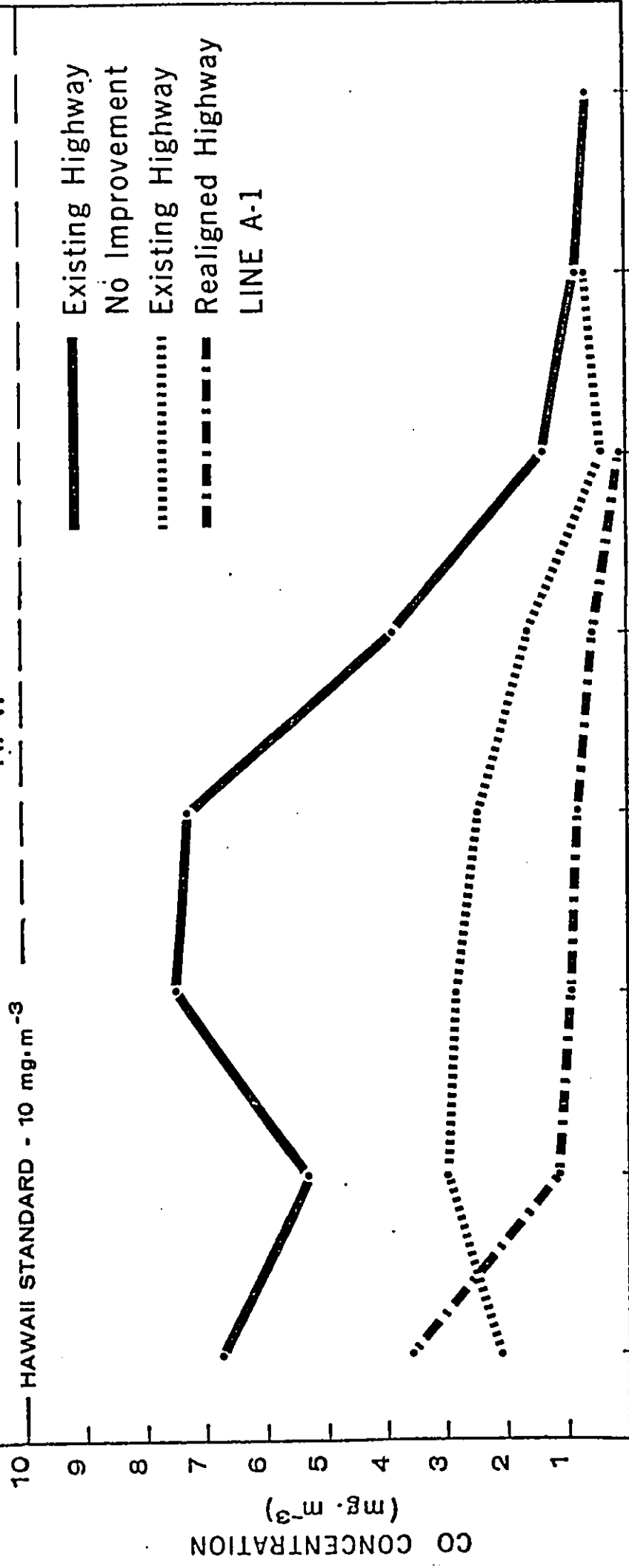


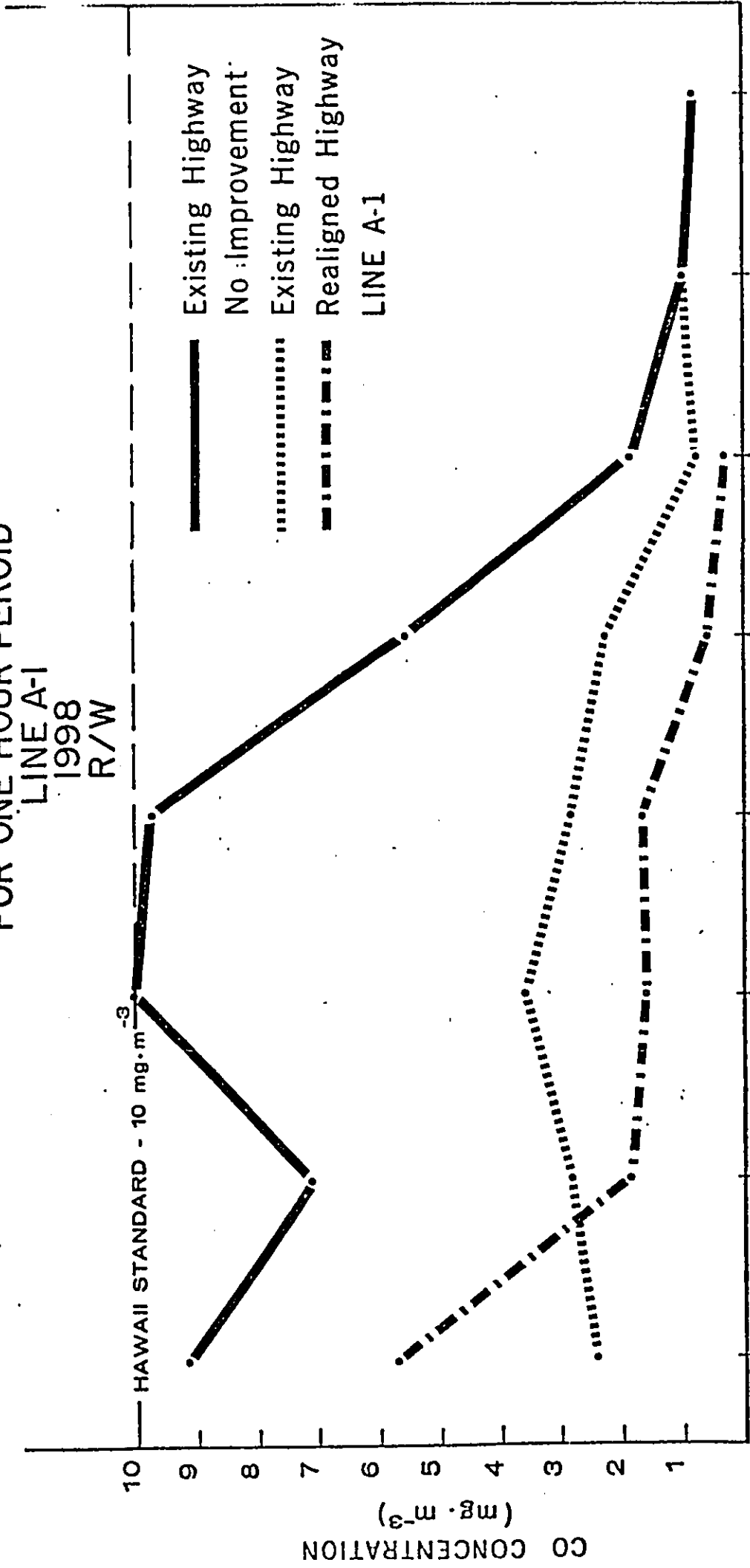
FIGURE IV-1

HIGHEST LEVEL OF CO CONCENTRATION
 FOR ONE HOUR PERIOD
 LINE A-1
 1988
 R/W



(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Koalakowaa Heiau to Keauhou	Keauhou to Kainaliu	Kainaliu to Koalakekua	Koalakekua to Captain Cook	Captain Cook to Honaunau	Honaunau to Kookea	Kookea to Alae	Alae to Papa

HIGHEST LEVEL OF CO CONCENTRATION FOR ONE HOUR PERIOD LINE A-1 1998 R/W



(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Kealakowaa Heiau to Keauhou	Keauhou to Kainaliu	Kainaliu to Kealakekua	Kealakekua to Captain Cook	Captain Cook to Honaunau	Honaunau to Kookea	Kookea to Alaa	Alaa to Papa

FIGURE IV-3

HIGHEST LEVEL OF CO CONCENTRATION FOR AN 8-HOUR PERIOD

LINE A-1

1978
R/W

- Existing Highway
- ⋯ No Improvement Existing Highway
- - - Realigned Highway
- LINE A-1

HAWAII STANDARD - $5 \text{ mg}\cdot\text{m}^{-3}$

CO CONCENTRATION
($\text{mg}\cdot\text{m}^{-3}$)

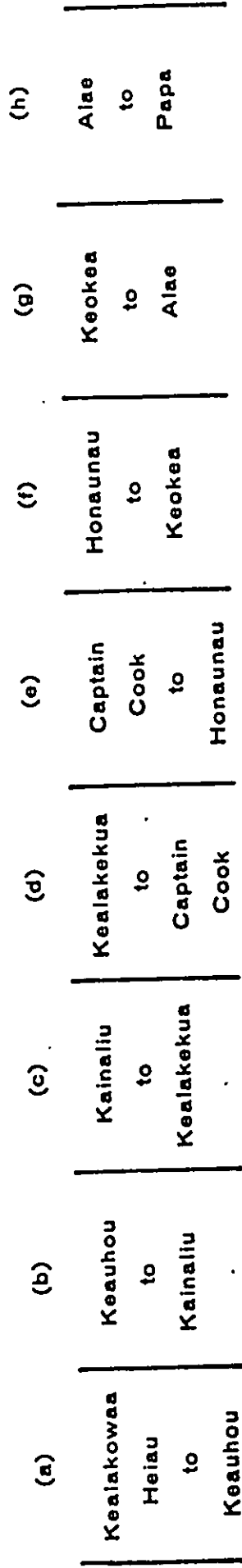


FIGURE IV-41

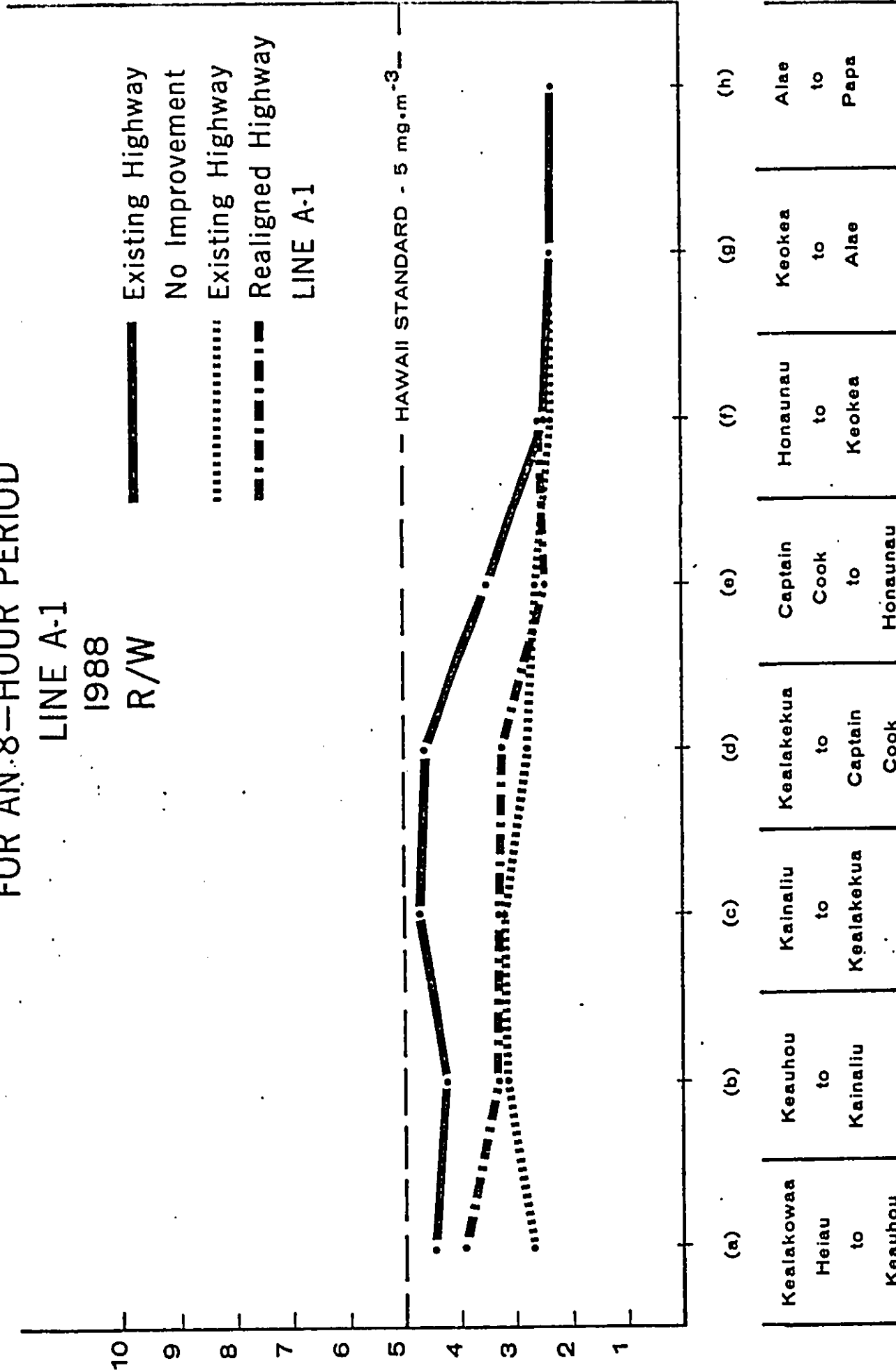
HIGHEST LEVEL OF CO CONCENTRATION FOR AN 8-HOUR PERIOD

LINE A-1
1988
R/W

- Existing Highway
 - No Improvement
 - - - Existing Highway
 - - - Realigned Highway
- LINE A-1

CO CONCENTRATION
($\text{mg} \cdot \text{m}^{-3}$)

HAWAII STANDARD - $5 \text{ mg} \cdot \text{m}^{-3}$



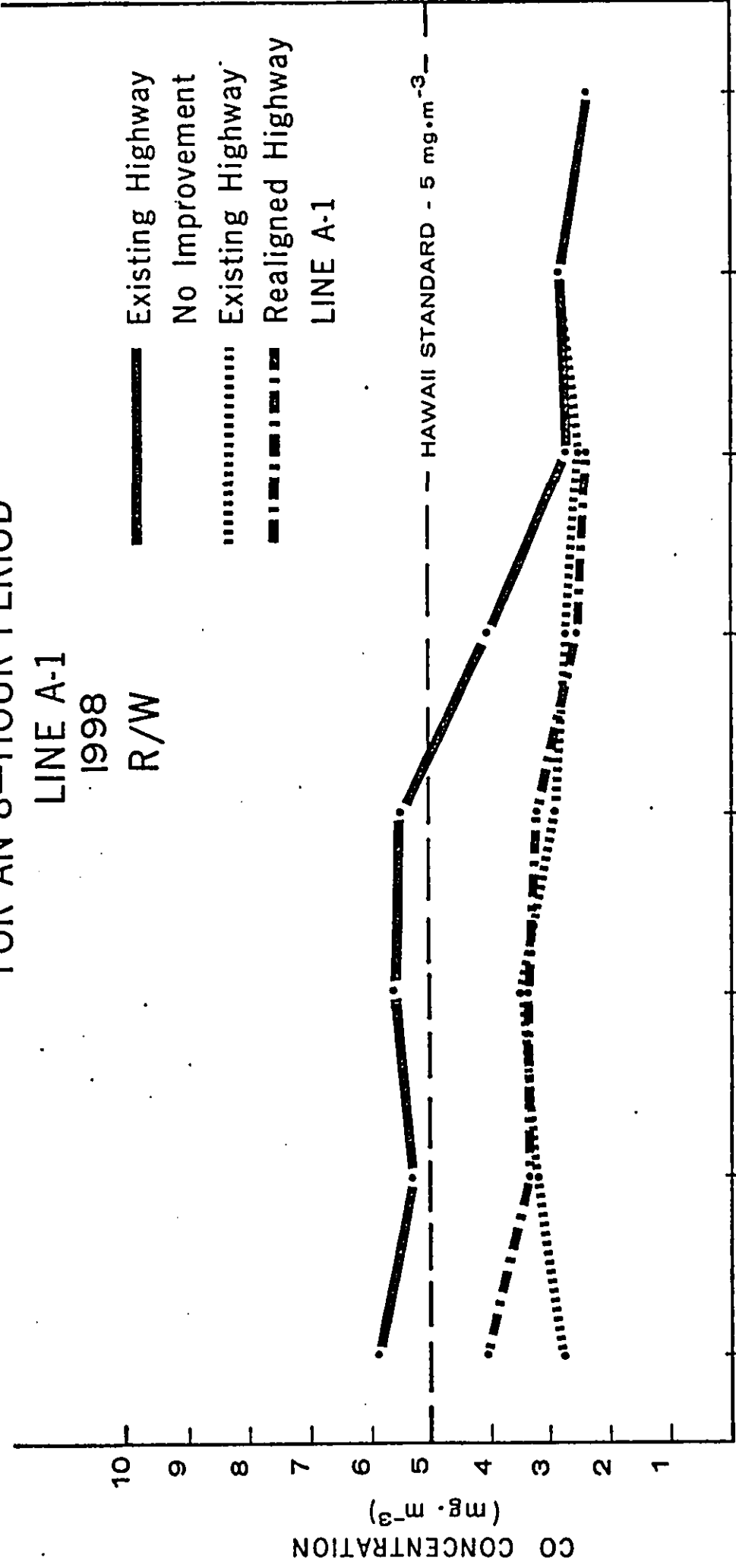
- (a) Kealakowaa Heiau to Keauhou
- (b) Keauhou to Kainaliu
- (c) Kainaliu to Kealakekua
- (d) Kealakekua to Captain Cook
- (e) Captain Cook to Honaunau
- (f) Honaunau to Keokea
- (g) Keokea to Alae
- (h) Alae to Papa

FIGURE IV-5

HIGHEST LEVEL OF CO CONCENTRATION FOR AN 8-HOUR PERIOD

LINE A-1
1998
R/W

- Existing Highway
 - ⋯ No Improvement
 - - - Existing Highway
 - - - Realigned Highway
- LINE A-1



(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Kealakowaa Heiau to Keaunou	Keaunou to Kainaliu	Kainaliu to Kealakekua	Kealakekua to Captain Cook	Captain Cook to Honaunau	Honaunau to Keokea	Keokea to Alae	Alae to Papa

STATE OF HAWAII CONTROL STRATEGY FOR CARBON MONOXIDE

"Hawaii is Priority III for carbon monoxide and, according to EPA Regulations, the control strategy need only demonstrate that the air quality levels will be maintained below the national secondary ambient air quality standards.

Control Strategy to Meet National Standards

The national primary and secondary standards for carbon monoxide has not been exceeded in the State based on recorded data. The Federal motor vehicle control program should maintain air quality levels below the national standards despite future growth if the Federal motor vehicle emission standards are effective.

Control Strategy to Meet State Standards

The State standards for 10 mg/m^3 for one hour and 5 mg/m^3 for eight hours have both been exceeded at the Department of Health Station. The more restrictive standard (1 hour) is used in the proportional model as follows:

$$\begin{array}{l} \text{\% emission} \\ \text{Reduction required} \end{array} = \frac{16.9 - 10}{16.9} = 41\%$$

According to the procedures in Appendix I of the EPA Regulations, the Federal motor vehicle program will result in an emission reduction between 1970 and 1975 of 22%. By 1977, there will be a 40% reduction in emissions from 1970 levels and by 1978, there would be a corresponding reduction of 47%. Thus, if 1977 could be considered a reasonable date for achieving the Hawaii ambient air quality standards for carbon monoxide, additional measures would not have to be instituted.

In order to achieve the State standards by 1975, the following measures will be considered:

1. Requiring control devices to be installed on uncontrolled (pre-1966) vehicles. This program would have to be instituted immediately in order to be completed by 1975. Based on figures supplied by the major domestic auto manufacturers concerning the effectiveness of such devices, the estimated 1975 air quality would be 10.8 mg/m^3 . The effectiveness of such a program would be transient, since most pre-1966 vehicles would be retired after 10 years of driving.
2. Converting fleet vehicles or even private autos to gaseous fuels;
3. Periodic inspection, testing, or required maintenance of all vehicles;
4. Adoption of one or more traffic control measures; such as:

- a. Increasing development and use of mass transit
- b. Restricting parking in Honolulu
- c. Requiring car-pooling during rush hours
- d. Commuter taxes
- e. Gasoline rationing
- f. Staggering working hours
- g. Raising parking fees in downtown Honolulu

The effect on emissions of traffic control measures is difficult to evaluate. Also, there appears to be substantial problems of cost, administration, and public acceptance. Since such measures will be necessary only for the time period between 1975 and 1977, it would appear that relying on the Federal motor vehicle control program to achieve the Hawaii standards by 1977 would be in public interest."¹

¹ Reference: State of Hawaii Department of Health, Air Pollution Control Implementation Plan, January 1972.

A P P E N D I X B

References

REFERENCES

1. A Plan for Kona, prepared for the State Planning Office by Harland, Bartholomew & Associates, March, 1960.
2. Hawaii Tourism Impact Plan, Volume 2: Regional, West Hawaii - Department of Planning and Economic Development, 1972.
3. The General Plan - County of Hawaii, January, 1971.
4. Traffic Summary - Island of Hawaii, 1971, Highways Division, State Department of Transportation, Publication No. HP72-2.
5. Traffic Accident Summary, State Highway System, Island of Hawaii, 1968-1972, 1973.
6. Highway Functional Classification and Needs Study, 1970-1990, prepared by Belt, Collins/Wilbur Smith & Associates, 1971, Hawaii State Department of Transportation, Highways Division, in cooperation with the U. S. Department of Transportation, Federal Highway Administration.
7. Standard Details, Department of Public Works, County of Hawaii, 1968.
8. Road Inventory, FAP19, Hawaii Belt Road, Highways Division, Hawaii State Department of Transportation.
9. National Register of Historic Places, Volume 39, Number 34, Part II, National Park Service, Department of the Interior.
10. Preparation of Environmental Statements, prepared by the National Park Service in cooperation with the Office of Environmental Project Review, April, 1974.
11. Archaeological Survey of Kamehameha III Road, North Kona, Island of Hawaii by S. Neal Crozier, prepared for: The County of Hawaii, Department of Public Works, 1971.
12. Hawaii Highway Sufficiency Rating as of June, 1967, Publication No. HP68-1, Highways Division, Hawaii State Department of Transportation, 1967.
13. Highway Projects and Jurisdiction Map, Island of Hawaii, Highways Division, Hawaii State Department of Transportation, 1972.
14. Land Use District Boundaries, Land Use Commission, Department of Planning and Economic Development, 1969.
15. Statistics of Hawaiian Agriculture, 1972. Hawaii State Department of Agriculture.

16. An Archaeological Investigation of Lands for the Proposed County Golf Course in Keei, South Kona, Hawaii, by Roy S. Nishiyama and Christina Zothian, prepared by Anthropological Research International for the Department of Parks and Recreation, County of Hawaii, 1972.
17. Soil Survey of the Island of Hawaii, State of Hawaii, Soil Conservation Service, United States Department of Agriculture, 1973.
18. Procedures for Estimating Highway User Costs, Air Pollution and Noise Effects, Program Report 133, Highway Research Board, National Research Council, National Academy of Sciences.
19. Preliminary Report for the Corridor Alignment of Napoopoo Road, prepared by William Hee & Associates, Inc., for the Department of Public Works, County of Hawaii, Island of Hawaii.
20. The Archaeology of North Kona from the Ahupua'a of Kealakeke to the Ahupua'a of Puukala. Section I: Archaeological Surface Survey, Francis Ching, Jr. - Division of State Parks and Paul Rosendahl, Department of Anthropology, University of Hawaii.
21. Final Alignment Report, Alii Highway, by Belt, Collins & Associates, Ltd., for the Department of Public Works, County of Hawaii.
22. Report on A Preliminary Corridor Study for Kuakini Highway Realignment, North Kona District, Island of Hawaii, Highways Division, Hawaii State Department of Transportation, 1970.
23. Honokahau Development Plan, North Kona, Hawaii, prepared by Community Planning, Inc., Hawaii State Department of Transportation.
24. Water Shed Work Plan, Kona Watershed, Island of Hawaii, prepared under the authority of the Watershed Protection and Flood Prevention Act (Public Law 566, 83rd Congress, 68 Stat. 666) as amended, prepared by the Kona Soil and Water Conservation District and the County of Hawaii, 1965.
25. Final Alignment Report for Napoopoo to Honaunau Highway, South Kona, Island of Hawaii, prepared for County of Hawaii, Department of Public Works by R. M. Towill Corporation, 1972.
26. The South Kona Coast Historic and Recreation Area, Island of Hawaii, prepared by Thomas H. Creighton and George S. Walters for the Department of Land and Natural Resources, 1969.
27. A New Honaunau Resort Community, prepared by Oberlander, Bush & Cave for Bernice P. Bishop Estate.
28. Planning and Design Policies on Road User Benefit Analyses for Highway Improvements, American Association of State Highway Officials, 1960.

29. Highway Capacity Manual, Special Report 87, Highway Research Board, National Academy of Sciences, National Research Council, Publication 1328.
30. A Policy on Design of Urban Highways and Arterial Streets, American Association of State Highway Officials, 1973.
31. Preliminary Draft of Kona Community Development Plan, prepared for the County of Hawaii, 1975, Donald Wolbrink & Associates, Inc.
32. Federal-Aid Highway Program Manual (FHPM), 7-7-3.
33. Manual for Highway Noise Prediction Report No. DOT-TSC-FHWA-72-1.
34. Highway Noise, National Cooperative Highway Research Program Report 117.
35. Economic Impact of Alternative Kona Highway Proposals by Louis A. Rose, Ph. D., University of Hawaii.
36. Kona Highway - Holualoa to Papa, Social Impact Assessment by Morris G. Fox, ACSW, Public Affairs Advisory Services, Inc.
37. Biological Element of the Environmental Impact Statement, Holualoa towards Papa, by Charles H. Lamoureux, Ph.D.
38. Hydrogeology Element of Environmental Impact Statement, Holualoa towards Papa, Kona, Hawaii, by John F. Mink, Consultant in the Earth Sciences.

A P P E N D I X C

Revised Conceptual Relocation Program Plan,
Hawaii Belt Road, Project No. F-011-1(8)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
MEMORANDUM

LT-RM
3.47712

DATE: JAN 13 1979

TO: LT-P

FROM: LT-R


SUBJECT: Revised Conceptual Relocation Program Plan, Hawaii Belt Road,
Holualoa to Papa, Project No. F-011-1(S)

We are submitting a revision to our conceptual stage relocation program plan dated September 18, 1974 and the subsequent memorandum dated August 8, 1975, HWY-RM 3.41431 because of a slight change in Alignment "A".

The following is a brief discussion on the estimated number of persons to be displaced by Alternate A-1:

It is anticipated that three (3) families, seven (7) individuals and two (2) businesses are to be affected by this route. The individuals and two (2) families are tenants of the two (2) apartments. The other family is an owner-occupant. The two (2) businesses are the two (2) apartments.

This revised estimate supersedes the previous memo dated August 8, 1975, HWY-RM 3.41431 (copy attached).


EDWARD K. OCHIAI
Head, Right-of-Way Branch

KU:js

Enclosure

HWY-FM
3.41431

HWY-P

HWY-R

REVISED CONCEPTUAL RELOCATION PROGRAM PLAN, HAWAII BELT ROAD -
HOLUALOA TO PAPA, PROJECT NO. F-011-1(8)

We are submitting a revision to our conceptual stage relocation program plan dated September 18, 1974. Due to misinterpretation of the maps showing the various alternates involved in the subject project, the number of individuals, families, businesses, farms and/or non-profit organizations to be affected has changed; all other information submitted in the prior relocation plan do not change.

The following is a brief discussion on the estimated number of persons to be displaced by each route:

ALTERNATE "A"

It is anticipated that seven (7) individuals, three (3) families and two (2) businesses are to be affected by this route. The individuals and families are all tenant-occupants of two apartments. The two businesses are the two apartments.

ALTERNATE "B"

An estimated seven (7) owner-occupants, twelve (12) tenant-occupants (eight individuals and four families) and two businesses (apartment rentals) may be affected by this route.

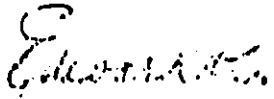
ALTERNATE "D" (realignment of existing right-of-way)

This alternate will affect individuals, families, businesses, government agencies and non-profit organizations. Twenty (20) tenant-occupants (ten individuals and ten families), thirteen (13) owner-occupants, forty-four (44) businesses, two governmental agency offices and three non-profit organizations are anticipated to be affected by this route.

CONCLUSION:

Due to the scarcity of rental replacement housing units, "last resort housing" will have to be utilized for the three alternates.

As evidenced by the findings, it is obvious that consideration should be given to Alternates "A" and "B" which have the lesser amount of displacements than Alternate "D".


EDWARD K. OCHIAI .

RA:by

cc: SLTH (Larry Fruto)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
MEMORANDUM

HWY-RM 3.39636

DATE: SEP 13 1974

TO: HWY-P, PA *js*

FROM: HWY-R

SUBJECT: CONCEPTUAL RELOCATION PROGRAM PLAN, HAWAII BELT ROAD - HOLEALOA TO PAPA,
PROJECT NO. F-011-1(8)

The relocation program plan at the conceptual stage together with the housing availability data for the subject project is submitted as requested by memorandum (HWY-PA) dated July 29, 1974.

The following is a discussion of our findings, the relocation problems that we may encounter, if any, and their probable solutions for each of the alternate routes under consideration for the subject project.

General Description of the Project Impact Area

The proposed project is in the South Kona District on the island of Hawaii. There are several small communities or villages namely, Honalu, Kealakekua, Captain Cook, Honaunau, and Papa. The population of the South Kona Division, according to the 1970 Census, is 4,004. The Japanese and Filipinos make up 65.8% and the Hawaiians and Caucasians 32.4% of the population. The other 1.8% consist of Chinese, Koreans, etc.

All of the communities are typical rural communities with the business section concentrated in a small area. The South Kona area was known for its coffee farms many years ago but today only a few people are continuing to grow coffee. The occupational status of the people in this area consist of construction work, hotel work (hotels are located in nearby Kailua, Kona), County, State, Federal, coffee farms, ranch and truck farming. Community Profile - Population Characteristics data for Kealakekua Village and Captain Cook Town

together with South Kona Division attached for informational purposes.

Attachment #1.

Alternate "A" (middle makai route)

This alternate route, one of three under consideration, involves 367 parcels of land of which 366 are by partial-taking and one by whole-taking. It is anticipated that no families, individuals, businesses, farms or non-profit organizations will be affected by this route. The properties involved are for the most part portions of large parcels of land. Since there are no relocations anticipated, no problems are anticipated for this alignment.

Alternate "B" (mauka route)

This route involves 429 parcels of land of which 422 are by partial-taking and 7 are by whole-taking. Most of the land involved is zoned for agriculture. An estimated five (5) families (owner-occupants) and one (1) individual (tenant occupant) are anticipated to be affected and displaced by this route.

It is anticipated that the relocation of the five owner-occupant families and the individual will not be problematic. One of the owner-occupants will be able to build on the remainder portion of his land, while another owns an abutting piece of land that will enable him to build a house on and the other three owner-occupants will have enough funds to purchase or make a down-payment towards purchase of a replacement dwelling. The values, as estimated for the properties owned by the affected families, range in value from \$37,000 to \$44,000.

As indicated by the housing availability survey conducted during the week of August 26 to 30, 1974, there were 8 houses available for sale. The prices ranged from a low of \$28,000 to a high of \$65,000.

There were seven three-bedroom and one two-bedroom home available. There were seven (7) vacant lots (houseslots) available for sale but no rentals available. Attached is the housing availability data, Exhibit #2.

There is a subdivision being built in Kealahou. The on site improvements, such as the road and sidewalk are being built. Although very limited information was gathered on this project, the homes are to be sold starting from \$43,000 and up. This will be a package deal of a house and lot. There will also be a commercial area within this subdivision. There will be about 120 homes.

It is our opinion that no major problems will be encountered by the takings for this route to create any adverse economic and sociological impact.

Alternate "C" (makai route near the ocean)

This route, although originally considered, was not taken into consideration because of its alignment thru historic sites. The impact to be created by this alignment would be of such magnitude that this alignment was deleted, hence no discussion of this alignment.

Realignment of Existing Right-of-Way

This alternate route involves a total of 691 parcels of land of which 688 are by partial-taking and 3 are by whole-taking. This route involves the most parcels of land and will affect about half of the businesses in the area. An estimated 25 families (12 owner-occupants and 13 tenant-occupants), 11 individuals (3 owner-occupants and 8 tenant-occupants), and 47 businesses including 3 non-profit organizations and 2 government agency offices are anticipated to be affected by this alignment.

It is anticipated that all of the families, individuals and businesses including the non-profit organizations and government agency offices to be affected will have to be relocated.

Major problems are anticipated to be encountered to relocate the families, individuals, and businesses to be affected by this route.

The following is a list of all the businesses (non-profit and government agency offices included) anticipated to be affected:

<u>Name</u>	<u>Type of Business</u>
1. Robert Jenkins et al	Rental Operation (Apt.)
2. George Servco	Rental Operation (Apt.)
3. Teshima Restaurant	Restaurant and Bar
4. Eddie's Chevron	Service Station
5. Teruo's Auto Repair	Auto Repair Shop
6. Tamao's Tofu Factory	Tofu Shop
7. Kurohara's Clothing	Drygoods Store
8. M. J.'s	Music Store
9. Michael's Boutique	Boutique Shop
10. Waipuna Lounge	Bar
11. Christian Center of Kona	Non-profit organization
12. Wool, Warp & Weft	Yarn Shop
13. Little Sicily Service	Phillips 66 Gas Station
14. Kona Office Supplies	Office Supplies Shop
15. Typewriter Center	Typewriter Shop
16. Harold's Union Service	Union 76 Gas Station
17. Kona Sporting Goods	Athletic Supply Shop
18. Willy's Watchmaker & Jewelry	Jewelry Store & Watch Repair
19. West Hawaii Today	Newspaper Agency
20. USDA Soil Conservation Office	Federal Government Agency Office
21. Photography Hawaii	Photo Studio
22. Uchimura Public Accountant	Public Accountant's Office
23. Carpenter's Local 745 Office	Union Office
24. State Employment Office	State Government Agency Office
25. Leslie Au, Dentist	Dentist's Office
26. Kona Ranch Produce	Produce Office & Warehouse
27. Barbershop	Barber
28. Pool Room	Billards
29. Hick's Homes Office	Building Contractor's Office
30. Ashihara Liquor & Carpet Store	Liquor and Carpet Store
31. Kealakekua Beauty Salon	Beauty Shop
32. Sumio Nakashima	Attorney's Office
33. Ralph Fukumitsu	Insurance Agency Office

<u>Name</u>	<u>Type of Business</u>
34. Joel's Auto Body Shop	Body and Fender Shop
35. Chris's Bakery	Bakery
36. Lilac Fashion	Drygoods Shop
37. Planned Parenthood Office	Non-profit Organization
38. L. Y. Yamada	Dentist's Office
39. NAPA Parts Center Hawaii	Auto parts shop
40. Shiraki Dry Cleaners	Dry Cleaning Shop
41. Bill's Auto Service	Phillips 66 Gas Station
42. Sakamoto Appliance	GE Appliance Store
43. Machado Store	General Merchandise Store
44. Ege Store	General Merchandise and Gas
45. Full Gospel Mission	Non-profit Organization
46. Morihara Store	General Merchandise Store
47. Manago Hotel	Hotel

This alignment will affect about 50% of the existing businesses in operation. It will affect most of the gas stations, the only decent restaurant in the area, the only bakery in the area, the two dentists' office in the area, the only sporting goods store in the area, the only hotel in the area and the two stores in Honaunau. Replacement sites for businesses are very limited. The availability survey showed no commercial sites available.

Since business lots are very hard to come by, it will be a big problem to reestablish the businesses to be affected. Our survey indicates that there is no possible solution to relocating the businesses within the area.

Problems will also be encountered in relocating all the tenant-occupants (families & individuals) within the area. There are no available rentals in the area. The composition of the families and their occupational status and present rent are as follows:

<u>Family Composition</u>	<u>Bdrm. Req.</u>	<u>Occupation</u>	<u>Rent</u>
1. Husband, wife, 1 child	2	Information not Available	\$ 50.00
2. 1 single male	1	Coffee Farm Hand	No rent
3. 1 single male	1	Coffee Farm Hand	No rent
4. Husband, wife, 1 boy	2	Information not Available	Not Available
5. Husband, wife, 1 girl	2	Construction Worker	\$ 75.00
6. 1 single male	1	Coffee Farm Hand	No rent
7. Husband, wife, 6 girls, 3 boys - ages 2 to 17	5	Unemployed	\$ 50.00
8. Husband, wife, 1 girl	2	Unemployed	\$ 50.00
9. Husband, wife, 2 boys, 1 girl	3	Heavy Equipment	\$ 75.00
10. Husband, wife, 2 boys	2	Construction Worker	\$ 45.00
11. Husband, wife, 1 girl	2	Information not Available	Not Available
12. Husband, wife, 1 boy, 1 girl	3	Construction Worker	\$ 50.00
13. Husband, wife, 2 boys	2	Construction Worker	\$ 50.00
14. Husband, wife, 1 girl	2	Hotel Worker	\$ 50.00
15. 1 single female	1	Hotel Worker	\$155.00
16. 1 single female	1	Hotel Worker	\$155.00
17. 1 single male	1	Construction Worker	\$155.00
18. 1 single male	1	Hawaiian Airlines Mechanic	\$155.00
19. Husband, wife	1	Construction Worker	\$220.00
20. 1 single male	1	Construction Worker	\$200.00
21. Husband, wife, 1 boy, 2 girls	3	Hilo Electric Co.	\$200.00

As indicated by the foregoing information on the tenant-occupants,
9 one-bedroom, 8 two-bedroom, 3 three-bedroom and 1 five-bedroom dwelling
ranging in rent from \$45.00 to \$220.00 will be required. The non-
availability of rentals in the area indicates the use of last resort
housing to enable the tenants to relocate.

The composition of the families, occupational status and bedroom requirement of the owner-occupants are as follows:

<u>Family Composition</u>	<u>Bdrm Req.</u>	<u>Occupation</u>
1. Husband, wife, 2 boys, 1 girl	3	Construction Worker
2. Husband, wife, 1 boy, 1 girl	3	Construction Worker
3. Husband, wife, 2 boys, 2 girls	4	Own Business (Tofu Factory)
4. 1 single male	1	Coffee Farmer (Lessee)
5. Husband, wife, 1 girl	2	Carpenter (Lessee)
6. Husband, wife, 1 boy, 1 girl	3	Own Business (Dry Cleaning Shop)
7. Husband, wife, 3 boys, 3 girls	5	Retired
8. Husband, wife, 1 boy, 1 girl & mother	3	State Employee (Lessee)
9. Husband, wife, 1 girl	2	Retired
10. 1 single male	1	Retired
11. 3 male adults	3	Retirees
12. Husband, wife, 1 boy	2	Own Business (Store)
13. Husband, wife	1	Retired
14. Husband, wife, 2 boys, 2 girls	3	Heavy Equipment Operator
15. 1 single male	1	Retired

Of the 15 owner-occupants to be affected, 9 will have enough remainder land on which to build their replacement dwellings. Six of the owner-occupants will have to purchase replacement dwellings in the area. There are 6 owner-occupants who are elderly and retired and 3 of the 6 retirees are single men. This indicates that the retirees will have difficulty and suffer undue economic hardship to purchase replacement dwellings. The other 9 owner-occupants are not anticipated to have any difficulty in purchasing replacement dwellings.

As evidenced by the aforementioned presentation of the impact of this alignment, it is our recommendation that consideration should be given to Alignment A so as to avoid all the businesses, owner-occupied and tenant-occupied dwellings in the area.

The indications provided by our study are applicable as of the present. Future surveys might indicate otherwise at such point in time.

Conclusion:

As evidenced by the foregoing discussions, it is obvious that if the realignment of the present right-of-way or Alternate "B" is ultimately selected for approval for the construction of this highway facility, varying degrees of direct sociological and economic impact will result.

All Federally-aided highway programs, such as this project, must comply with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. The State of Hawaii has appropriate legislation and the State Department of Transportation also has an organization equipped and staffed to administer a relocation assistance program in accordance with the Federal law.

An examination of the Federal law as well as the State program which is described in the Relocation Advisory Assistance and Relocation Payments Brochure (copy attached) reveals that certain statutory limits exist with respect to replacement housing payments that can be made to tenant or owner-occupant displacees. Under the typical relocation assistance program, a displaced tenant will be eligible for up to a

maximum of \$4,000 which can be paid in a lump sum or can be paid in annual installments at the discretion of the displacee. This maximum amount of \$4,000, in actuality, would be equivalent to a rental subsidy of \$83.33 per month over a period of four years. In the case of an owner-occupant, a lump sum payment of up to \$15,000 can be made to enable him to purchase a comparable decent, safe and sanitary replacement dwelling. These payments are in addition to moving payments and other services to which the relocatee is entitled.

Due to the scarcity of rental and the high cost of "for sale" homes in the area, the above benefit maximums sometimes are insufficient to accommodate the satisfactory relocation of families displaced by public projects. State and Federal regulations require that a person or family must be relocated within his financial means. This simply means that a tenant must be relocated in such a way that the replacement dwelling will not increase his "out of pocket" costs in terms of rent, over and above what was paid at the property relocated from, considering the rental subsidy paid by the State.

The treatment of homeowners is similar although the payment, if any, is made on a lump sum basis to enable him to buy a house comparable to what he had, and therefore, be no worse off financially in terms of housing costs that he was before.

Based upon the conceptual relocation study made for this project, there is every indication that if the existing alignment is considered a procedure called "housing of last resort" (Section 206 of the Uniform

Relocation Assistance and Real Property Acquisition Policies Act of 1970) can be relied on to satisfactorily relocate displaced families.

Housing of last resort can take several forms as follows:

1. Land improved with an existing dwelling can be purchased.
2. Existing dwellings can be rehabilitated.
3. New dwellings can be constructed.
4. State acquired dwellings from the right-of-way project can be relocated and refurbished.

All these various methods are accomplished under the auspices of the State highway agency and such housings so provided is either rented to the highway displacee or made available for sale to him, depending on his occupancy status. In addition to the above alternatives, if justified, the replacement housing payment can be increased beyond the statutory limits to allow a relocatee to purchase on his own or rent a dwelling within his financial means. Under this procedure, the owner relocatee would simply be paid an amount in excess of \$15,000 on a lump sum basis or in the case of a tenant, the maximum subsidy payment total of \$4,000 would be exceeded.

Federal and State procedures also have additional safeguards in the sense that construction cannot be authorized to begin on any project until such time as all displacees have satisfactorily relocated to comparable DSS housing within their financial means or such housing is in place and has been made available to the relocatee.

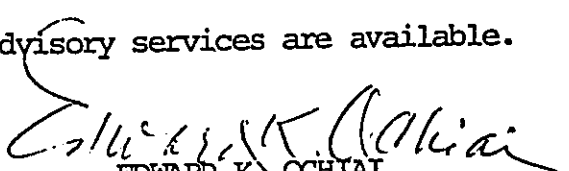
At the time an alternative alignment is selected for this project which would involve the creation or utilization of last resort housing, a detailed study for housing of last resort will be initiated so that

the relocatees can be accommodated in a manner compatible with the scheduling of the highway project development of construction.

Businesses, Farms and Non-Profit Organizations:

Our relocation assistance program contains no mandate to furnish comparable quarters, facilities or location for displaced businesses, farms or non-profit organizations. Nevertheless, several elements of the State's assistance program for this type of relocatee are worthy of mention as follows:

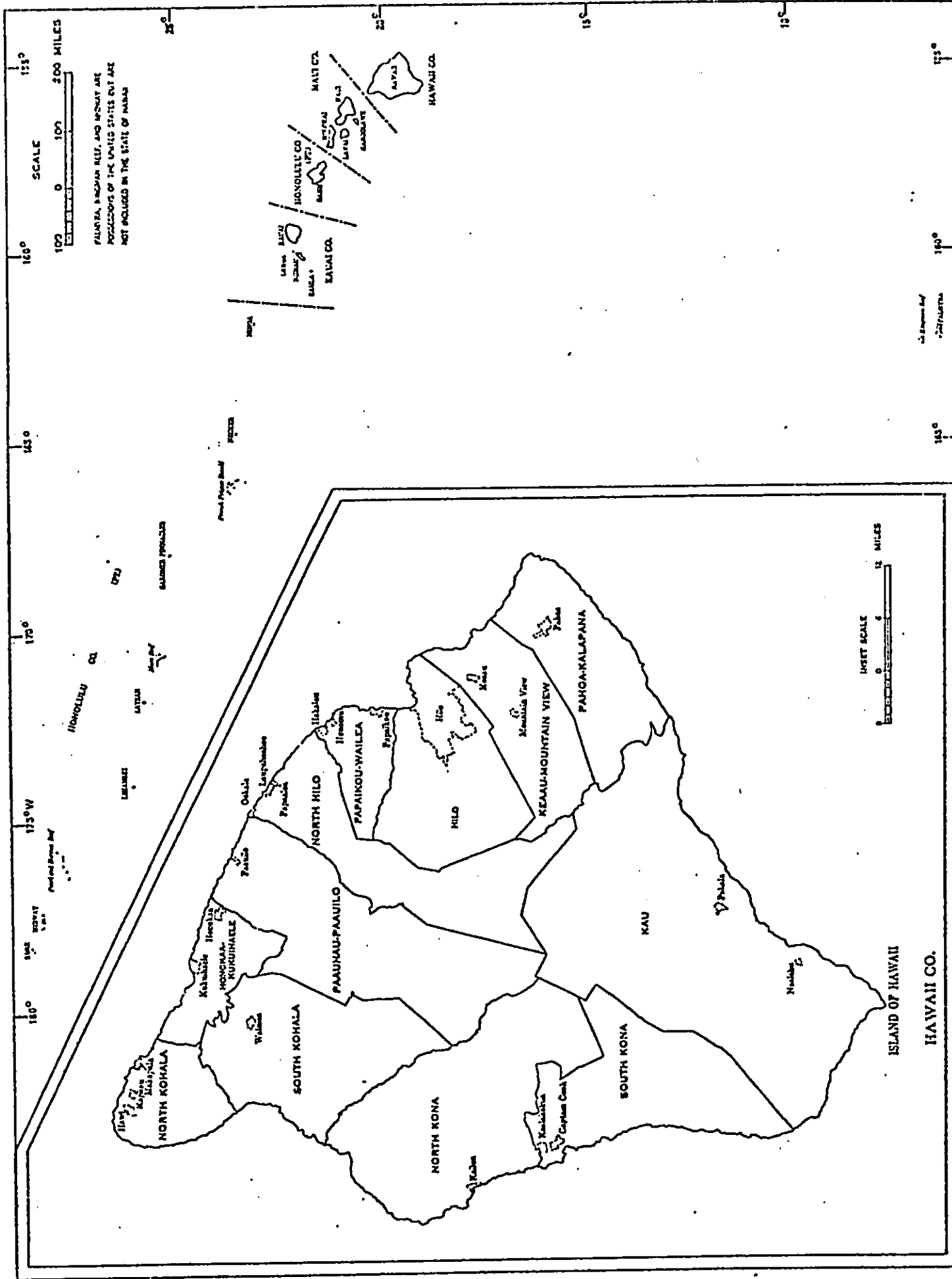
1. Actual moving costs up to 50 miles will be paid.
2. Searching costs incurred in connection with the obtainment of a new business site can be reimbursed.
3. In lieu of items 1 and 2 above, a fixed payment based upon the net income of the business not to exceed \$10,000 can be paid if the business cannot be established in the area or cannot be reestablished without a substantial loss of existing patronage.
4. Benefits of the small business disaster loan program under Section 7(b)(3) of the Small Business Act (15 U.S.C. 636(b)(3)) may be available to eligible businesses displaced because of a highway project. As of 7/9/73, loans up to 30 years at 5 3/8% per annum would be available to eligible business relocatees and to those businesses outside of the project (but not displaced) where substantial economic injury results because of the highway project.
5. State relocation advisory services are available.


EDWARD K. OCHIAI
Head, Right-of-Way Branch

Attachments (3)

HAWAII

County Subdivisions/Census Coun., Divisions and Places



COMMUNITY PROFILE - POPULATION CHARACTERISTICS
1970 CENSUS

County Hawaii Island Hawaii Place South Kona Div.
Division _____

NUMBER OF PERSONS

Year	Population	Change from previous census	
		Number	Percent
1970	4,004	-288	-6.7
1960	4,292	569	15.3
1950	3,723	-301	-7.5

GENERAL CHARACTERISTICS

	Number	Percent
Under 5 years of age	359	9.0
Under 18 years of age	1,554	38.8
65 years and over	497	12.4
Median age	29.7	
Persons 14 years and over		
Married, male	851	54.7
Married, female	830	65.3
Total number of persons		
Male	2,193	54.8
Female	1,811	45.2
Number of households		
Persons per household	3.71	
Living in group quarters	70	1.059
Number of families	848	
Husband and wife	749	88.3
Other male head	37	4.4
Female head	62	7.3

ETHNIC GROUPS

Caucasian	708	17.7
Negro	3	0.1
American Indian	1	0.0
Japanese	1,586	39.6
Chinese	32	0.8
Filipino	1,051	26.2
Hawaiian	589	14.7
Korean	15	0.4
Other	19	0.5

COMMUNITY PROFILE - SOCIO-ECONOMIC CHARACTERISTICS
1970 CENSUS

	Place South Kona Div.	
	Number	Percent
ORIGIN (Total population = 4,004)		
Foreign born	622	15.5
Native born of native parents	2,206	55.1
Born in state of residence	2,828	70.6
Born in different state	211	5.3
RESIDENCE IN 1965 (Pop. 5 yrs. & over = 3,646)		
Same house	2,044	56.1
Different house, same county	881	24.2
Different county, same state	375	10.3
Different state	90	2.5
EDUCATION (Pop. 25 yrs. & over = 2,179)		
8 yrs. or less completed	1,046	48.0
Completed high school	526	24.1
4 yrs. or more college	138	6.3
Median school yrs.	NA	
EMPLOYMENT (Pop. 16 yrs. & over = 2,629)		
In civilian labor force, male	1,006	69.6
In civilian labor force, female	529	44.7
In armed forces	0	
Employed	1,500	97.7
Unemployed	35	2.3
Prof. and technical workers	161	10.7
Managerial & admin. workers	88	5.9
Laborers and farm workers	401	26.7
INCOME		
Median income, families	\$10,000-\$11,999	
Median income, unrel. individuals	\$1,000-1,999	
Families below poverty level	147	18.5
Families below \$10,000	377	47.4
Families above \$25,000	35	4.4
HOUSING		
Total housing units	1,139	
All occupied units	1,059	
Owner-occupied units	391	36.9
Median value, owner occupied	\$35,000-49,999	
Median rent, renter occupied	\$60-79	
Lacking all or some plumbing	635	55.8
Lacking telephone	257	24.3
1.51 or more persons per room	139	13.1
One-unit structures	991	87.0

COMMUNITY PROFILE - POPULATION CHARACTERISTICS
1970 CENSUS

County Hawaii Island Hawaii Place Capt. Cook Town
Division South Kona

NUMBER OF PERSONS

Year	Population	Change from previous census	
		Number	Percent
1970	<u>1,263</u>	<u>-424</u>	<u>-25.1</u>
1960	<u>1,687</u>	<u>1,371</u>	<u>433.9</u>
1950	<u>316</u>		

GENERAL CHARACTERISTICS

	Number	Percent
Under 5 years of age	<u>94</u>	<u>7.4</u>
Under 18 years of age	<u>510</u>	<u>40.4</u>
65 years and over	<u>140</u>	<u>11.1</u>
Median age	<u>29.3</u>	
Persons 14 years and over		
Married, male	<u>276</u>	<u>58.4</u>
Married, female	<u>267</u>	<u>64.5</u>
Total number of persons		
Male	<u>681</u>	<u>53.9</u>
Female	<u>582</u>	<u>46.1</u>
Number of households	<u>313</u>	
Persons per household	<u>4.02</u>	
Living in group quarters	<u>6</u>	<u>0.5</u>
Number of families	<u>273</u>	
Husband and wife	<u>246</u>	<u>90.1</u>
Other male head	<u>11</u>	<u>4.0</u>
Female head	<u>16</u>	<u>5.9</u>

ETHNIC GROUPS

Caucasian	<u>212</u>	<u>16.5</u>
Negro	<u>0</u>	<u>---</u>
American Indian	<u>0</u>	<u>---</u>
Japanese	<u>653</u>	<u>51.7</u>
Chinese	<u>5</u>	<u>0.4</u>
Filipino	<u>258</u>	<u>20.4</u>
Hawaiian	<u>102</u>	<u>8.1</u>
Korean	<u>2</u>	<u>0.1</u>
Other	<u>1</u>	<u>0.1</u>

COMMUNITY PROFILE - SOCIO-ECONOMIC CHARACTERISTICS
1970 CENSUS

	Place	Captain Cook	Town
	Number	Percent	
ORIGIN (Total population =)			
Foreign born			
Native born of native parents			
Born in state of residence			
Born in different state			
RESIDENCE IN 1965 (Pop. 5 yrs. & over =)			
Same house			
Different house, same county			
Different county, same state			
Different state			
EDUCATION (Pop. 25 yrs. & over =)			
8 yrs. or less completed			
Completed high school			
4 yrs. or more college			
Median school yrs.			
EMPLOYMENT (Pop. 16 yrs. & over =)			
In civilian labor force, male			
In civilian labor force, female			
In armed forces			
Employed			
Unemployed			
Prof. and technical workers			
Managerial & admin. workers			
Laborers and farm workers			
INCOME			
Median income, families			
Median income, unrel. individuals			
Families below poverty level			
Families below \$10,000			
Families above \$25,000			
HOUSING			
Total housing units	332		
All occupied units	313		
Owner-occupied units	148	47.3	
Median value, owner occupied	\$38,300		
Median rent, renter occupied	\$57		
Lacking all or some plumbing	156	47.0	
Lacking telephone	48	15.3	
1.51 or more persons per room	30	9.6	
One-unit structures	319	96.1	

COMMUNITY PROFILE - POPULATION CHARACTERISTICS
1970 CENSUS

County Hawaii Island Hawaii Place Kealakakua Village

Division So. Kona

NUMBER OF PERSONS

Year	Population	Change from previous census	
		Number	Percent
1970	740	161	27.8
1960	579	254	78.2
1950	325	-48	-12.9

GENERAL CHARACTERISTICS

	Number	Percent
Under 5 years of age	67	9.1
Under 18 years of age	257	34.1
65 years and over	110	14.9
Median age		
Persons 14 years and over		
Married, male	160	50.6
Married, female	156	63.7
Total number of persons		
Male	415	56.1
Female	325	43.9
Number of households	209	
Persons per household	3.36	
Living in group quarters	20	2.7
Number of families	162	
Husband and wife	134	82.7
Other male head	12	7.4
Female head	16	9.9

ETHNIC GROUPS

Caucasian	69	9.3
Negro	0	---
American Indian	0	---
Japanese		
Chinese		
Filipino		
Hawaiian		
Korean		
Other	3	0.4

668 { 90.3

COMMUNITY PROFILE - SOCIO-ECONOMIC CHARACTERISTICS
1970 CENSUS

Place Kealahoukua Village

	<u>Number</u>	<u>Percent</u>
ORIGIN (Total population =)		
Foreign born	_____	_____
Native born of native parents	_____	_____
Born in state of residence	_____	_____
Born in different state	_____	_____
RESIDENCE IN 1965 (Pop. 5 yrs. & over =)		
Same house	_____	_____
Different house, same county	_____	_____
Different county, same state	_____	_____
Different state	_____	_____
EDUCATION (Pop. 25 yrs. & over =)		
8 yrs. or less completed	_____	_____
Completed high school	_____	_____
4 yrs. or more college	_____	_____
Median school yrs.	_____	_____
EMPLOYMENT (Pop. 16 yrs. & over =)		
In civilian labor force, male	_____	_____
In civilian labor force, female	_____	_____
In armed forces	_____	_____
Employed	_____	_____
Unemployed	_____	_____
Prof. and technical workers	_____	_____
Managerial & admin. workers	_____	_____
Laborers and farm workers	_____	_____
INCOME		
Median income, families	_____	_____
Median income, unrel. individuals	_____	_____
Families below poverty level	_____	_____
Families below \$10,000	_____	_____
Families above \$25,000	_____	_____
HOUSING		
Total housing units	209	
All occupied units	209	
Owner-occupied units	67	32.1
Median value, owner occupied	\$35,000-49,999	
Median rent, renter occupied	\$40-59	
Lacking all or some plumbing	117	56.0
Lacking telephone	54	25.8
1.51 or more persons per room	38	18.2
One-unit structures	176	84.2

AVAILABLE HOUSES

For Sale

Loca- tion	Tax Map Key No.	Bdms.	Bath(s)	Floor Area (Sq. Ft.)	Land Area (Sq. Ft.)	Price	Name of Firm or Person Contacted	Date
Kona	7-7-16-31	3	1	924	7,500	\$46,500	Kona Realty (Sumio Nakashima)	8-28-74
Kona	7-7-15-43	3	1	1,100	8,201	42,500	Tony Leeb Realty (Neba Courtney)	8-28-74
Kona	7-7-16-7	3	2	1,104	7,804	59,500	Tony Leeb Realty (Neba Courtney)	8-28-74
Kona	7-7-16-10	3	2	1,008	7,804	47,000	Tony Leeb Realty (Neba Courtney)	8-28-74
Kona	7-7-16-40	3	2	1,344	8,960	65,000	Tony Leeb Realty (Neba Courtney)	8-28-74
Kona	7-7-15-60	3	1	864	8,111	45,000	Gold Coast Realty (Dolores Springer)	8-28-74
Kona	8-3-13-47	3	1	720	22,726	28,000	Gold Coast Realty (Dolores Springer)	8-28-74
Kona	8-7-14-27	2	1	1,152	44,388	55,000	Gold Coast Realty (Dolores Springer)	8-28-74

For Rent

No rentals available although Mauka Aun Apartments (2 bedrooms) and Basque Apartments do occasionally have vacancies.
No houses available for rent.

Vacant Lots

Location	Tax Map Key No.	Bdrms.	Bath(s)	Floor Area (Sq. Ft.)	Land Area (Sq. Ft.)	Price	Name of Firm or Person Contacted	Date
Kona	7-7-09-62	---	---	---	15,809	\$20,000	Kona Realty (Sumio Nakashima)	8-28-74
Kona	7-7-12-3	---	---	---	15,537	25,636	Kona Realty (Sumio Nakashima)	8-28-74
Kona	7-7-13-48	---	---	---	15,000	30,000	Kona Realty (Sumio Nakashima)	8-28-74
Kona	7-7-10-64	---	---	---	7,664	28,000	Kona Realty (Sumio Nakashima)	8-28-74
Kona	7-7-15-66 & 67	---	---	---	19,343	67,750	Kona Realty (Sumio Nakashima)	8-28-74
Kona	8-8-6-5	---	---	---	8,000	16,500	Kona Realty (Sumio Nakashima)	8-28-74
Kona	7-7-8-96	---	---	---	5.839 (Acres)	100,000	Kona Realty (Sumio Nakashima)	8-28-74
Kona	8-3-8-1	---	---	---	18.40 (Acres)	66,000	Kona Realty (Sumio Nakashima)	8-28-74
Kona	8-3-13-4	---	---	---	18.41 (Acres)	165,000	Kona Realty (Sumio Nakashima)	8-28-74
Kona	8-7-14-11	---	---	---	39 (Acres)	102,000	Kona Realty (Sumio Nakashima)	8-28-74

15

A P P E N D I X D.

Coordination With Other Agencies

APPENDIX D

COORDINATION WITH OTHER AGENCIES

The development of this project was closely coordinated with agencies and individuals who have an interest in the proposed highway improvement. Documentation of these consultive actions is contained in Appendices D-1 to D-4, which are summarized as follows:

- D-1 Meeting With Other Agencies
- D-2 Letter From the State Department of Health on Water Quality Impact of the Proposed Kona Highway
- D-3 Letters between the Federal Highway Administration and the State Historic Preservation on the Kona Field System
- D-4 Clearance from the Department of Land and Natural Resources on Coordination of Highway Projects with Land and Natural Resources Interests

APPENDIX D-1

MEETINGS WITH OTHER AGENCIES

May 7, 1974 - Joint agency meeting, to which invitations were sent by the Highways Division on April 19, at the Planning Branch office.

600 Kapiolani Boulevard, Room 304. The following agencies were invited:

Federal Highway Administration
Department of Land and Natural Resources
Department of Agriculture
Department of Health
U. S. Soil Conservation Services
Department of Planning and Economic Development

Only the Federal Highway Administration, U. S. Soil Conservation Service, and Department of Planning and Economic Development sent representatives to this meeting.

May 15, 1974 - A clearance form was issued by the Department of Land and Natural Resources on the coordination of the project with that department.

June 5, 1974 - Hilo, Hawaii. The consultant contacted the following agencies:

Hawaii County Police Traffic Division
Hawaii County Planning Department
State Tax Assessor for North Kona
Hilo Electric Company
Hawaii County Department of Water Supply
Hawaii County Department of Sewers and Sanitation.

June 6, 1974 - Public information meeting in the Hawaii District Engineer's office, Hilo. Present were representatives from:

Highways Division
Hawaii County Department of Public Works
Hawaii County Department of Planning
Hawaii County Department of Water Supply
Life of the Land

June 6, 1974 - Other individuals contacted were landowners Jack, Norman, Henry, and Maud Greenwell.

June 6, 1974 - Public information meeting at the Yano Memorial Hall in Captain Cook, Kona. Public officials present were:

State Representative: A. Hapai
Hawaii County Councilman: Kawahara
Hawaii County Planning Department: Sydney Fuke
State Highways Division: C. Schuster, G. Kodani, K. Au,
A. Miyamoto, E. Ochiai, and G. Shigano

June 7, 1974 - Other individuals contacted were:

Landowners: Billy Paris, Roy Wall, and Sherwood Greenwell
Kona Conservation Group: Slim Tyler
Hawaiians: Joe Tassill and Lincoln Ah Lo
Kona Police Department: Captain Glory

June 24, 1974 - Conference with Donald Wolbrink and Associates on the Kona Tourist Plan.

July 10, 1974 - Conference with H. Peter L'Orange, landowner.

July 19, 1974 - Conference with the Archaeological Section of the Department of Land and Natural Resources.

July 29, 1974 - Conferences with Kamehameha Development regarding the proposed development of the Keauhou resort area.

January 29, 1975 - Public information meeting at the Yano Memorial Hall in Captain Cook, Kona.

February 14, 1975 - Conference with the Archaeological Section of the Department of Land and Natural Resources.

September 15, 1976 - Public Hearing in Kailua, Kona.

January 12, 1977 - Public Hearing at the Yano Memorial Hall in Captain Cook, Kona.

APPENDIX D-2

Letter from the State Department of Health
on
Water Quality Impact of Proposed Kona Highway

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

DIRECTOR'S OFFICE



RECEIVED

MAY 7 7 52 AM '75

MAY 7 2 29 PM 1975

STATE OF HAWAII
DEPT. OF DEPARTMENT OF HEALTH
TRANSPORTATION P.O. Box 3378
HONOLULU, HAWAII 96801

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

Audrey W. Mertz, M.D., M.P.H.
Deputy Director of Health

Henry N. Thompson, M.A.
Deputy Director of Health

James S. Kumagai, Ph.D., P.E.
Deputy Director of Health

May 1, 1975

In reply, please refer to:
File: EPHS - SS

MEMORANDUM

To: Mr. E. Alvey Wright, Director
Department of Transportation

From: Deputy Director for Environmental Health

Subject: Water Quality Impact of Hawaii Belt Road, Holualoa to Papa,
Project No. F-011-1 (8)

We concur that the proposed highway construction will not have
an adverse impact on the water quality of North and South Kona.

James S. Kumagai
JAMES S. KUMAGAI, Ph.D.

APPENDIX D-3

Letters between the Federal Highway Administration
and the State Historic Preservation Officer
on the
Kona Field System



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE
Suite 613, 677 Ala Moana Blvd.
Honolulu, Hawaii 96813

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA

COPY

July 10, 1975
IN REPLY REFER TO
915EC

Ms. Jane Silverman
State Historic Preservation Officer
Department of Land & Natural Resources
465 S. King Street
Honolulu, Hawaii 96813

Dear Ms. Silverman:

Subject: Hawaii Project F-011-1(8), Hawaii Belt Road, Holua'oa to Papa

In accordance with 36 C.F.R., Part 800, we have determined that lines A and B will have an adverse impact upon the Kona Field System which has been nominated by the State for inclusion into the National Register of Historic Places.

This finding of adverse effect is based on the probable alteration of the undisturbed portions of the Kona Field System by the proposed highway improvement.

We have also determined that there is no effect on sites other than the Kona Field System based on physical separation between alternates under consideration and our research of known historic sites. For your information, line A is nearest to the known sites and will be beyond the boundaries of the Kahaluu and Kealakekua historical districts. The remainder of the sites are located from 1,000 feet to 2 miles away. The Historical Properties Report dated March 1975 which describes the cultural resources within the project area is attached for your use.

We ask your concurrence in our above determinations of effect as related to the subject Hawaii Belt Road improvement.

A detailed archaeological survey along the selected corridor will be conducted prior to construction to locate, identify, evaluate and preserve those historical and cultural resources deemed significant by a competent archaeologist. Measures to mitigate the adverse effect on the Kona Field System will also be determined at this time.

Thank you for your assistance.

Sincerely yours,

Ralph T. Segawa, Division Engineer

By: 
H. Kusumoto, Asst. Division Engineer

Enclosure

1077

JOHN A. BURNS
GOVERNOR OF HAWAII



RECEIVED

AUG 4 11
DIVISIONS:
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE
WATER DIVISION

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

July 21, 1975

Mr. Ralph T. Segawa
Division Engineer
U. S. Department of Transportation
Federal Highway Administration
Region Nine
Suite 613, 677 Ala Moana Boulevard
Honolulu, Hawaii 96813

Dear Mr. Segawa:

Subject: Hawaii Project F-011-1(8), Hawaii Belt Road
Holualoa to Papa: Determination of Effect
on Archaeological and Historic Sites

Your determination of adverse effect upon the Kona Field System, a site eligible for inclusion on the National Register of Historic Places by the above project has been reviewed by this office in accordance with the criteria of 36 CFR, Part 800.9, and meets with our concurrence.

Your determination of no effect on other known sites in the vicinity of the above project is also concurred with.

This office will be pleased to assist in the preparation of a memorandum of agreement to mitigate the adverse effects to the Kona Field System, and agrees with the decision to carry out a detailed archaeological survey of the corridor selected.

Your interest and cooperation is greatly appreciated.

Sincerely yours,

Jane L. Silverman
Historic Preservation Officer
State of Hawaii

CG:jsm

APPENDIX D-4

Clearance from Department of Land and Natural Resources
on
Coordination of Highway Projects with Land and
Natural Resources Interests

DIRECTOR'S OFFICE

STATE OF HAWAII

MAY 21 1 09 PM '74

DEPT. OF TRANSPORTATION

TO: Department of Transportation
FROM: Department of Land and Natural Resources

CLEARANCE FORM

COORDINATION OF HIGHWAY PROJECTS
WITH
LAND AND NATURAL RESOURCES INTERESTS

This is to certify that Project No. F-011-1(8)

Hawaii Belt Road, Holualoa to Papa

has been reviewed by this Department and insofar as economically practicable, has been coordinated in terms of land and natural resources interests in accordance with Section 109, Title 23, United States Code. This does not negate the previous determination that archaeological survey and salvage will be necessary or the need for continuing consultation and cooperation regarding historic preservation interests and laws.

Sumao Kito
Chairman and Member
Board of Land and Natural Resources
Department of Land Natural Resources

May 15, 1974
Date.

RECEIVED
MAY 21 2 47 PM 1974
DEPT. OF TRANSPORTATION
III 1 24 1974

A P P E N D I X E

Public Hearing Testimonies & Evaluation

PUBLIC HEARING TESTIMONIES & EVALUATION

The public hearing on the Hawaii Belt Road, Hualaloa to Papa, Project F-011-1(8) was held on September 15, 1976 at 7:30 P.M. at the Elua Room of the King Kamehameha Hotel in Kailua, Kona.

The hearing was conducted in accordance with Section 128 of Title 23, U.S. Code.

Notices of the meeting were published in the Honolulu Star Bulletin, the Honolulu Advertiser, and the West Hawaii Today on August 10 and September 9, 1976.

A transcript of the entire proceedings and copies of written testimonies are available for review at the: State Department of Transportation, Land Transportation Facilities Division, Planning Branch, 600 Kapiolani Blvd., Honolulu, Hawaii 96813.

The presentations made at the public meeting and statements made in written testimonies can be categorized into the following issues:

1. Improve the existing road, do not build a superhighway in Kona, an improved road would create more traffic and increase air pollution.

Evaluation - The existing road between Honalo and Honaunau even when improved with 12-foot lanes and uniform width of shoulders will not be able to accommodate the projected traffic.

2. Construction of a new road along Corridor Line A was favored in written testimonies by two ranchers at the south end of the project (McCandless Ranch and Kona Property Management, Inc.); a developer at Keauhou (Kamehameha Development Corporation); and the Kona Chamber of Commerce.

Evaluation - It was determined later that the proposed Corridor Line A will pass through a detached parcel of the City of Refuge National Park, a national register site, used as an upland garden area and native plant nursery.

3. Construction of Corridor Line B was favored by two persons because it will provide additional access to Konawaena School and Kona Hospital.

Evaluation - Connections can be provided from Corridor Line B to the school and hospital. But because of the configuration and siting of the buildings, the road connections would pass through the middle of the school campus and hospital grounds. The connections would adversely affect these facilities in terms of noise and volume of traffic.

4. Save the agricultural lands. This issue was brought up at the hearing. Also, a petition that expressed concern of 65 persons regarding the farm lands in the Honaunau area was submitted as a written testimony.

Evaluation. This is the most significant of the issues brought up at the public hearing. A reevaluation of Line A was made and it was found that its direction south of Captain Cook could be changed to veer in southwesterly direction and connect with the lower segment of the City of Refuge Road. This alignment is the selected corridor Line A-1.

5. Follow the highway alignment shown on the draft report of the Kona Development Plan prepared by Donald Wolbrink & Associates. This issue was brought up by the Friends of the Earth.

Evaluation. The closest alignment that could be made to conform with the proposed alignment on the Kona Development Plan is line A-2. The line, however, would cut across the farmlands between Captain Cook and Honaunau and impact the farms that are being avoided by Corridor Line A-1.

6. The existing railroad has a historical significance and the road should be located farther west. This issue was made by

the Kona Historical Society.

Evaluation - The corridor can be shifted east of the railroad bed to avoid it. Shifting the corridor makai would cause infringement into the Kahaluu Historical District which is listed in the Hawaii Register of Historic Places.

A P P E N D I X F

Draft Environmental Impact Statement

- F-1 Mailing List
- F-2 Responses and Replies to the Preparation
Notice ~~for~~ the Draft EIS
- F-3 Responses and Replies to the Environmental
Impact Statement

APPENDIX F

DRAFT ENVIRONMENTAL IMPACT STATEMENT

The draft environmental impact statement was filed to the State of Hawaii Environmental Quality Commission on July 29, 1976.

APPENDIX F-1

Mailing List

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129

APPENDIX F-1

DRAFT ENVIRONMENTAL IMPACT STATEMENT
AND
EIS PREPARATION NOTICE

MAILING LIST

<u>FEDERAL AGENCIES</u>		<u>No. of DEIS Copies</u>
Agricultural Stabilization and Conservation Service U.S. Department of Agriculture	1833 Kalakaua Avenue Honolulu, Hawaii 96815	1
Soil Conservation Service U.S. Department of Agriculture	Alexander Young Building Room 440 Honolulu, Hawaii 96813	1
Forest Service U.S. Department of Agriculture	1151 Punchbowl Street Room 323 Honolulu, Hawaii 96813	1
U.S. Department of Agriculture	Office of the Secretary Washington, D.C. 20250	1
*Federal Aviation Administration Department of Transportation	1833 Kalakaua Avenue Honolulu, Hawaii 96815	1
Director, Office of Environ- mental Project Review U.S. Department of the Interior	18th and "C" Streets, NW Washington, D.C. 20242	12
Department of Housing and Urban Development	P.O. Box 3377 Honolulu, Hawaii 96801	1
Department of Housing and Urban Development	450 Golden Gate Avenue P.O. Box 36003 San Francisco, CA 94102	1
Department of Health, Education and Welfare	Federal Office Building 50 Fulton Street San Francisco, CA 94102	1
*Council on Environmental Quality	722 Jackson Place, NW Washington, D.C. 20006	5

* Not sent EIS Preparation Notice

National Bureau of Standards U.S. Department of Commerce	Administration Building Washington, D.C. 20234	1
U.S. Department of Commerce National Marine Fisheries Service	2570 Dole Street Honolulu, Hawaii 96822	1
Environmental Protection Agency	Bishop Trust Building 1000 Bishop Street, Rm. 601 Honolulu, Hawaii 96813	1
Environmental Protection Agency Region IX	100 California Street San Francisco, CA 94111	2
Advisory Council on Historic Preservation Attn: Mr. Robert Garvey Executive Director	801 19th Street NW Suite 618 Washington, D.C. 20006	1
Department of Commerce Attn: Dr. Sydney R. Galler Deputy Assistant	Secretary for Environmental Affairs Washington, D.C. 20230	1
Mr. Ernest E. Sligh, Director Environmental Impact Division Office of Environmental Programs Federal Energy Administration	New Post Office Building 12th & Pennsylvania Ave., N.W. Washington, D.C. 20461	5

*Congressional Representatives

The Honorable Hiram L. Fong	2121 Dirksen Senate Office Bldg. Washington, D.C. 20510	1
The Honorable Daniel K. Inouye	442 Russell Senate Office Bldg. Washington, D.C. 20510	1
The Honorable Spark M. Matsunaga	442 Cannon House Office Bldg. Washington, D.C. 20515	1
The Honorable Patsy T. Mink	2338 Rayburn House Office Bldg. Washington, D.C. 20515	1

State Agencies

Department of Agriculture	Attn: John Farias, Jr.	1
Department of Accounting and General Services	Attn: Hideo Murakami	1
Department of Defense	Attn: Maj. Gen. Valentine A. Siefertmann	1
Department of Education	Attn: James Eddington	1
Department of Health	Attn: Shinji Soneda	3
Department of Land and Natural Resources	Attn: Christopher Cobb	3
Department of Planning and Economic Development	Attn: Hideto Kono	1
Department of Social Services and Housing	Attn: Ronald Lin	1
Office of Environmental Quality Control	Attn: Dr. Richard Marland	10

University of Hawaii

Environmental Center	Attn: Dr. Doak Cox Maile Way 10 Honolulu 96822	4
Water Resources Research Center	Attn: Dr. Stephen Lau 2540 Dole Street Honolulu 96822	1

*State Public Libraries

State Library Branch		15
Kealahou Library	P.O. Box 768 Kealahou, Hawaii 96750	1

*Other Public Libraries

University of Hawaii (Sinclair and Hamilton)	Attn: Mrs. Muraoka	2
DPED Library	Attn: Anthony Oliver c/o DPED	1
Municipal Library	City & County of Honolulu Honolulu	1
State Archives		
Legislature Reference Bureau		

*News Media

Honolulu Star Bulletin	Attn: Mr. John E. Simonds 605 Kapiolani Blvd. Honolulu 96813	1
Honolulu Advertiser	Attn: Mr. George Chaplin 605 Kapiolani Blvd. Honolulu 96813	1
Hawaii Tribune Herald, Ltd.	P.O. Box 767 Hilo, Hawaii 96720	1
West Hawaii Today	P.O. Box D Kealahou, Hawaii 96750	1

*State Legislators

The Honorable Jack K. Suwa Representative, 1st District	P.O. Box 8 Kurtistown, Hawaii 96760	1
The Honorable Stanley H. Roehrig Representative, 2nd District	80 Pauahi Street Hilo, Hawaii 96720	1
The Honorable Herbert A. Segawa Representative, 2nd District	P.O. Box 1476 Hilo, Hawaii 96720	1
The Honorable Yoshito Takamine Representative, 3rd District	P.O. Box 608 Honokaa, Hawaii 96727	1
The Honorable Stanley I. Hara Senator, 1st District	203 Kilauea Avenue Hilo, Hawaii 96720	1
The Honorable Richard Henderson Senator, 1st District	P.O. Box 747 Hilo, Hawaii 96720	1
The Honorable John T. Ushijima Senator, 1st District	P.O. Box 964 Hilo, Hawaii 96720	1
The Honorable Minoru Inaba Representative, 4th District	P.O. Box 233 Kealahou, Hawaii	

COUNTY OF HAWAII PROJECTS

County Council County of Hawaii	25 Aupuni Street Hilo, Hawaii 96720	1
Department of Planning Attn: Mr. Raymond Suefuji	25 Aupuni Street Hilo, Hawaii 96720	2
Department of Public Works Attn: Mr. Edward Harada	25 Aupuni Street Hilo, Hawaii 96720	
Department of Parks and Recreation Attn: Mr. Milton Hakoda	25 Aupuni Street Hilo, Hawaii 96720	1
Department of Water Supply Attn: Mr. Akira Fujimoto	P.O. Box 1820 Hilo, Hawaii 96720	
Department of Research and Development Attn: Mr. Clarence Garcia	25 Aupuni Street Hilo, Hawaii 96720	1

Public Utilities

Hawaiian Telephone Company	115 Kalakaua Street Hilo, Hawaii 96720	1
Hawaii Electric Light Co., Inc.	P.O. Box 1027 Hilo, Hawaii 96720	1
Gasco, Inc., Hawaii Division	945 Kalaniana'ole Avenue Hilo, Hawaii 96720	1

Other Organizations (1 each)

Mr. James W. Morrow, Director
Environmental Health
American Lung Association of Hawaii
245 North Kukui Street
Honolulu, Hawaii 96817

Kona Outdoor Circle
President - Peal Pein
c/o Ron Burla & Assoc.
P.O. Box 1148
Kailua-Kona, Hawaii 96740

Kona Civic Club
c/o Rufus Spaulding
Kailua-Kona, Hawaii 96740

Ms. Clara Kahumoku
Hawaiian Civil Club
RR #1, Box 201B
Kailua-Kona, Hawaii 96740

Mr. Harvey Yoshimura
Kona Jaycees
P.O. Box 385
Holualoa, Hawaii 96725

Mr. w.J. Paris, Jr.
Cattlemen's Assoc.
Kealahou, Hawaii 96750

Mr. Alan R. Tyler
Life of the Land
RR #1, Box 125
Captain Cook, Hawaii 96704

Mr. Joe Tassil
Organizations Kona
Kailua-Kona, Hawaii 96740

Mr. Toshi Nakamoto, President
Captain Cook Community Association
Captain Cook, Hawaii 96704

Mr. George Brenner, President
Kona Chamber of Commerce
P.O. Box 635
Kailua-Kona, Hawaii 96740

Kona Traffic Committee
c/o Joseph Bottero
Kailua-Kona, Hawaii 96740

Mr. H. Kimura
Kainaliu Businessmens Assoc.
c/o Kimura's Store
Kealahou, Hawaii 96750

Mr. David Roy
Congress of Hawaiian People
Box 576
Kailua-Kona, Hawaii 96740

Mr. Ichiro Higashi
Hookena Community Assoc.
Box 357
Honaunau, Hawaii 96726

Ms. Virginia Isbell
Kona Citizens Planning Council
Box 926
Kealahou, Hawaii 96750

Mr. Alan Tyler
Kona Conservation Group
Rte 1, Box 125
Captain Cook, Hawaii 96704

Mr. John Iwane
Captain Cook Association
Box 752
Kealahou, Hawaii 96750

APPENDIX F-2

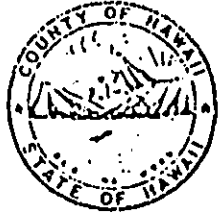
Responses and Replies to the
Preparation Notice for the Draft EIS

List of Respondents

1. Edward Harada, Chief Engineer, Department of Public Works,
County of Hawaii.
2. Akira Fujimoto, Manager, Department of Water Supply, County of Hawaii.
3. Raymond Suefuji, Director, Planning Department, County of Hawaii.
4. Clarence W. Garcia, Director, Department of Research and Development,
County of Hawaii.
4. Jitsuo Niwao, Manager, Engineering Department, Hilo Electric Light
Company.
5. Leo Fleming, CE, Chairman, Public Works and Transportation Committee,
Kona Chamber of Commerce.
6. Alan Tyler, Environmental Coordinator, Kona Conservation Group.
7. Christopher Cobb, Chairman of the Board, Department of Land and
Natural Resources, State of Hawaii.
8. James S. Kumagai, Ph.D., Deputy Director for Environmental Health,
Department of Health, State of Hawaii.
9. Hideto Kono, Director, Department of Planning and Economic Development,
State of Hawaii.
10. James W. Morrow, Director, Environmental Health, American Lung
Association of Hawaii.
11. John Farias, Jr., Chairman, Board of Agriculture, Department of
Agriculture, State of Hawaii.
12. Francis C. H. Lum, State Conservationist, Soil Conservation Service,
United States Department of Agriculture.
13. Douglas R. Leisz, Regional Forester, Forest Service, United States
Department of Agriculture.
14. Harold R. Jones, Acting Associate Regional Director, Professional
Services, National Park Service, United States
Department of Interior.
15. Louis S. Wall, Assistant Director, Office of Review and Compliance,
Advisory Council on Historic Preservation.

HERBERT T. MATAYOSHI
MAYOR

EDWARD K. HARADA
CHIEF ENGINEER



COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
25 AUPUNI ST.
HILO, HAWAII 96720

2644
BUREAU AND DIVISIONS:
AUTOMOTIVE EQUIPMENT & MOTOR POOL
BUILDING CONSTRUCTION & INSPECTION
PLANS AND SURVEYS
ROAD CONSTRUCTION AND MAINTENANCE
SEWERS AND SANITATION
TRAFFIC SAFETY AND CONTROL

October 8, 1975

Adm. E. Alvey Wright, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, HI 96813

DEPT. OF
TRANSPORTATION

OCT 14 8 02 AM '75

DIRECTOR'S OFFICE

SUBJECT: LETTER HWY-PA 2.24584
ENVIRONMENTAL IMPACT STATEMENT
HAWAII BELT ROAD
HOLUALOA TO PAPA
PROJECT NO. F-011-1(8)

Thank you for the opportunity to comment on the subject analysis.

For clarity on map Exhibit 2, the existing road between Alae and Papa should be noted as improvement Lines A and B. The text mentions two lane improvement along the existing road.

We have no comments on the selection of either Line A or Line B. The B/C Ratio are nearly equal.

for EDWARD HARADA
Chief Engineer

cc: Planning Department

GEORGE R. ARIYOSHI
GOVERNOR



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

December 16, 1975

E. ALVEY WRIGHT
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
RYOKICHI HIGASHIONNA
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

IN REPLY REFER TO:

HWY-PA
2.26223

Mr. Edward Harada
Chief Engineer
Department of Public Works
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Harada:

Subject: Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1(8)

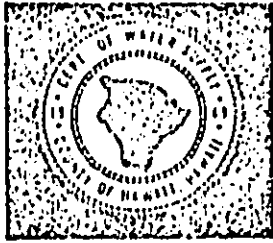
Thank you for your comments on the EIS Preparation Notice.

Exhibit 2 will be corrected to indicate your suggestion
in the final EIS.

Sincerely,

A handwritten signature in cursive script that reads "E. Alvey Wright".

E. ALVEY WRIGHT
Director



2500

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

P. O. BOX 1020

HILO, HAWAII 96720

25 AUPUNI STREET

October 31, 1975

1-15 1 5 10 15
NOV 4 12 42 PM '75
DEPT. OF TRANSPORTATION
DIRECTOR'S OFFICE

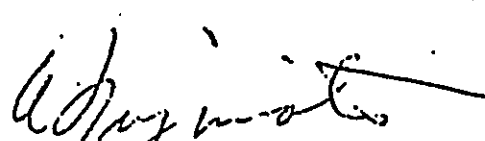
Mr. E. Alvey Wright, Director
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

Re: Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1(8)
Environmental Impact Analysis
Your Letter: HWY-PA
2.24584

As you requested, we reviewed the environmental impact statement (EIS) for the proposed highway project.

We have no objections to the EIS as written.

As far as the alternate routes between Line A and Line B are concerned, we prefer Line A, being the lower route. The reason for this choice is that if developments occur along the highway, it is more economical to serve water along the lower area.


Akira Fujimoto
Manager
WHS

... Water brings progress...

GEORGIE R. ARIYOSHI
GOVERNOR



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

DEC 26 1975

E. ALVEY WRIGHT
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
RYOKICHI HIGASHIIONNA
DOUGLAS S. SAKAMOTO
CHARLES U. SWANSON

IN REPLY REFER TO
HWY-PA
2.26420

Mr. Akira Fujimoto
Manager
Department of Water Supply
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Fujimoto:

Subject: Hawaii Belt Road, Holualoa to Papa,
Project No. F-011-1(8)

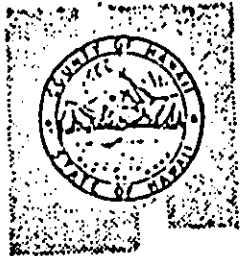
Thank you for your letter of October 31, 1975 indicating
your preference for Line A.

Your comments will be considered in the selection of a
final alternative. Please be assured of our continued coopera-
tive efforts.

Sincerely,

A handwritten signature in cursive script that reads "E. Alvey Wright".

E. ALVEY WRIGHT
Director



PLANNING DEPARTMENT

25 AUPUNI STREET • HILO, HAWAII 96720

COUNTY OF HAWAII

October 14, 1975

Mr. E. Alvey Wright, Director
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

Re: Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1(8)
Environmental Impact Analysis

These are comments in response to your request, regarding the environmental effects of the proposed Belt Road improvements.

The alignment of alternate route A is proposed to follow the abandoned railroad bed west of Keauhou. The railroad bed itself may be a significant historical site as the stonework foundation still in existence in some places represents a nearly forgotten phase of Hawaiian life when railroads were an important means of transportation.

On page 5, zoning is discussed; however, what is referred to as zoning is in reality our General Plan designations. We suggest that the appropriate zoning also be discussed.

Dismissing alternate corridors C, D, and E appears to be quite justifiable; however, it is conceivable that alternates A and B, which now do not appear to have such significant impacts may have more significantly adverse impacts than the other three. We would like to submit that the basis for an EIS is to make such disclosures.

Perhaps landowners whose properties will be affected by right-of-way acquisitions should be included on the mailing list of those to be consulted in the preparation of the EIS's; they will surely be interested in commenting on the effects of the proposed project on their lands.

We appreciate this opportunity to provide comments. We look forward to reviewing the completed EIS.

Raymond Suefuji
RAYMOND SUEFUJI
Director

NW:rfd

cc: Mayor
Chief Engineer

2694

HERBERT T. MATAYOSHI
Mayor

RAYMOND H. SUEFUJI
Director

OCT 20 8 13 AM '75
DEPT. OF TRANSPORTATION

DIRECTOR'S OFFICE

GEORGE R. ARIYOSHI
GOVERNOR



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

December 15, 1975

E. ALVEY WRIGHT
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
HYOKICHI HIGASHIONNA
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

IN REPLY REFER TO:

HWY-PA
2.26213

Mr. Raymond Suefuji
Director, Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Suefuji:

Subject: Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1(8)

Thank you for your comments on the EIS Preparation Notice.

We have requested the State Department of Land and Natural Resources to determine the historical significance of the abandoned railroad bed. The final alignment of Line A can be shifted mauka if the railroad bed is determined to be a significant resource. Our intent in utilizing the railroad bed was to minimize the impact of rights-of-way acquisition upon adjacent property owners.

We will review the zoning maps and make appropriate references in the EIS.


The economic and environmental impacts of Lines A and B will be fully discussed in the draft EIS. This document will be circulated to your office and other interested governmental agencies for review. Individual land owners are not included on the mailing list due to the high costs involved. Printing costs for each EIS are in excess of \$15 and considering the more than 350 parcels of lands affected, it would not be

Mr. Raymond Suefuji
Page 2

HWY-PA 2.26213

feasible to provide each land owner a copy. Instead, we will be mailing copies to fifteen community organizations and a copy will also be available at the reference desk of the Kona library. We have also held two public informational meetings in Kona to receive comments from the public and will be holding another prior to finalizing the EIS.

Sincerely,


for E. ALVEY WRIGHT
Director



2117

DEPARTMENT OF RESEARCH AND DEVELOPMENT

COUNTY OF HAWAII

HERBERT T. MATAYOSHI, Mayor
CLARENCE W. GARCIA, Director

October 21, 1975
75-10-534 CWG:pak

OCT 22 1 50 PM '75
DEPT. OF TRANSPORTATION
DIRECTOR'S OFFICE

Mr. E. Alvey Wright
Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

SUBJECT: Request for Comments
Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1(8)
Environmental Impact Analysis

We expect the study to spell out the impact of the new highway on: (1) agriculture, (2) tourism and (3) service/professional industries. A detailed breakdown of the economic benefits is desired.

An analysis of the possible economic deterioration of the smaller mauka communities due to the by-passing of these communities by the new route should be included. What effects would the new route have on property values?

To what extent will agricultural lands and enterprises be affected by the new route? Will farms be split into two sections?

We should also be concerned with the economic impact of this new highway on Kailua in relation to the other business districts in the Kona area.

Clarence W. Garcia
Clarence W. Garcia
Director

GEORGE A. ARIYOSHI
GOVERNOR



E. ALVEY WRIGHT
DIRECTOR
DEPUTY DIRECTORS
DOUGLAS S. SAKAMOTO
WALLACE AOKI

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

IN REPLY REFER TO:
HWY-PA
2.26211

December 15, 1975

Mr. Clarence W. Garcia
Director
Department of Research and Development
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Garcia:

Subject: Hawaii Belt Road
Holualoa to Papa
Project No. F-011-1(8)

Thank you for your comments on the EIS preparation notice.

The effects of the new highway on agriculture, tourism, service/professional industries, by-passed communities, property values, existing farms and enterprises will be discussed in the economic portion of the EIS.

Some of the significant conclusions on these items are:

- a. A new highway will improve transportation of supplies to fields and processing areas, and crops from the fields to the processing and distribution centers.
- b. A new highway, although providing improved transportation for agricultural purposes may serve as a disrupting element in terms of dividing parcels of land.
- c. The tourist industry is coastally oriented and, consequently, would be better served by Line A rather than B.

Mr. Clarence W. Garcia
Page 2

HWY-PA 2.26211
December 15, 1975

- d. If either Line A or B is adopted, there will generally be no physical displacement of existing business along the existing highway.
- e. The businesses along the present highway between Keauhou and Captain Cook that are primarily tourist oriented would be adversely affected by the diversion of traffic. The majority of businesses in that area, though, are services and professional industries and resident oriented and should not be detrimentally affected, considering the projected increase in resident population and income in the Kona region.
- f. The construction of a highway along Line A or B will increase the market value of properties in their vicinity. Conversely, there will generally be a decrease in the market value of properties along the bypassed portion of the existing highway.
- g. Line A will affect approximately 367 parcels of land of which 366 parcels are by partial taking and one by whole taking. Most of these parcels are pasture lands and not used extensively. Line B will affect about 429 parcels of land, of which 422 parcels are by partial taking and 7 by whole taking. Most of the land involved along Line B is zoned for agriculture. Two businesses may be affected by selection of either Line A or B.

A copy of the draft EIS will be sent to your office for review.

Sincerely,

E. Alvey Wright
E. ALVEY WRIGHT
Director

HAWAII ELECTRIC LIGHT COMPANY, INC.
P. O. BOX 1027 HILO, HAWAII-96720



2652
75-17-10

October 17, 1975

OCT 20 8 12 AM '75
DEPT. OF
TRANSPORTATION
DIRECTOR'S OFFICE

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

Attention: Mr. E. Alvey Wright
Director

Subject: Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1(8)
Environmental Impact Analysis

Gentlemen:

Reference is made to your letter of September 30, 1975
requesting comments for the above subject project.

I am enclosing for your information a copy of an IOC
from Mr. M. Valera of our Engineering Department.

Preliminary estimated cost of relocating the electric
utility line will be approximately \$2,645,000.

Very truly yours,

Jitsuo Niwao, Manager
Engineering Department

JN:bk

Enclosure

cc: M. Valera

HAWAII ELECTRIC LIGHT COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

October 17, 1975

FROM: Mr. M. Valera, Jr.


TO: Mr. J. Niwao, Manager

SUBJECT: Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1 (8)
Environmental Impact Analysis

1. From about the Kealakowau Heiau on the mauka side of Kuakini Highway to where Line B departs is approximately 26,000 feet of 69KV and 12KV line; 75 poles (including guy poles) and 31 deadman concrete anchors will be affected.

Also on the makai side of Kuakini Highway about 9,000 feet of 12KV line from our Keauhou Substation which serves as a tie and back-up to the Keauhou Beach Hotel and Kam Development Area on Alii Drive. Forty-two (42) poles (guy poles included) and 27 deadman concrete anchors are involved.

2. From about transmission Pole 26 (mark's property) along the existing highway to Papa, approximately 66,000 feet, 245 poles (guy poles included) and 116 deadman concrete anchors may be affected.
3. The cost of relocating the electric utility lines is approximately \$2,645,000. Assuming the line is within the road right-of-way.
4. Keauhou Substation may be affected; more so, if the four-lane highway is implemented.
5. Lead time to order materials are important.


Mauricio N. Valera, Jr.
T&D Designer
Engineering Design Division

MMVjr:bk

GEORGE R. ARIYOSHI
GOVERNOR



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

December 16, 1975

E. ALVEY WRIGHT,
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
RYOKICHI HIGASHIYONNA
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

IN REPLY REFER TO:
HWY-PA
2.26212

Mr. Jitsuo Niwao, Manager
Engineering Department
Hawaii Electric Light Company, Inc.
P.O. Box 1027
Hilo, Hawaii 96720

Dear Mr. Niwao:

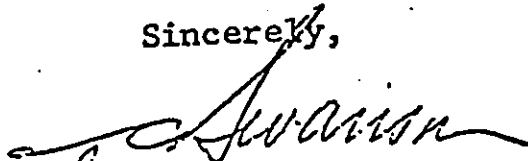
Subject: Environmental Impact Statement
Preparation Notice
Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1(8)

Thank you for the comments contained in your letter dated
October 17, 1975.

Consideration will be given to the extent and cost of the
utility relocation in the evaluation of the alternate routes.
We appreciate the preliminary assessment of the utility reloca-
tion and cost estimate provided by Mr. Valera. Close coordination
will be continued with your office during the design phase.

If you have any further comments, please do not hesitate
to contact us.

Sincerely,


for E. ALVEY WRIGHT
Director

KONA COAST

November 8, 1975

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

Attention: Mr. Kenneth Au, Project Manager

Subject: Request for Comments
Hawaii Belt Road
Holualoa - Papa
Project #F011-1(8)

Gentlemen:

As requested by you in your letter of September 30, the Kona Chamber of Commerce is pleased to make the following comments regarding the subject roadway.

After thorough analysis of the possible routings for the highway, we, along with several other community organizations whose ability to think clearly and succinctly on the subject, have come to the following conclusion.

We feel that the proposed Line A is by far the best routing from an environmental standpoint. The proposed Line B is too far mauka into the rain forest area and will be difficult to maintain, will have limited visibility during poor weather and will likely create the greatest ecological impact on existing vegetation.

The proposed Line D, which in general follows the existing routing from Honalo through Hookena, will have an extreme disruption of existing homes and businesses. These very homes and businesses which will be dislocated by the proposed Line D would have to, in a very short time, relocate in the immediate vicinity with an even greater ecological impact than Line B.

We feel that Line A will have the least ecological impact on truly native vegetation, the least impact on the resident population and provide the greatest degree of accessibility and utility between S. Kohala and S. Kona.

Attention: Mr. Kenneth Au, Project Manager
November 8, 1975
Page Two

South of Hookena, between Alae and Papa, we have no real preference between Line E and the existing road. It seems quite apparent that the existing road will not have the detrimental effect on native vegetation that Line E would have; however, Line E would provide a better alignment with more direct access.

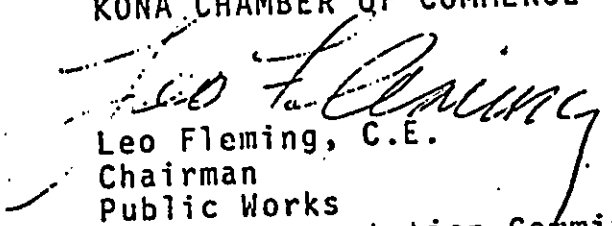
The organizations that have worked on this analysis with the Kona Chamber of Commerce are:

The Captain Cook Community Association
The Kainaliu Businessmen's Association
The Kona Soil and Conservation District

We thank you for this opportunity to comment and ask that we be kept informed on your progress on what we consider to be a vital transportation link in Kona's immediate future.

Sincerely,

KONA CHAMBER OF COMMERCE


Leo Fleming, C.E.
Chairman
Public Works
and Transportation Committee

LF:ma

cc: Ed Harada
Charles Schuster

GEORGE R. ARIYOSHI
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
259 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

January 30, 1976

E. ALVEY WRIGHT
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
RYOKICHI HIGASHIONNA
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

IN REPLY REFER TO:

HWY-PA
2.27047

Mr. Leo Fleming, C.E.
Chairman
Public Works and Transportation
Committee
Kona Chamber of Commerce
P.O. Box 635
Kailua-Kona, Hawaii 96740

Dear Mr. Fleming:

Subject: Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1(8)

Thank you for your letter of November 8, 1975.

Independent studies have verified your organization's analysis of the impacts by the various alternates on the environment. The draft environmental impact statement will contain the results of these studies.

We have also determined that Line "D" because of its disruptive influence on homes, businesses and historic sites, and Line E because of its adverse impact on the native forest are not environmentally acceptable. Thus, both of these Lines have been eliminated from further consideration.

We are grateful for your valued input and will be requesting your review of the draft environmental impact statement which will be distributed in a few months.

Sincerely,

A handwritten signature in cursive script that reads "E. Alvey Wright".

E. ALVEY WRIGHT
Director

KONA CONSERVATION GROUP
CAPTAIN COOK, HAWAII 96704

2784

DIRECTOR'S OFFICE

October 30, 1975

Director Alvey Wright
Department of Transportation
Honolulu, Hawaii

Nov 3 12 42 PM '75
DEPT. OF T.S. - Hawaii Belt Road - to Papa - AT-Gil-1(2)
TRANSPORTATION

Dear Sir:

You are to be complimented on your sensitive approach to the Hanalei Highway situation. Kindly allow me to draw some parallels to a similar area: from Papa to the Kealakakua Shopping Center at Captain Cook. This area, along with Hanalei and Kihau, is one of the "last outposts" for the dwindling population of Hawaiians. It is also the epitome of Kona's precious "rural atmosphere", which at present is selling for a high price in the world marketplace of tourism, Kona's leading industry.

As for Hanalei's Princeville - yes, South Kona had been targeted for a similar urbanization scheme by the Kamehameha Development Corporation of Bishop Estate. This would have created an 11,000-person resort community of in-migrants which may well have led to the need for such a highway as proposed. However,

27 South Kona organizations banded together and fought a two-year battle to defeat the resort-community plan. Leaders of those same organizations do not want the Papa to Captain Cook new highway, either, and for the same basic reasons: the undesirable social impacts that inevitably follow all such new highways - congestion, increased crime, higher divorce rates and loss of lifestyles; along with the economic and environmental problems of urbanization along the highway's perimeters, higher taxes and increased noise and air pollution.

When this proposed highway was given the green light by Act 40 during the 1968 legislature, Hawaii's economy was riding the boom and population projections indicated that there would be a need for such a highway as this. But let's take a look at what's happened since:

- a) the recession of the '70s has slowed growth and consequently, highway needs;
- b) the costs of road-building have compounded due to the oil crisis;
- c) Hawaii has awakened to the need to protect our historic sites and beauty;
- d) Economic "progress" is now carefully measured with lifestyle tradeoffs;
- e) Population projections have suffered severe cutbacks;
- f) Scattered urban sprawl has given away to planned, centralized growth in H. Kona;
- g) Many are now car-pooling, busing and bicycling due to the recent gas shortage;
- h) South Kona's one big urban development project by Kam. Dev. Corp. was rejected;
- i) Public informational meetings on the Papa Highway proposal met stiff opposition;
- j) And finally, the newly released Kona Community Development Plan says thumbs

down on the Papa to Captain Cook new highway (see attached p. 228). This plan has received state-wide acclaim and was done by one of Wolbrink's top planners, Gordon Jacoby, who worked on-the-spot in Eona for a year.

The above reasons clearly show why no new highway is needed from Papa to Captain Cook. Therefore, kindly consider deferring action on this matter for at least ten years, at which time the situation can be re-evaluated.

The next page deals with specific comments related to your Preparation Notice on this proposal.

p. 3 - Estimated benefit-cost ratios, line 22:

Missing are all of the elements and figures used to aggregate the 1.07 and 1.15 figures. These need to be disclosed and discussed. The discussion should include, but not be limited to:

- a) increased property taxes along the new highway (estimated);
- b) cost estimates on environmental damage to human health via noise and air pollution increases, both during construction and later due to the inducements of more motorists to use the new highway;
- c) scenic pollution costs to the visitor industry, when Hawaii's tropical vegetation is replaced by less-alluring asphalt paving and its accompanying roadside degradations result in loss of "Kona's Rural Atmosphere"; and the
- d) benefit estimates of less wear and tear on tires, more comfortable rides at faster speeds, and increased profits for those in certain businesses.

(While no specific degradation standards and other data as yet exist in Hawaii to measure many of the above items, such estimates are being made on the mainland and appropriate references and inferences can be borrowed.)

Figures missing that would show a possible need for this project:

- 1) Traffic flow figures, segment by segment, need to be included;
- 2) Accident occurrences, segment by segment, " " " "
- 3) Projected traffic use, " " " " " "
- 4) Federal funding/ State funding/ County funding figures, percentages and eligibility requirements need to be thoroughly discussed.
- 5) Asphalt prices in 1965, 1975 and projected for 1985 should be shown.
- 6) Map figures should include rainfall amounts, tax map key numbers at strategic locations and distances in miles.
- 7) "Heavy concentration of runoff at specific areas" should be shown on maps as to where these areas are. (page.7)

Alternatives:

- 1) Widen and straighten, where needed, the existing Belt Road from Captain Cook to Papa.
- 2) Being careful not to disturb historical or archaeological sites, follow the suggestions in the Kona Community Development Plan. (KDCP). (see the attached.)

Summary: This commentary has not dealt with the proposed section from
Holualoa to Captain Cook; which has been adequately done by the KCDP.

It has provided background and rationale for not putting in
another highway between Papa and Captain Cook.

It has pointed out the vast social, economic and political
changes that occurred since 1968 which have made this proposal obsolete.

It has recommended that the project be shelved for at least
ten years and then re-evaluated.

Yours truly,

Alan Tyler

Alan Tyler

Environmental Coordinator

KOKA CONSERVATION GROUP

The makai route would have the added advantage of linking to the two major subdivisions that are now being proposed for the area. It could not, however, have direct links to the school or hospital without crossing the already busy Mamalahoa Highway.

It is not anticipated that the traffic volumes on the existing road will decrease in a major manner due to the new road. The present traffic volumes are largely trips to stores, school or friends which are located on or immediately adjacent to the road. The new road will primarily work as a by-pass road and be used by people traveling to Kailua, by tourists on around-the-island trips, and for trips that go past Captain Cook for purposes of trucking, tourism or other various activities made by residents of those areas.

Another issue is that the traffic volumes now or for the foreseeable future on the sections past Captain Cook will not require four lanes of road which would be the case with the new proposal. Their greatest and immediate need is for improvement including widening and straightening. The roads are dangerously narrow and run the safety risk of accidents between tour buses, school buses, and farm or ranch trucks.

Therefore, it is proposed that the Holualoa through Papa Road should take a makai alignment running along a topographic contour at about the 1,000-foot elevation from Kuakini Highway and re-enter the existing Mamalahoa Highway just prior to the steep topography makai of the Kealakekua Shopping Center. A direct link should be provided as close as possible to the Konaweana School Road.

Widening or road straightening should take place in the remainder of the road. First construction on the road should start at the Papa end through to Hookena where the potential danger is the greatest.

The advantages of the makai route are:

- a. it is located in an area where flooding damage can be minimized,
- b. it can be designed such that the proposed grade starting from Kuakini will not be as steep as the mauka route,
- c. it can be designed to link to new subdivisions mauka of the proposed route, and

GEORGE R. ARIYOSHI
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
222 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

January 30, 1976

E. ALVEY WRIGHT
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
HIYOKICHI HIGASHIONNA
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

IN REPLY REFER TO
HWY-PA
2.27015

Mr. Alan Tyler
Environmental Coordinator
Kona Conservation Group
Captain Cook, Hawaii 96704

Dear Mr. Tyler:

Subject: Hawaii Belt Road
Holualoa to Papa
Project No. F-011-1(8)

Thank you for your comments on the project's EIS Preparation Notice. Our responses follow:

1. Benefit Cost Ratio - The benefit cost ratio figures were developed generally on the basis of the direct economic impact on the road user and Kona residents. The criteria and assumptions used will be listed in the draft EIS. Factors such as noise, air pollution, aesthetics, etc., are either common on both alternates or important from a qualitative standpoint and are discussed in other sections of the draft EIS.
2. Figures Depicting Need - The requested figures/data will be included in the impact statement with the exception of the asphalt prices and the tax map key numbers. Asphalt prices, however, are used in the benefit cost analysis. Approximate distances from strategic locations to the different alternatives can be scaled from the maps provided in the statement. Should individuals wish to know distances to their individual parcels, this information is available by either phoning, visiting or writing the Highways Division. Inclusion of this data in the statement

is unfeasible for a project of this length (31 miles).

3. Alternatives/Kona Community Development Plan
The Kona Community Development Plan being prepared by Donald Wolbrink and Associates is in the prefinal draft stage. A public hearing is planned but not yet scheduled.

The Kona Plan shows a makai highway that connects with the Hawaii Belt Road south of Captain Cook. From there, it follows the Hawaii Belt Road to Papa. However, the State's Alternative A continues on the makai side and does not connect with the Hawaii Belt Road for another ten miles to Alae.

The Kona Plan proposes an 80-foot right-of-way through this 10-mile section which passes through the towns of Honaunau, Keokea and Hookena and if this were followed, the additional right-of-way taking would involve the relocation of three stores, seven tenant occupants and six owner occupants. One church will also be affected.

The State had previously considered widening and straightening the existing Belt Road from Captain Cook to Honaunau but this was determined to be unfeasible because of the relocation impact and the steep grades required to connect Alternative A to the existing highway south of Captain Cook.

It can be argued that it may not be necessary to widen the right-of-way and that widening the pavement to 24 feet with 6-foot shoulders would suffice. This would result in a level of service "C" at 45 m.p.h. in 1978 and decline to level of service "D" by 1988. This is similar to the "no project" alternative mentioned on page 3 of the preparation notice.

Mr. Alan Tyler
Page 3

The accident rates per million vehicle miles through the same section exceeded the island average in the past five years. The figures are:


	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Napoopoo Road to City of Refuge Rd.	5.64	4.45	5.57	10.46	4.93
City of Refuge Rd. to Hookena Beach Road	3.60	3.19	4.67	5.48	8.43
Island Average	3.17	3.10	3.09	3.02	2.58

Also, the percent of collisions with fixed objects within these sections averaged between 1970 and 1974 were 50.0% and 75.0%. The island average for the same period is 32.9%. The percent of collisions with another moving vehicle were 41.7% and 37.5%. These are lower than the island average of 50.3%.

4. Historical or Archaeological Sites - An archaeological survey will be conducted prior to construction to identify and preserve significant sites. We will also be complying with the provisions of Section 106 of the National Historic Preservation Act of 1966 and applicable State regulations. Coordination has been effected with Ms. Jane Silverman, the State's Historic Preservation Officer.

Thank you for your interest in this project.

Sincerely,


for E. ALVEY WRIGHT
Director

2999

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

DIRECTOR'S OFFICE



DEC 2 12 45 PM '75

DEPT. OF
TRANSPORTATION

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

RECEIVED

CHRISTOPHER COBB, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
KOURA A. HAMASU
DEPUTY TO THE CHAIRMAN

DEC 2 2 19 PM '75

DIVISIONS: "E1"
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

November 28, 1975

REF: HWY-PA
2.24584

Honorable E. Alvey Wright
Director
Dept. of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Sir:

We have reviewed the EIS Preparation Notice of the Holualoa-Papa section of the Hawaii Belt Road.

Archaeological survey of the route selected and salvage of archaeological sites by qualified archaeologists should satisfy the requirements of State law.

We would appreciate the opportunity to review the final EIS and detailed road plans when they have been prepared.

Very truly yours,

Christopher Cobb
CHRISTOPHER COBB
Chairman of the Board

GEORGE N. ARIYOSHI
GOVERNOR



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

E. ALVEY WRIGHT
DIRECTOR
DEPUTY DIRECTORS
DOUGLAS S. SAKAMOTO
WALLACE AOKI

DEC 18 1975

IN REPLY REFER TO:
HWY-PA
2.26190

The Honorable Christopher Cobb
Chairman and Member
Board of Land and Natural Resources
State Office Building
465 South King Street
Honolulu, Hawaii 96813

Dear Mr. Cobb:

Subject: Hawaii Belt Road, Holoaloa to Papa
Project No. F-011-1(8)

Thank you for your comments on the EIS Preparation
Notice.

An archaeological survey of the selected route will
be conducted prior to construction. We are working
closely with the State Historic Preservation Officer to
ensure that any impact to historical resources are
minimized.

We will maintain coordination with your office until
the project has been completed.

Sincerely,

E. Alvey Wright
E. ALVEY WRIGHT
Director

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801

October 10, 1975

DIRECTOR'S OFFICE

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

Oct 16 4 07 PM '75

Audrey W. Mertz, M.D., M.P.H.
Deputy Director of Health
Henry N. Thompson, J.A.
Deputy Director of Health

DEPT. OF
TRANSPORTATION

James S. Kumagai, Ph.D., P.E.
Deputy Director of Health

In reply, please refer to:
File: EPHS - SS

Mr. E. Alvey Wright, Director
Department of Transportation
869 Punchbowl St.
Honolulu, Hawaii 96813


Dear Mr. Wright:

Subject: Request for Comments on Proposed Environmental Assessment
Statement for Hawaii Belt Road, Holoaloe to Papa, Project No.
F-011-1(8)

Thank you for allowing us to review and comment on the subject
environmental assessment. Please be informed that we have no objections
to this project.

We realize that the statements are general in nature due to
preliminary plans being the sole source of discussion. We, therefore,
reserve the right to impose future environmental restrictions on the
project at the time final plans are submitted to this office for review.

Sincerely,


JAMES S. KUMAGAI, Ph.D.
Deputy Director for
Environmental Health

2927



DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

DIRECTOR'S OFFICE

GEORGE R. ARIYOSHI
Governor

HIDETO KONO
Director

FRANK SKRIVARIEN
Deputy Director

RECEIVED

Kamamalu Building, 250 South King St., Honolulu, Hawaii • Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

November 19, 1975

NOV 21 12 48 PM '75
DEPT. OF
TRANSPORTATION

NOV 21 2 07 PM

ReF. No. 5859
DEPT. OF TRANSPORTATION

The Honorable E. Alvey Wright
Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Wright:

Subject: Environmental Impact Statement Preparation Notice for
the Proposed Hawaii Belt Road, Holoaloe to Papa,
Project No. F-011-1(8)

Thank you for your letter of September 30, 1975, requesting our
comments regarding the subject EIS Preparation Notice.

We would like to suggest that your EIS discuss the anticipated
impacts of highway construction on adjoining land uses, development trends,
and related demands for public facilities and services in the area.
Accordingly, we suggest close coordination of the proposed project with the
appropriate Hawaii County agencies.

While we note that both alternative corridors pass through areas
zoned primarily for extensive agriculture and orchards, we feel that further
discussions of mitigation measures to minimize impact be included.

Sincerely,

Frank Skrivarien
for HIDETO KONO

GEORGE R. ARIYOSHI
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
561 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

December 30, 1975

E. ALVEY WRIGHT
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
RYUKICHI HIGASHIYAMA
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

IN REPLY REFER TO:
HWY-PA
2.26470

The Honorable Hideto Kono
Director
Department of Planning and
Economic Development
P. O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Kono:

Subject: Hawaii Belt Road,
Holualoa to Papa,
Project No. F-011-1(8)

Thank you for your comments on the EIS Preparation Notice.

Your suggestions will be followed in developing the draft
environmental impact statement.

Sincerely,

E. Alvey Wright
E. ALVEY WRIGHT
Director

2/11

AMERICAN  LUNG ASSOCIATION of Hawaii

October 20, 1975

E. Alvey Wright, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

OCT 21 12 49 PM '75
DEPT. OF
TRANSPORTATION
DIRECTOR'S OFFICE

Dear Admiral Wright:

Re: Hawaii Belt Road, Holoaloea to Papa
Project No. F-011-1(8)
Environmental Impact Analysis

This is in reply to your letter of September 30, 1975 (HWY-PA 2.24584) seeking comments on the environmental effects of the subject highway project.

In your assessment of the proposed highway's impact on air quality, we suggest that you do the following:

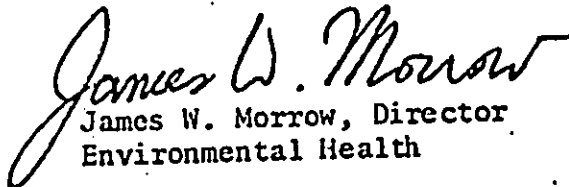
1. Estimate the annual fluctuation of daily emissions of the three major automotive pollutants, i.e., carbon monoxide (CO), hydrocarbons (HC), and nitrogen oxides (NOx), over the design life of the proposed highway. These estimates should take into consideration changes in traffic volume, variations in average route speed, percentage of heavy duty vehicle traffic, etc.
2. From section 1. above, determine the critical year for each of the three pollutants. Critical year is the year in which the emissions of a given pollutant reach a peak after which they decline due to improved emission control devices and/or changes in traffic volume and road conditions.
3. For each critical year, calculate ambient concentrations under worst case and most probable meteorological conditions at various distances from the highway. This is done only for CO and HC. NOx is not dealt with because of its precursor role in atmospheric photochemical reactions and its uncertain removal rate from the atmosphere. Although HC also participates in photochemical reactions, its statutory standard has an averaging period of only 3 hours (versus 24 hours for NOx) which is felt to be short enough to permit an order-of-magnitude estimation of its concentrations. CO is the best suited for this procedure since it is relatively inert in the atmosphere. For comparison with Federal and State standards, estimates of concentrations should be calculated for the following time averaging periods:

E. Alvey Wright
October 20, 1975
Page 2

- a. CO - 1-hour and 8-hour (to correspond with peak traffic)
 - b. HC - 3-hour (to correspond with a.m. peak traffic)
4. Available meteorological data should be reviewed to determine the frequency of occurrence of worst case and most probable conditions at the time of day corresponding to peak traffic and to identify locations of potential present and future receptors. The various alternative corridors may also be evaluated on the basis of air quality and the number of receptors along each.
 5. If the ambient estimates based on peak traffic periods suggest that existing air quality standards may be exceeded during the critical years under both worst case and most probable meteorological conditions, it may be desirable to perform similar calculations for off peak traffic and for noncritical years to determine under what conditions standards are no longer exceeded.

If we may be of any further assistance in the preparation of this EIS, please do not hesitate to contact us.

Sincerely,


James W. Morrow, Director
Environmental Health

JWM:ct

cc: Dr. Richard E. Marland, OEQC
Dr. Albert Tom, EQC

GEORGE R. ARIYOSHI
GOVERNOR



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

December 15, 1975

E. ALVEY WRIGHT
DIRECTOR

DEPUTY DIRECTORS

WALLACE AOKI
RYOKICHI HIGASHIONNA
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

IN REPLY REFER TO:

HWY-PA
2.26191

Mr. James W. Morrow, Director
Environmental Health
American Lung Association of Hawaii
245 North Kukui Street
Honolulu, Hawaii 96817

Dear Mr. Morrow:

Subject: Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1(8)

Thank you for your letter suggesting a methodology for evaluating the highway's impact on air quality. While we appreciate your concern and efforts in presenting this information to us, we have decided instead to conduct our study utilizing a burden analysis proposed by the Department of Health and verifying its results for carbon monoxide through the Environmental Protection Agency's "HIWAY" model. The "HIWAY" model uses the Gaussian plume formulation and has a distinct advantage in that a finite line source at any angle to the wind can be analyzed.

The results of our study will be included in the draft EIS which we will be requesting your office to review.

Sincerely,

A handwritten signature in cursive script that reads "E. Alvey Wright".

E. ALVEY WRIGHT
Director

GEORGE H. ARIYOSHI
GOVERNOR



DIRECTOR'S OFFICE

JOHN FARIAS, JR.
CHAIRMAN, BOARD OF AGRICULTURE

YUKIO KITAGAWA
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII NOV 7 7 58 AM '75
DEPARTMENT OF AGRICULTURE
1428 SO. KING STREET
HONOLULU, HAWAII 96813
DEPT. OF TRANSPORTATION

November 5, 1975

MEMORANDUM

To: E. Alvey Wright, Director
Department of Transportation

Subject: Request for Comments
Hawaii Belt Road, Holoaloa to Papa
Project No. F-011-1(8)
Environmental Impact Analysis

The Department of Agriculture has reviewed the Environmental Impact Statement Preparation Notice and has determined there will be agricultural impacts from both alternative corridors A and B. Assessment of impacts on agriculture land use potential should consider future directions of urbanization induced by each alternative. Superficially, alternative A would appear to have the least effect on the agricultural, social and environmental attributes of the North Kona mauka zone.

Please keep us informed on this environmental impact statement.

John Farias, Jr.
John Farias, Jr.
Chairman, Board of Agriculture

JF:ad:a

GEORGE R. ARIYOSHI
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
399 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

December 29, 1975

E. ALVEY WRIGHT
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
RYOKICHI HIGASHIONNA
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

IN REPLY REFER TO:
HWY-PA
2.26419

Mr. John Farias, Jr.
Chairman, Board of Agriculture
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814

Dear Mr. Farias:

Subject: Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1(8)

Thank you for your comments on the project's Environmental
Impact Statement Preparation Notice..

The impact of a new highway on agriculture and urbanization
will be described in the economic and social sections of the
draft EIS. Some of the significant points to be mentioned are:

- a. A new highway will improve transportation of supplies and
crops to and from farms and distribution centers.
- b. A new highway, although providing improved transportation
for agriculture purposes may serve as a disrupting element
in terms of dividing parcels of land. Corridor B will
affect more farm parcels than Corridor A.
- c. Indicators point toward both a slightly larger volume of
voluntary relocation of Kona residents and influx of new-
comers in the areas opened by Line A as compared to Line B
because of the more favorable climate and the land development
potential makai of the existing highway.

A copy of the draft EIS will be forwarded for your review.

Sincerely,

E. Alvey Wright
E. ALVEY WRIGHT
Director

2767

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

440 Alexander Young Building, Honolulu, Hawaii 96813

October 28, 1975

Mr. E. Alvey Wright, Director
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

OCT 30 12 44 PM '75
DEPT. OF
TRANSPORTATION
DIRECTOR'S OFFICE

Dear Mr. Wright:

Subject: EIS Preparation Notice - Hawaii Belt Road, Holualoa to Papa

We reviewed the subject preparation notice and have the following comments:

1. We note that the two alternative corridors involve agricultural acreages. We are interested in the amount of agricultural land that will be taken up by each of the alternatives.
2. The corridors appear to pass through the PL-566 Kona Watershed Project. We are interested in the effects, if any, on the PL-566 structural measures as a result of the Hawaii Belt Road.

Thank you for letting us review this document.

Sincerely,

Francis C. H. Lum
Francis C. H. Lum
State Conservationist



GEORGE R. ARIYOSHI
GOVERNOR



E. ALVEY WRIGHT
DIRECTOR
DEPUTY DIRECTORS
DOUGLAS S. SAKAMOTO
WALLACE AOKI

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

IN REPLY REFER TO:
HWY-PA
2.26190

DEC 18 1975

The Honorable Christopher Cobb
Chairman and Member
Board of Land and Natural Resources
State Office Building
465 South King Street
Honolulu, Hawaii 96813

Dear Mr. Cobb:

Subject: Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1(8)

Thank you for your comments on the EIS Preparation
Notice.

An archaeological survey of the selected route will
be conducted prior to construction. We are working
closely with the State Historic Preservation Officer to
ensure that any impact to historical resources are
minimized.

We will maintain coordination with your office until
the project has been completed.

Sincerely,

A handwritten signature in cursive script that reads "E. Alvey Wright".

E. ALVEY WRIGHT
Director

2812

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
DIRECTOR'S OFFICE Sansome Street
San Francisco, California 94111

Nov 5 12 41 PM '75

8430
OCT 30 1975

DEPT. OF
TRANSPORTATION



Mr. E. Alvey Wright, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Wright:

We have reviewed your Environmental Impact Statement on the Hawaii Belt Road, Holualoa to Papa.

In our view, the EIS does not adequately describe the project's impact upon present vegetation, the incidence of wildfire and any change in fire danger that will result. Nor does it deal with the problem of disposal of grubbed vegetation, which, if not handled properly, may cause a build up of insects that could spread to adjacent areas.

The impact of the project upon these things is probably minor, but the information provided is not sufficient for an adequate appraisal.

Thank you for allowing us to review the EIS.

Sincerely,

Douglas R. Leisz
for DOUGLAS R. LEISZ
Regional Forester

GEORGE R. ARIYOSHI
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
889 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

December 29, 1975

E. ALVEY WRIGHT
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
RYOKICHI HIGASHIONNA
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

IN REPLY REFER TO
HWY-PA
2.26421

Mr. Francis C. H. Lum
State Conservationist
U. S. Department of Agriculture
Soil Conservation Service
440 Alexander Young Building
Honolulu, Hawaii 96813

Dear Mr. Lum:

Subject: Hawaii Belt Road,
Holualoa to Papa,
Project No. F-011-1(8)

Thank you for your letter, dated October 28, 1975,
concerning the EIS Preparation Notice. In response to
your comments, please note the following:

- 1) The EIS will thoroughly discuss the effects on agriculturally-zoned lands due to the highway improvement.
- 2) The final alignment will take into consideration the existing drainage improvements. The existing structures will be preserved as much as possible to maintain the existing drainage patterns and to reduce the cost of new drainage facilities.

We will be forwarding for your review, a copy of the draft environmental impact statement.

Sincerely,

E. ALVEY WRIGHT
Director

GEORGE R. ARIYOSHI
GOVERNOR



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

December 26, 1975

E. ALVEY WRIGHT
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
RYOKICHI HIGASHIMONN
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

IN REPLY REFER TO:
HWY-PA
2.26422

Mr. Douglas R. Leisz
Regional Forester
Forest Service
U. S. Department of Agriculture
630 Sansome Street
San Francisco, California 94111

Dear Mr. Leisz:

Subject: Hawaii Belt Road,
Holualoa to Papa,
Project No. F-011-1(8)

Thank you for the comments in your letter of October 30, 1975.

The document reviewed by your office was a preparation notice which precedes the environmental impact statement (EIS) now being prepared. The EIS will incorporate and address the concerns and comments expressed by affected/interested agencies and individuals.

The EIS will include the results of a biological study of the area and the project's impact on vegetation.

Incidences of wildfire or any increase in fire danger as a result of this project is considered minimal.

Our standard specifications for highway construction includes restrictions prohibiting the burning of grubbed material and requires its disposal at a suitable site not visible from the roadway. These and other construction restraints relating to environmental protection will be discussed in the draft EIS.

Mr. Douglas R. Leisz
Page 2

HWY-PA 2.26422
December 26, 1975

We will be requesting your office to review the draft EIS.

Sincerely,

E. Alvey Wright
E. ALVEY WRIGHT
Director



IN REPLY REFER TO:

L7619
(WR)PSE

United States Department of the Interior **DIRECTOR'S OFFICE**

NATIONAL PARK SERVICE
WESTERN REGION
450 GOLDEN GATE AVENUE, BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

October 30, 1975

2790
Nov 3 12 43 PM '75

DEPT. OF
TRANSPORTATION

Mr. E. Alvey Wright
Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Wright:

We have reviewed the Environmental Statement Preparation Notice for the proposed Hawaii Belt Road, Hualaloa to Papa, County of Hawaii, Hawaii. The following comments are for your technical assistance only as they do not represent formal review comments from the Department of the Interior.

An archeological survey of all areas where ground disturbance may occur including but not limited to borrow sites, access roads and alternative alignments should be conducted by a professional archeologist. The results of the survey along with the archeologist recommendations should be included in the draft environmental statement for the project.

We suggest that the statement indicate that the National Register of Historic Places has been consulted. If listed National Register properties are to be affected by the project, the statement should include in detail the nature of the effects and indicate measures to achieve compliance with Section 106 of the National Historic Preservation Act of 1966 and/or Executive Order 11593 in accordance with Title 36, CFR part 800.

The State Historic Preservation Officer should be consulted and his comments regarding the effects of the project upon properties either listed on or in the process of nomination to the National Register of Historic Places should be included.

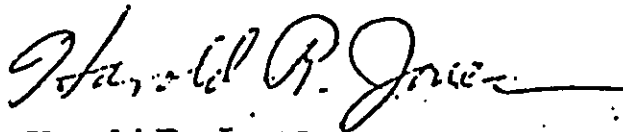
Copies of all archeological reports should be sent to the National Park Service, Western Archeological Center, P.O. Box 49008, Tucson, Arizona 85717.



Only by following these recommendations can full consideration of cultural resources be assured.

We appreciate the opportunity to comment on this environmental statement preparation notice.

Sincerely yours,



Harold R. Jones
Acting Associate Regional Director,
Professional Services

GEORGE R. ARIYOSHI
GOVERNOR



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

December 15, 1975

E. ALVEY WRIGHT
DIRECTOR

DEPUTY DIRECTORS
WALLACE AOKI
RYOKICHI HIGASHIONNA
DOUGLAS S. SAKAMOTO
CHARLES O. SWANSON

IN REPLY REFER TO:

HWY-PA
2.26188

Mr. Harold R. Jones
Associate Regional Director,
Professional Services
National Park Service,
Western Region
U.S. Department of the Interior
450 Golden Gate Avenue
Box 36063
San Francisco, California 94102

Dear Mr. Jones:

Subject: Hawaii Belt Road, Holualoa to Papa
Project No. F-011-1(8)

Thank you for your comments relative to the project's impact on cultural resources.

No sites listed in the National Register will be affected; however, the State Historic Preservation Officer and the Federal Highway Administration have determined that two eligible sites, the Kona Field System and the Great Wall of Kuakini may be adversely affected. Therefore, we will be complying with the provisions of Section 106 of the National Historic Preservation Act of 1966 and Title 36, CFR, Part 800, in developing the draft environmental statement.

Thank you for your assistance. We will be requesting your office's review of the draft EIS.

Sincerely,

A handwritten signature in cursive script that reads "E. Alvey Wright".

E. ALVEY WRIGHT
Director

Advisory Council
On Historic Preservation
1522 K Street N.W.
Washington, D.C. 20005

2719

DIRECTOR'S OFFICE

OCT 22 1 51 PM '75

DEPT. OF
TRANSPORTATION

October 16, 1975

Mr. E. Alvey Wright
Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Wright:

This is in response to your request of September 30, 1975 for comments to assist in the preparation of an Environmental Impact Statement for the Hawaii Belt Road, Holualoa to Papa, Project No. F-011-1(8), Hawaii County, Hawaii. Pursuant to Section 106 of the National Historic Preservation Act of 1966 and Sections 1(3) and 2(b) of Executive Order 11593, "Protection and Enhancement of the Cultural Environment" of May 13, 1971, the Advisory Council is charged with the responsibility of providing Federal agencies with comments on their undertakings which affect cultural resources. Until the Council has been notified by a Federal agency that it has determined an undertaking will affect a property included in or eligible for inclusion in the National Register of Historic Places, the Council is unable to comment.

The Council on Environmental Quality's guidelines for compliance with the National Environmental Policy Act of 1969 directs Federal agencies to forward copies of environmental statements prepared for undertakings which will have an impact on historical resources to the Advisory Council for review and comment. Because the Federal Highway Administration is involved in the proposed development of the Hawaii Belt Road a copy of the environmental statement will be sent to the Advisory Council for review and comment because of the project's relationship to the Kona Field System and other cultural resources in the area included in or eligible for inclusion in the National Register.

Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1969, the Advisory Council will be unable to provide substantive comments on the environmental statement unless it contains evidence of the following:

The Council is an independent unit of the Executive Branch of the Federal Government charged by the Act of October 15, 1966 to advise the President and Congress in the field of Historic Preservation.

- I. Compliance with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470[f]). The Council must have evidence that the most recent listing of the National Register of Historic Places has been consulted (see Federal Register, February 4, 1975 and monthly supplements each first Tuesday thereafter) and that either of the following conditions is satisfied:
- A. If no National Register property is affected by the project, a section detailing this determination must appear in the environmental statement.
 - B. If a National Register property is affected by the project, the environmental statement must contain an account of steps taken in compliance with Section 106 and a comprehensive discussion of the contemplated effects on the National Register property. (36 C.F.R. Part 800 details compliance procedures.)
- II. Compliance with Executive Order 11593, "Protection and Enhancement of the Cultural Environment" of May 13, 1971.
- A. Under Section 2(a) of the Executive Order, Federal agencies are required to locate, inventory, and nominate eligible historic, architectural and archeological properties under their control or jurisdiction to the National Register of Historic Places. The results of this survey should be included in the environmental statement as evidence of compliance with Section 2(a).
 - B. Until the inventory required by Section 2(a) is complete, Federal agencies are required by Section 2(b) of the Order to submit proposals for the transfer, sale, demolition, or substantial alteration of federally owned properties eligible for inclusion in the National Register to the Council for review and comment. Federal agencies must continue to comply with Section 2(b) review requirements even after the initial inventory is complete, when they obtain jurisdiction or control over additional properties which are eligible for inclusion in the National Register or when properties under their jurisdiction or control are found to be eligible for inclusion in the National

Register subsequent to the initial inventory.

The environmental statement should contain a determination as to whether or not the proposed undertaking will result in the transfer, sale, demolition or substantial alteration of eligible National Register properties under Federal jurisdiction. If such is the case, the nature of the effect should be clearly indicated as well as an account of the steps taken in compliance with Section 2(b). (36 C.F.R. Part 800 details compliance procedures.)

- C. Under Section 1(3), Federal agencies are required to establish procedures regarding the preservation and enhancement of non-federally owned historic, architectural, and archeological properties in the execution of their plans and programs.

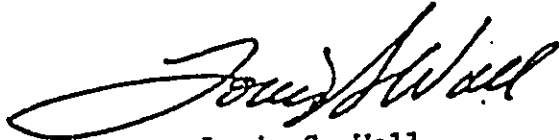
The environmental statement should contain a determination as to whether or not the proposed undertaking will contribute to the preservation and enhancement of non-federally owned districts, sites, buildings, structures and objects of historical, architectural or archeological significance.

III. Contact with the State Historic Preservation Officer.

The procedures for compliance with Section 106 of the National Historic Preservation Act of 1966 and the Executive Order 11593 require the Federal agency to consult with the appropriate State Historic Preservation Officer. The State Historic Preservation Officer for Hawaii is Jane L. Silverman, Chairman, Department of Land and Natural Resources, P. O. Box 621, Honolulu, Hawaii 96809.

Should you have any questions or require any additional assistance, please contact Michael H. Bureman of the Council staff at P. O. Box 25085, Denver, Colorado 80225, telephone number (303) 234-4946.

Sincerely yours,



Louis S. Wall
Assistant Director, Office
of Review and Compliance

GEORGE R. ARIYOSHI
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
862 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

E. ALVEY WRIGHT
DIRECTOR
DEPUTY DIRECTORS
DOUGLAS S. SAKAMOTO
WALLACE AOKI

DEC 18 1975

IN REPLY REFER TO:
HWY-PA
2.26189

Mr. Louis Wall
Assistant Director
Office of Review and Compliance
Advisory Council on Historic
Preservation
1522 K Street N.W.
Washington, D. C. 20005

Dear Mr. Wall:

Subject: Hawaii Belt Road, Holualoa to Papa
Island of Hawaii
Project No. F-011-1(8)

Thank you for your letter dated October 16, 1975,
commenting on the Environmental Impact Statement Prepara-
tion Notice.

Please be assured that this project will comply with
the procedures set forth in 36 C.F.R. Part 800 and that
the concerns of the Advisory Council will be properly
addressed. The State Historic Preservation Officer (SHPO)
has been consulted, and has recently made a "determination
of adverse effect" relative to historic resources in the
project vicinity. Documentation of the coordinations
between the SHPO and the Federal Highway Administration will
be contained in the draft EIS.

We sincerely appreciate your comments and recommenda-
tions and will look to your office for guidance on historical
matters.

Sincerely,

E. Alvey Wright
E. ALVEY WRIGHT
Director

APPENDIX F-3

Responses And Replies to Draft EIS

List of Respondents

1. James S. Kumagai, Ph.D., Deputy Director for Environmental Health,
Department of Health, State of Hawaii.
2. Louis S. Wall, Assistant Director, Office of Review and Compliance
Advisory Council on Historic Preservation.
3. Douglas R. Leisz, Regional Forester, Forest Service, United States
Department of Agriculture.
4. Kisuk Cheung, Chief, Engineering Division, U. S. Army Engineer
District, Honolulu; Department of the Army.
5. Francis C. H. Lum, State Conservationist, Soil Conservation Service,
United States Department of Agriculture.
6. Richard E. Marland, Director, Office of Environmental Quality
Control, State of Hawaii.
7. James W. Morrow, Director, Environmental Health, American Lung
Association of Hawaii.
8. Raymond Suefuji, Director, Planning Department, County of Hawaii.
9. Hideto Kono, Director, Department of Planning and Economic Development,
State of Hawaii.
10. Hideo Murakami, State Comptroller, Department of Accounting and
General Services, State of Hawaii.
11. Stanley D. Doremus, Deputy Assistant, Office of the Secretary,
United States Department of Interior.
12. Doak C. Cox, Director, Environmental Center, University of Hawaii
at Manoa.
13. Paul De Falco, Jr., Regional Administrator, Region IX,
United States Environmental Protection Agency.
14. John F. Schweigert, Brown & Bettencourt, Honolulu, Hawaii.
15. Alan Tyler, Statewide Coordinator, Friends of the Earth.
16. U.S. Senator Hiram L. Fong.
17. U.S. Representative Spark Matsunaga
18. Hawaii Department of Education
19. County Council, County of Hawaii

20. Hawaii Department of Agriculture
21. University of Hawaii, Water Resources Research Center
22. County Department of Water Supply
23. County Department of Public Works
24. Federal Aviation Administration
25. U.S. Department of Commerce
26. Hawaii Department of Land and Natural Resources
27. Hawaii Department of Health
28. Hawaii Department of Social Services and Housing
29. Hawaii Department of Defense
30. Department of Housing and Urban Development
31. Department of Health, Education, and Welfare
32. Hawaii Leeward Planning Conference
33. Kamehameha Development Corp.

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801

August 19, 1976

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

Audrey W. Mertz, M.D., M.P.H.
Deputy Director of Health

Henry N. Thompson, M.A.
Deputy Director of Health

James S. Kumagai, Ph.D., P.E.
Deputy Director of Health

In reply, please refer to:
File: EPHS - SS

MEMORANDUM

To: Dr. Richard E. Marland, Director
Office of Environmental Quality Control


From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement (EIS) for Hawaii Belt Road,
Holualoa to Papa

Thank you for allowing us to review and comment on the subject EIS. Please be informed that we have no objections to this project.

Staff comments are: Generally speaking, the construction of a highway from Holualoa to Papa will provide an alternate, free-flowing route from the existing, winding road. Since traffic will flow faster, with less decelerations and accelerations of the vehicle, it can be safely assumed that the emissions per vehicle will be less on the proposed highway compared to the existing road. The increased traffic of the future projections will simply aggravate the situation on the existing roadway.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.


JAMES S. KUMAGAI, Ph.D.

cc: Mr. Ralph Segawa, State DOT
Mr. Tetsuo Harano, Federal Highway Administration

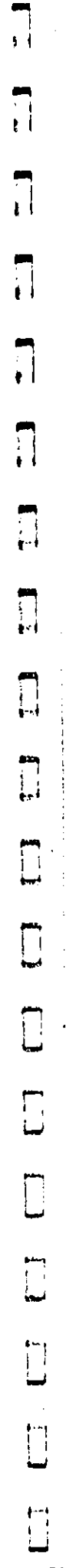
1A

188

EVALUATION

HAWAII DEPARTMENT OF HEALTH

- 1A. The staff comments are in agreement with the findings of the air quality study.



Advisory Council on
Historic Preservation
1522 K Street N.W.
Washington, D.C. 20005

August 26, 1976

Mr. Ralph T. Segawa
Division Administrator
Region Nine
Federal Highway Administration
677 Ala Moana Blvd., Suite 613
Honolulu, Hawaii 96813

Dear Mr. Segawa:

This is in response to your request of July 26, 1976 for comments on the draft environmental statement (DES) for the proposed construction of approximately 31 miles of the Hawaii Belt Road from Kealakowaa Heiau at Hualaloa to Milolii Junction at Papa. Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1969, the Advisory Council has determined that the DES appears adequate concerning compliance with Section 106 of the National Historic Preservation Act of 1966.

With respect to compliance with Executive Order 11593, "Protection and Enhancement of the Cultural Environment" issued May 13, 1971, we note that the proposed undertaking will have an adverse effect upon the Kona Field System, a property which has been nominated for inclusion in the National Register of Historic Places and may affect the Great Wall of Kaukini and an abandoned railroad roadbed, properties which may be eligible for inclusion in the National Register. However, it also appears that the Federal Highway Administration (FHWA) is aware of the requirements of the Executive Order 11593 and will afford the Council an opportunity to comment pursuant to the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) at the appropriate time. Accordingly, we look forward to working with FHWA in accordance with the procedures in the future.

Nevertheless, until the requirements of the Executive Order 11593 and the procedures are met, the Council considers the DES to be incomplete in its treatment of the cultural resources. To remedy this

EVALUATION

ADVISORY COUNCIL ON HISTORIC PRESERVATION

- 2A. The procedures for the protection of historic and cultural properties (CFR Part 800) have been followed and a memorandum of agreement has been executed for the mitigation of any adverse effect on the Kona Field System.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
630 Sansome Street
San Francisco, California 94111

8420 (3500)
August 26, 1976



Mr. Ralph T. Segawa
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
Suite 613, 677 Ala Moana Blvd.
Honolulu, Hawaii 96813

Dear Mr. Segawa:

Thank you for the opportunity to review the Hawaii F-011-1 (8) Draft Environmental Statement, FHWA-HI-EIS-76-02-D, Hawaii Belt Road, Hoʻlualoa to Papa.

We still have reservations regarding two of the items which we discussed when we commented on the EIS preparation notice.

3A

First, we feel that the incidence of wildfire in the corridor area and the changes in fire danger that might result from the project should be assessed. Fire is a serious problem in the forest and range lands of Hawaii and a higher incidence of fire usually follows improved access, unless mitigating measures are taken.

3B

Second, we recommend that a specific plan for disposal of slash and grubbed material be devised. Such material should not be allowed to remain exposed in or near the forest because forest destroying insects tend to breed in it. This can cause a buildup in insects, particularly the bark feeding species, that could spread to nearby forests and trigger an epidemic. Road building, because it opens up the forest, causes stresses to the remaining vegetation due to changes in exposure, water tables, and perhaps other factors. Trees and other vegetation under new stresses are particularly vulnerable to insect attack.

The Island of Hawaii is presently experiencing one forest epidemic which is resulting in the decline of ohia forests. This epidemic is caused in part by bark feeding insects. The Kona side of Hawaii is currently unaffected by ohia decline but there are signs of past insect epidemics on the ohia which border older forest roads above Honaunau and Kipahoe. These and other observations on Hawaii strongly indicate that past methods of slash disposal along roads led to local epidemics and significant tree mortality.

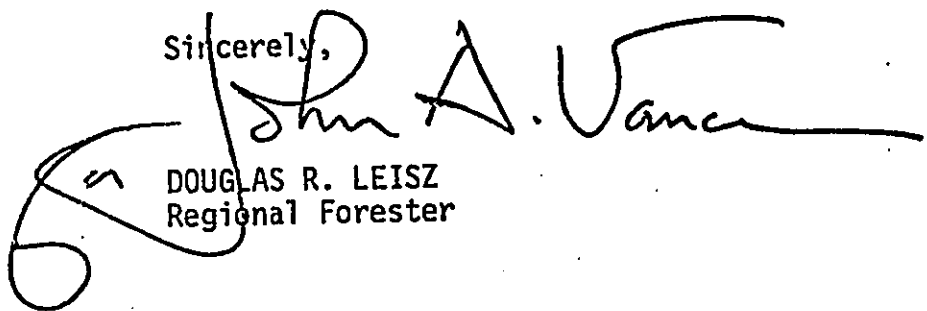
The only effective methods of slash treatment known to us are burning, burying, chipping, or debarking. There are no registered pesticides

for use in this situation. Whatever treatment is used, it should be completed within two months after cutting, since some of these bark infesting insects are capable of completing their life cycle in slash in three months or so.

Mr. Robert E. Nelson of our Institute of Pacific Island Forestry in Honolulu will be glad to assist you with the design of measures to mitigate or eliminate these problems. Help is also available from the Hawaii Department of Natural Resources and the Division of Forestry.

Thank you again.

Sincerely,


DOUGLAS R. LEISZ
Regional Forester

EVALUATION

U. S. DEPARTMENT OF AGRICULTURE

- 3A. Approximately 2.0 miles of the proposed highway would be routed along the existing road through the forest reserve area at the southern end of the project. The proposed highway will have wider pavements and shoulders than the existing road and it would be similar to the highway through the forest areas from Glenwood to Kilauea Volcano on the west side of the island where the present traffic volume is more than 1000 vehicles per day. The existing highway that will be replaced by the proposed project has a present traffic volume of 700 vehicles per day and a projected 1998 traffic volume of 1500 per day. No traffic projections have been made for the Glenwood/Kilauea Volcano highway but assuming that it will also double in number by 1998, the forest areas abutting the proposed project would have lesser exposure to traffic than those in Glenwood and Volcano areas.

Roadside maintenance will be done by the Land Transportation Facilities Division of the State Department of Transportation. Its roadside weed control and litter pick-up programs would help in preventing forest fires.

- 3B. We will specify a specific plan for disposal of slash and grubbed material. The advice of Mr. Robert E. Nelson of your Institute of Pacific Island Forestry and the Hawaii Department of Natural Resources and the Division of Forestry will be requested during the design and construction phases of the project.

EVALUATION

DEPARTMENT OF THE ARMY

U. S. ARMY ENGINEER DISTRICT, HONOLULU

- 4A. The selected corridor alignment will cross Kiilae Stream and an appropriate drainage structure will be provided at the crossing during the design stages of the project. The Department of the Army will be contacted at that time for the particulars of Section 404 of the Federal Water Pollution Control Act Amendment of 1972.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
440 Alexander Young Building, Honolulu, Hawaii 96813

September 13, 1976

RECEIVED	
SEP 16 1976	
DC	
I	
IS	
ISJ	
RR	
PP	
RS	
T	
UV	
ISJ	
AU	
GU	
AS	
WZ	
PLC	
201	

Mr. Ralph T. Segawa
Federal Highway Administration
U. S. Department of Transportation
677 Ala Moana Blvd., Suite 613
Honolulu, HI 96813

Dear Mr. Segawa:

Subject: Draft Environmental Impact Statement - Construction of
Hawaii Belt Road, a Highway from Holualoa to Papa in
North and South Kona, Island of Hawaii

We have reviewed the subject dEIS and are concerned that it does not address our earlier comments about possible conflicts with the Kona Watershed Project. You have recognized the flood problem and we agree that careful placement of culverts is necessary to avert aggravating the flooding problem. Our concern is the effect, if any, that the project will have on the Kona Watershed Project.

Another concern is the impact on agriculture. This is not adequately covered in Chapter II. Although tourism is the major industry in the area, agriculture is the major industry along the 31-mile corridor. The losses, especially as it affects the agricultural sector, should be evaluated.

The two alternatives mention the number of acres of agricultural land each alternative will remove. What is not mentioned is the acreage of each type of cropland--specifically, tomatoes, coffee, avocado, macadamia, etc. Knowledge of the area indicates that alternative "B" will remove coffee and macadamia orchards, while alternative "A" will remove mostly pastureland.

The soils in alternative "B" are moist and have thixotropic properties and are classified as OH. The soils in alternative "A" are shallower, more stony and are classified as ML and MH.

Considering all the above comments, we feel that alternative "A" would have a lesser impact than alternative "B".



5A

5B

78

Thank you for the opportunity to review this document.

Sincerely,

Wm H Mann
Francis C. H. Lum Acting
State Conservationist

Copies to:
General Counsel
Council on Environmental Quality
722 Jackson Place, N.W.
Washington, D.C. 20006

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50

EVALUATION

U. S. DEPARTMENT OF AGRICULTURE

- 5A. After the public hearing on September 15, 1976, testimonies led the State Department of Transportation to develop a corridor that is designated as Line A-1. Between Holualoa and Captain Cook, this line would follow the same route as Line A. From there, it would continue southwesterly until it connects with the existing upper segment of the City of Refuge Road to Keokea. From Keokea, it would follow the existing road to Papa.

Line A-1 would not affect the Kona Watershed Project located in the uplands east of Kainaliu.

- 5B. Line A-1 would not affect macadamia orchards but it may affect parts of the coffee orchards and isolated avocado trees below Captain Cook. The number of fruit trees nor the specific acreage of cropland have not been determined. This data would be available in the final location and design of the project.

GEORGE R. ANIYOSHI
GOVERNOR



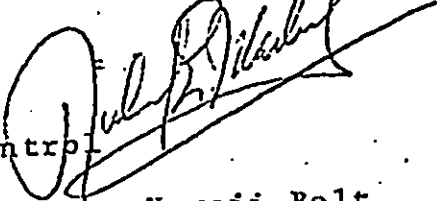
STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
OFFICE OF THE GOVERNOR
550 HALEKAUWILA ST.
ROOM 301
HONOLULU, HAWAII 96813

576
DIRECTOR'S OFFICE
RICHARD E. MARLAND, PH.D.
DIRECTOR
TELEPHONE NO.
548-6915
SEP 15 12 59 PM '76
DEPT. OF
TRANSPORTATION

September 14, 1976

MEMORANDUM

TO: E. Alvey Wright, Director
Department of Transportation

FROM: Richard E. Marland, Director
Office of Environmental Quality Control 

SUBJECT: Draft Environmental Impact Statement for Hawaii Belt
Road, Project No. F-011-1(8) involving construction of
a highway from Hualoa to Papa in North and South Kona,
Island of Hawaii

As of this date, this Office has received two comments on the above subject. An attached sheet lists the responding agencies and organizations.

In the review of the draft EIS, we have found several areas in which the final EIS should expand discussion. We offer the following comments:

1. The proposed project is apparently the second part of a total undertaking. This Office recently reviewed the EIS for Kuakini Highway Realignment, North Kona, Hawaii. We would like to bring to your attention section 1:12c. of the EIS Regulations which state,

A group of proposed action shall be treated as a single action when: (1) the component actions are phases or increments of a larger total undertaking; (2) an individual project is a necessary precedent for a larger project; or (4) the actions in question are essentially the same and a single Statement will adequately address the impacts of any single action.

In other words, the proposed action and the Kuakini Realignment project should be considered one action. Thus, why are these actions considered separately?

6A

201

- 6B 2. What are the present state land use district classifications for the project area? Since forest reserves are normally in the conservation district, the statement on page I-3 that no conservation lands are within the alternatives routes appear incorrect.
- 6C 3. The population figures used in the statement for justifying the new highway need substantiation. How were the projected figures derived? The 1980 figure of 16,300 to 18,400 appears underestimated.
- 6D 4. Are the estimated costs as shown on page I-20 in present time dollars or will the total cost actually be much higher by 1995, when the project would be nearly complete as proposed? What would the state's share be?
- 6E 5. Feral pigs are hunted actually in South Kona. Would either alternatives affect game hunting?
- 6F 6. The resultant tax loss to the state from business that are focused to relocate or go out of business should be considered on economic impacts.
- 6G 7. Who are the major land owners who will benefit from the different alternatives? What plans do they have that may be indirectly affected by the highway project? What population changes over a long period of time may result due to these plans?
- 6H 8. With the congressionall mandated delays in new car emissions, it appears improper to cite the potential impacts of air pollution from this project as being less than as present.
- 6I 9. What is the justification for extending alternatives A or B past Hookena before reconnecting with the present route? Couldn't it join near Honaunau or further north and thereby save tax dollars and reduce the potential environmental impacts?
- 6J 10. Under the relationship between short-term uses vs. long-term productivity, it should be realized that the proposed action may increase the potential for growth, urbanization, and pollution. Thus, we recommend an expanded discussion regarding how the proposed action will increase the secondary impacts.
- 6K 11. Has the bus system aided in relieving traffic congestion on the present system?
- 6L 12. Since highways tend to promote the use of the automobile, it is important to realize that we are still in a energy crisis. Emphasis should be placed on the conservation of energy and use of transportation alternatives such as

carpools, and mass transit. Thus, we strongly recommend a discussion be given on the alternate methods of energy conservation which could be feasible. For example, carpooling or a bus system may reduce the need for improvement, therefore, no action may be a feasible alternative.

6M

13. The alternative of widening and straightening the existing road should be considered. Why was this not considered in the EIS? Is this a more costly alternative? In section 1:42 g. of the EIS Regulations states, "Any known alternatives for the action which could feasibly attain the objectives of the action - even though more costly - shall be described and explained as to why they were rejected." Thus, we strongly recommend a discussion in the final statement.

The EIS Regulations state that responses to comments should be made fourteen days after the review process. However, the Governor or his authorized representatives has the discretion to consider late responses. This Office will consider responses to comments made after the fourteen day response period for this proposed action.

We trust that these comments will be helpful to you in preparing the final EIS. We thank you for the opportunity to review this EIS. We look forward to reviewing the final EIS.

Attachments

EVALUATION

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

- 6A. Both the Kuakini Highway Realignment project and the 30-mile improvement of the Hawaii Belt Road from Holualoa to Papa are independent and separate actions. Although both projects have the common goal of providing a safe and efficient transportation facility, neither is a component of the other nor is it necessary to construct one to justify construction of the other; neither will construction of one mandate construction of the other. Both projects are justifiable on their individual merits and benefits to the Kona residents.

The Kuakini Highway Realignment will separate northbound (Ke-Ahole Airport and Kawaihae) traffic from the Kailua Village bound traffic.

The Hawaii Belt Road improvements between Holualoa and Papa will link the outlying villages and agricultural areas to their primary destination of Kailua Village.

Each project will also have separate and distinct impacts. The Kuakini Highway Realignment will primarily affect pasture lands and the urbanized and resort-oriented areas surrounding Kailua Village. The Hawaii Belt Road will primarily affect rural resources such as coffee, citrus and macadamia nut farms, native and secondary forests and conservation lands.

We interpret the cited regulation to be applicable to the situation where an action is part of a larger project. An example would be a retention basin or a bridge that is constructed as part of a highway realignment. Another example would be land clearing and displacement of residences for a highway widening.

- 6B. The statement will be corrected in the final EIS.

- 6C. The population projections were obtained from the Department of Research and Development, County of Hawaii, Data Book, 1974.
- 6D. The estimates are based on the present construction cost. By 1995, the cost may be more or even less, depending on inflation factors and economic conditions in the state. The state's share, under present federal aid highway programs will be 30 percent and the federal share will be 70 percent.
- 6E. According to the Fish and Game Division of the State Department of Land and Natural Resources, feral pigs are hunted year round in the Kipahoehoe forest area in the vicinity of Kealia. Since the proposed project will follow the existing road, the hunting grounds will not be impacted by the project.
- 6F. The estimated loss in taxes for the two apartment houses (businesses) is estimated at \$1,300 for the 4 percent sales tax and \$2,200 for the property tax. The total tax loss will be \$3,500 per year.
- 6G. The major land owners are Bishop Estate at Keauhou, Napoopoo and Honaunau; Wall Ranch, Inc.; William J. Paris and James Ackerman at Kainaliu; Raymond Smith, Ethel W. Paris, Kealakekua Ranch and Handriques Gaspar at Captain Cook and Lester Marks at Kealia and beyond.

Presently, subdivisions and housing projects are being constructed in Kalaoa and Kealakahe located about 1 to 2 miles northeast of the project but no major subdivisions adjacent to the project area is under construction.

Plans have been prepared by Bishop Estate for its land in Keauhou, by Kealakekua Ranch for a farming subdivision east (mauka) of Captain Cook/Kealakekua and by Bishop Estate for a housing development in Captain Cook. However, these plans are tentative and the land owners have not yet set firm dates for their construction. At this time it could only be said that some major land owners have future plans to improve their lands that could be affected by a more efficient roadway. Small land owners of one or more acres may also decide to subdivide their lands because of a more efficient roadway.

The opening of lands and improved roadways are important factors that affect population growth but the more important factor is employment. The projected population growth discussed in previous paragraphs could not be attained if the job opportunities in Kona are restricted.

- 6H. We believe that slippages permitted by the Clean Air Act of 1977 would not seriously alter the findings of our study. The lowered pollutant levels as indicated by the study are not only the result of reduced emission factors but also of higher speeds. Consequently, if 1980 emission factors were used to determine 1990 or year 2000 one-hour pollutant levels, concentrations for the "improved" condition would be less than for 1980 or present conditions.
- 6I. After the public hearing of September 15, 1976, testimonies led the State Department of Transportation to develop a corridor that is designated as Line A-1. Between Holualoa and Captain Cook, this line would follow the same route as Line A. From there, it would continue southwesterly until it connects to and follows the existing upper segment of the City of Refuge Road to Keokea. From Keokea, it would follow the existing road to Papa. A road connection further north is not feasible because of the topography and more cultivated land will be taken by the roadway.
- 6J. A study of the secondary impacts is included in the technical reports that supplements the EIS. The highway economic impact in Kona will result in altered travel, production, and land use behavior and the redistribution of wealth.
- 6K. The bus system has not helped in relieving traffic congestion.
- 6L. The operation of the existing bus system does not provide very good indications for the feasibility of a mass transit system in Kona. The ridership on the Hilo to Honaunau trip is very low, ranging from a high of nineteen to a low of six for the inter-Kona trip, a high of twelve to a low of one for the intra-island trip.

The ridership on the intra-Kona route, known as the Kona Koaster is also very low, ranging from a high of seventeen people to a low of five during a morning trip. (From an unpublished study--Kona Development Plan by Donald Wolbrink & Associates, Inc.)

There is now some carpooling among the high school students commuting to Konawaena School and school buses for eligible students. The combined capacities of all these formal or informal transfer systems will not be sufficient to warrant the elimination of the project because aside from the movement of people, facilities for the movement of goods and produce from the farms to processing centers and shipments to Kea-ahole Airport and Kawaihae Harbor must also be provided.

6M. The alternative of widening and straightening the existing road was considered but was eliminated from further discussions because its construction would result in the following (see page IV-3 and IV-4 of DEIS).

1. The four-lane undivided highway, proposed as alternative D, will not be sufficient for the projected peak hour traffic of 1,036 vehicles in 1984.

A six-lane highway with a peak-hour capacity of 1,320 vehicles would be required in 1988, and another two lanes would be needed by 1995. This applies to the existing road between Honalo and Captain Cook.

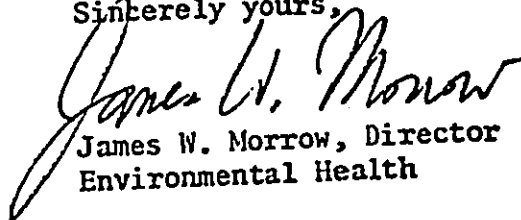
2. The initial widening of the existing road to 80 feet would dislocate 25 families and 52 organizations and businesses (half of those now situated along the road) and take 691 parcels of land. Subsequent widenings would increase the number of residents and businesses affected. The 12 to 15 years of construction would seriously inconvenience residents and tourists.
3. There are indications that about 50 structures of historical and archaeological significance may be affected.
4. The projected traffic would aggravate and intensify the existing dust and noise conditions, varying from moderate to great.

5. The prevailing pastoral and charming environment created by the residences and community facilities now located along a strip on both sides of the existing road, interspersed with pastures, farms, and orchards, would be destroyed by widening the road.

Mr. Ralph T. Segawa
September 14, 1976
Page 2

We should like to add that we are pleased and impressed with the efforts and progress being shown by the State Department of Transportation in assessing the air quality impact of its highway projects.

Sincerely yours,


James W. Morrow, Director
Environmental Health

JWM:lp

cc: E. Alvey Wright
Richard E. Marland

EVALUATION

AMERICAN LUNG ASSOCIATION

- 7A. This is a valid suggestion and will be considered in future air quality projections.
- 7B. We are grateful to the American Lung Association for informing us of Supplement 5. Unfortunately, at the time the air quality analysis was conducted, the Land Transportation Facilities Division did not have access to it. A computer program is currently being prepared by EPA and when ready for distribution, a "phasing in" schedule for project analysis will be established. This schedule will be coordinated with the EPA Headquarters Office.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21



COUNTY OF
HAWAII

PLANNING DEPARTMENT

26 AUPUNI STREET • HILO, HAWAII 98720

HERBERT T. MATAYOSHI
Mayor

RAYMOND H. SUEFUJI
Director

September 15, 1976

Mr. Ralph T. Segawa
Division Administrator
Federal Highway Administration
U.S. Department of Transportation
677 Ala Moana Boulevard, Suite 613
Honolulu, HI 96813

Re: Hawaii Belt Road, Holualoa to Papa
Draft Environmental Impact Statement
FHWA-HI-EIS-76-02-D

Thank you for giving us this opportunity to comment on the subject EIS. We have had a chance to review this EIS with other County agencies and have taken into account the comments offered by the other public and private agencies on your initial Preparation Notice for the draft EIS.

We are in basic agreement with the purpose of this project. The need for an improved highway system between Holualoa and Papa is unquestioned. It is also a project consistent with the goals and objectives outlined in the Hawaii County General Plan.

We have no particular objections to Alignment A or B; the outlined cost/benefit ratio appears to be rather equal. Nonetheless, we do have two comments relative to the EIS, and these are as follows:

1. Figure I-2 and Paragraph 1 on Page I-3 refer to the "Hawaii County Land Use Plan designations." This should be amended to read "the Hawaii County General Plan Land Use Allocation Map." On Page IV-1, the EIS states that a General Plan amendment will be required if the alignment illustrated on the General Plan Facilities Map is not selected. Such an amendment is not necessary.
2. As proposed, this highway project does not address roads connecting the existing highway to the segments of the new highway. The proposed plan implies that existing private and public roads will be used as connectors. The adequacy of the roads should be discussed as these roads may be deficient. Secondly, the routing of traffic over privately-owned roads may result in some legal problems.

8A

8B

Mr. Ralph T. Segawa
Page 2
September 15, 1976

The necessity for discussing possible connectors is apparent when we look at your Figure I-5 wherein it appears that the heaviest volume of traffic is between Holualoa and Captain Cook. While a new alignment would aid tremendously to alleviate the through-traffic considerations, the various connectors would appear to alleviate the local traffic demands. Additionally, the location of these connectors would have an effect on the growth of the various communities along the present highway. As such, to maximize the utility of either alignment and to assure proper land use development of any communities along the existing highway, a discussion of connectors would be timely.

Again, thank you for this reviewing and commenting opportunity.



RAYMOND SUEFUJI
Director

SF:rfd

cc: Mayor
Chief Engineer
Public Works Committee (County Council)
State Department of Transportation

EVALUATION

COUNTY OF HAWAII PLANNING DEPARTMENT

- 8A. We will make these corrections in the final EIS.
- 8B. It is intended that access to the proposed project will be controlled. Connections will be provided for all the public roads that crosses the project in addition to the connectors shown on the plan. Connectors 1 and 2 will be constructed as part of the project. The average daily traffic (ADT) on Connector 1 are 300 in 1988 and 400 in 1998; and on Connector 2, the ADT's will be 3,200 in 1988 and 5,700 in 1998. These connectors will be designed to accommodate these volumes of traffic. Also, their intersections with Mamalahoa Highway would be studied in detail during the design stage.

The other public roads that will also serve as connectors are the north branch of the Lower Government Road (FASC 160 - South of Captain Cook) and the south branch (Honaunau) of the same road. The estimated ADT on the north branch is 1,420 in 1988 and 2,000 vehicles in 1998. The design hourly volume (DHV) is 200 vehicles. This road is included in the Federal Aid Secondary - County System and could be improved under this program upon application of the County and its ability to provide the funds for their share. The projected ADT's on the south branch (Honaunau) are 2,070 in 1988 and 2,830 in 1998. The DHV in 1998 is estimated at 280 vehicles.

The connections to existing private roads and adjacent properties will be discussed with the land owners during the acquisition procedures. We do not expect that the private roads will become connectors between Mamalahoa Highway and the proposed highway. Connectors 1 and 2 are intended to relieve the traffic between Honalo and Captain Cook. Of these, Connector 2 will provide the most direct route from Kailua and other villages in North Kona to the Civic Center, and Konawaena School. The other connectors will be used by commuters to employment centers in Keahou and Kailua and for the transportation of farm produce to

Ke-ahole Airport and Kawaihae Harbor. It is not anticipated that the economic conditions between Honalo and Captain Cook will deteriorate because there is sufficient population in and between these towns to support the business establishments located there.



DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

Kamamalu Building, 250 South King St., Honolulu, Hawaii • Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

GEORGE R. ARIYOSHI
Governor

HIDETO KONO
Director

FRANK SKRIVANEK
Deputy Director

September 15, 1976

III SEP 20 1976		
ST		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
100		

Ref. No. 1985

Mr. Ralph T. Segawa
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
677 Ala Moana Boulevard, Suite 613
Honolulu, Hawaii 96813

Dear Mr. Segawa:

Subject: Hawaii F-011-1(8) Draft Environmental Impact Statement, FHWA-HI-EIS-76-02-D, Hawaii Belt Road, Holualoa to Papa, Hawaii

Thank you for your letter of July 26, 1976, requesting our review of the subject statement. We offer the following comments for your consideration.

9A

1. The statement appears adequate; satisfactory attention has been given to alternatives and measures to mitigate possible adverse impacts. The final report, however, might be strengthened through an expanded discussion of the social impacts of the project. For example, concomitant socio-cultural effects of reduced interaction between resident and visitor (as indicated in Chapter II, p. II/10) should be identified.

9B

2. We feel Alternate A is the more desirable of the two primary routes considered. Benefit-cost ratios are similar and, although visually more intrusive, Alternate A appears generally less disruptive than Alternate B.

We appreciate the opportunity to comment on this draft statement and look forward to reviewing the final document upon its completion.

Sincerely,

Frank Skrivaneck
for HIDETO KONO

EVALUATION

Department of Planning and Economic Development

- 9A. The alternative corridors would bypass the densely populated towns in North and South Kona for a distance of about 13.4 miles. Because of the bypass travellers would see less of the unique visual character of Kona and contacts between visitors and residents outside the tourist destination areas would be reduced.
- 9B. After the public hearing on September 15, 1976, testimonies led the State Department of Transportation to develop a corridor that is designated as Line A-1. Between Holualoa and Captain Cook, this line would follow the same route as Line A. From there, it would continue southwesterly until it connects with the existing upper segment of the City of Refuge Road to Keokea. From Keokea, it would follow the existing road to Papa.

Line A-1 will be much less intrusive on cultivated farms.

GEORGE R. ARIYOSHI
GOVERNOR



HIDEO MURAKAMI
COMPTROLLER

MIKE N. TOKUNAGA
DEPUTY COMPTROLLER

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

LETTER NO. P-2004.6

SEP 18 1976

RECEIVED	
HI SEP 17 1976	
DR	
1	
CC	
123	
HC	
PH	
HW	
1	
AN	
123	
AU	
GU	
AN	
AP	
FILE	
201	

Mr. Ralph Segawa
Division Administrator
U.S. Dept. of Transportation, FHA
677 Ala Moana Blvd. Suite 613
Honolulu, Hawaii 96813

Dear Mr. Segawa:

Subject: Hawaii F-011-1(8) Draft EIS,
FHWA-HI-EIS-76-02-D, Hawaii
Belt Road, Holualoa to Papa

This is in response to your letter No. 915 EC.

Our comments on the subject statement are as follows:

- 10A 1. Our department would prefer the mauka corridor if the Konawaena School Road can be connected to the New Highway. (See paragraph 2 on page II-10)
- 10B 2. Some cost data on page I-20 seems to be missing.

Thank you for this opportunity to comment.

Very truly yours,

HIDEO MURAKAMI
State Comptroller

EVALUATION

Department of Accounting and General Services

10A. After the public hearing on September 15, 1976, testimonies led the State Department of Transportation to develop a corridor that is designated as Line A-1. Between Holualoa and Captain Cook, this line would follow the same route as Line A (Makai Corridor) which is west of the existing road. From there, it would continue southwesterly until it connects with the existing upper segment of the City of Refuge Road to Keokea and from Keokea it would be routed on the existing road to Papa. Under this condition, it would not be possible to provide a direct connection to Konawaena School. But even if Line B were selected, it would not be advisable to connect the existing access road to Konawaena School because this road which runs through the school campus is also used by the tenants and land owners mauka of the school. It would also serve as a connecting road between Line B and Mamalahoa Highway. This would result in more traffic going through the school campus which will be undesirable on the standpoint of noise pollution and higher accident potential during the school period.

10B. We could not identify the missing data.



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

In Reply Refer To:
L7619-MQ
(ER-76/734)

SEP 23 1976

Dear Mr. Segawa:

The Department of the Interior has reviewed the draft environmental impact statement for Hawaii Belt Road, Holualoa to Papa, Island of Hawaii.

GENERAL COMMENTS

11A Alternative Lines A and B will create a physical and esthetic impact upon the immediate project area and adjacent lands. The impact upon native flora and fauna would be less should Alternative A be chosen. However, with this alternative, there may be a greater impact upon City of Refuge National Historical Park. The final statement should further evaluate the effects of these two alternatives. We are concerned by the close proximity of the project to this park and the lack of consideration of the park in the draft statement.

Although it is difficult to determine from the figures in the statement, it appears that Alternative Line A would impact a detached parcel of the City of Refuge National Historical Park, including a 3.7-acre upland garden area and native plant nursery. If impacts upon the park by Line A should be the case, we strongly recommend that the alignment be rerouted to physically avoid the park and to preserve the park's intrinsic esthetic qualities. Use of this park land for a highway would be inconsistent with the legislative purpose of the park. We recommend also that information regarding the project's impact upon City of Refuge National Historical Park be included in the final statement. Also, refer to the Section 4(f) comments in a later section of this letter.

SPECIFIC COMMENTS

11B Pages I-14, I-16, and I-17: Typical cross sections of the road are indicated. It is stated that the shoulder grades are slopes of 1:1 to 1-1/2:1 maximum. We suggest the steep slopes of these shoulders be discussed in relation to potential erosion hazard, specifically in loam soil areas.



11C

Page I-35: The proper time to become sufficiently aware of impacts to all cultural resources (both presently known and presently unknown) is prior to selection of an alternative. Obviously, unawareness of such resources and impacts on them can often lead to delays, decision reversal, and very possibly the infliction of unnecessary damage to cultural resources. Sufficient information about impacts to unrecorded cultural resources must be available to enable informed decisionmaking. While we agree with the concept that more detailed data about cultural resources is necessary to make design and location decisions, sufficient data must also be available during the strategic alternative selection stage.

We recommend that surveys mentioned on this page and the evaluations of all identified sites for their National Register potential should be made as early as possible during the planning of the project. The results of the evaluation, and thus, the potential impact of the various alternatives upon significant cultural resources can then be incorporated into the decisionmaking process for selecting the best alternative and, eventually, in developing final design plans for the project.

We recommend that the final statement contain the survey and evaluation results, including the precise areas covered and the relation of those areas to areas of potential project impact, methodology of the study, and the archeologist's recommendations to enable informed public and professional review. If cultural resources are identified, they should be described and evaluated for their significance, including their National Register eligibility, in consultation with the State Historic Preservation Officer.

Page II-11: We are pleased to note that the provisions of roadside viewing areas have been incorporated into the project's planning.

11D

The statement should indicate in this section that both Alternatives A and B will introduce a visual element incongruous with the natural landscape that will be noticeable to visitors of City of Refuge National Historical Park when looking toward Mauna Loa. Any glaring impact would certainly take away from the park experience of the visitor.

11E

Page II-19: If during the conduct of archeological surveys other properties eligible for inclusion in the National Register are found, appropriate mitigation measures should be determined in consultation with the State Historic Preservation Officer and the Advisory Council and discussed in the final statement.

Please see our comments for page I-19 concerning the rescheduling of archeological surveys.

We also recommend that a professional archeologist, familiar with the situation in the project area, be consulted in regard to whether or not monitoring of any excavations, borings, or trenches would be appropriate.

Chapters II and III

11F

Discussions on drainage indicate that more than 170 culverts would be included in the project. It is suggested that the drainage pattern for alternate B may result in more erosion from concentrating runoff flows. We recommend that the narrative be expanded to indicate that potential erosion resulting from concentrating runoff from culvert sites would be minimized by the construction of depressions or sumps within the drainage system.

The runoff culverts mentioned on page III-2 should be situated so as to minimize erosive impacts on cultural resources.

SECTION 4(f) COMMENTS

11G

We note on the cover sheet that the EIS has been submitted pursuant, in part, to Section 4(f) of the DOT Act (49 U.S.C. 1653(f)). However, we find no 4(f) determination in the EIS. It is apparent that Section 4(f) will apply to use of land from the Kona Field System, from any other "historic sites" of national, State or local significance located during archeological surveys, and, if used, a detached portion of City of Refuge National Historical Park. Accordingly, we must disagree with the assertion on page II-10 that "Neither alternative (A or B) will detrimentally affect ... any properties identified under Section 4(f) of the Department of Transportation Act."

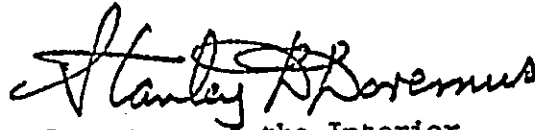
A statement on page II-19 indicates that it is impossible to avoid the Kona Field System and still meet project objectives. The Section 4(f) statement prepared for this project/should offer sufficient data to support this conclusion.

The fact that sufficient archeological investigation to locate significant resources within the project area has not yet been accomplished leaves the issue of Section 4(f) involvement for such resources an open question. Any such properties must be located, a search for alternatives to avoid them made, and measures to minimize harm to them developed before our consultation on this matter can be completed and final project decisions can be reached.

We are pleased to note the level of concern for preservation of cultural resources expended thus far during the planning for this project. We

are confident that, if archeological surveys are completed promptly and the concern for preservation of cultural resources continues, a highway plan to meet project needs can be developed that will produce the lowest possible adverse impact to cultural resources. We would be pleased to provide technical assistance in the preparation of the required Section 4(f) documentation if so requested. In this regard, please contact the Western Regional Office, National Park Service, 450 Golden Gate Avenue, Box 36036, San Francisco, California 94102.

Sincerely yours,



Secretary of the Interior

Deputy Assistant

Mr. Ralph T. Segawa
Division Administrator
Federal Highway Administration
677 Ala Moana Boulevard, Suite 613
Honolulu, Hawaii 96813

cc: Mr. Tetsuo Harano
Hawaii DOT

EVALUATION

U.S. Department of Interior

- 11A. Testimonies received from the public hearing on September 15, 1976, led the State Department of Transportation to develop a corridor that is designated as Line A-1. Between Holualoa and Captain Cook, this line would follow the same route as Line A. From there it would continue southwesterly until it connects and follows the existing upper segment of the City of Refuge Road to Keokea and from Keokea, it would follow the existing road to Papa.

This change in alignment would not affect the detached parcel of the City of Refuge National Historical Park (Tax Map Key No. 8-4-07-2B) nor any land under the control of the City of Refuge National Historical Park.

The nearest segment of the proposed highway to the City of Refuge is about 8,000 feet. At that distance the park will not be affected by air or noise pollution from the proposed highway. The volume of traffic, however, on the upper segment of the City of Refuge Road will increase. Without the project, the average daily traffic between Middle Keeki Road and the Keokea is estimated to be 1000 vehicles in 1978, 1600 vehicles in 1988 and 2100 vehicles in 1998. With the project, the average daily traffic will be 1470 vehicles in 1978, 2340 in 1988 and 3200 vehicles in 1998 with a design hourly volume of 320 vehicles. The design hourly volume is well within the capacity of the existing road and should not cause any congestion.

The proposed highway between Captain Cook and Keokea would intervene but not interrupt the line of sight to the coast line including the City of Refuge because the proposed highway will have a low profile. Moreover, landscaping to make the denuded areas compatible with the surrounding land will be considered in the final design of the project.

- 11B. The stability of cut and fill slopes will be more definitively determined after soil tests are made during the design stage of the project. Our experience in Kona showed that within a short period new fills become covered with "volunteer growth." This would help in minimizing soil erosion.
- 11C. It has been determined that either alternative would adversely impact the Kona Field System and for this reason it was decided that an archaeological survey along the selected corridor will be conducted prior to construction. A Memorandum of Agreement containing measures to mitigate the adverse effect on the Kona Field System has been jointly executed by the Advisory Council on Historic Preservation, the State Historic Preservation Officer and the Federal Highway Administration.
- 11D. The proposed project may appear incongruous during and immediately after its construction but in a few years the scars in the landscape will be covered by natural vegetation and the impact may not be severe enough to affect the park experience of visitors.
- 11E. The State Department of Transportation will cooperate with the State Historic Preservation Officer in the investigation, recording, preservation and salvage of archaeological features found in the project. The archaeologist retained by the State Department of Transportation would also be consulted concerning the monitoring of excavated areas during the construction.
- 11F. The erosion problems would not be serious along the selected alignment, Line A-1. However, the problem will be considered when the final location of the culverts are determined.
- 11G. A Section 4(f) statement and an executed Memorandum of Agreement (see response 11C) will be included in the Final EIS.



University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

RE: 0208

Office of the Director

September 15, 1976

U.S. Department of Transportation
Federal Highway Administration
677 Ala Moana Blvd., Suite 613
Honolulu, Hawaii 96813

Dear Sir:

Hawaii Belt Road, Holualoa to Papa
Draft Environmental Impact Statement

The Environmental Center review of the above cited EIS has been prepared with the assistance of Harold L. Baker, Dept. of Agricultural and Resource Economics, Peter Ho, Dept. of Civil Engineering and Joseph Halbig, Hilo College. The following comments are submitted for your consideration:

2A Page I-1, last line.

"... does not conform with desired level-of-service criteria..." A brief explanation of level-of-service would seem to be justified here, in spite of the detailed explanation in Appendix E.

2B Page I-8, 9.

Table I-1, Accident Rates and Number of Accidents, provides information indicating that the traffic on the existing roadway has a substantially higher accident rate than the island-wide average. Moreover, Table I-2 indicates that accidents involving fixed objects are quite high, suggesting roadway deficiencies. If not presently included in the overall cost-benefit analysis, we would recommend the inclusion of the accident reduction "potential" in the user benefit-cost ratio. Additionally, it is not stated in the text whether or not the costs of traffic disruption due to construction are considered in the overall analysis.

2C Page I-11.

The data presented in Figure I-5, shows the traffic volume in ADT and indicates the appropriate level of service. Since the Highway Capacity Manual treats levels of service on an hourly basis, it would be appropriate to include the relevant conversion factor for transforming the ADT volume to an appropriate peak hour volume. Additionally, there should be explicit statements that sections G, H, I are substandard based on sight distance and grades.

AN EQUAL OPPORTUNITY EMPLOYER

12D Page I-21.

The benefit-cost ratios determined for Alternatives A and B range from 1.07 to 1.15. Note that these ratios are based on the road user with a qualification in the text (pg. I-21) that "most users are residents." The values are sufficiently close to 1.0 that looking at Table I-6 might provide some indication on the sensitivity of these benefit-cost ratios. The range in population estimates for given projection years vary from approximately eight percent to 13 percent. Given the absence of a more specific breakdown of user benefits, the above figures suggest that the stated benefit-cost ratios might vary by similar amounts. Particularly since the benefit-to-cost ratios are so close to one and essentially the same for alternatives A and B, the readers and reviewers should be presented with all the details of the computations to permit a fair and adequate appraisal and judgment.

12E Page II-2.

With respect to the content of the EIS relative to geologic or geochemical factors it was the judgment of our reviewers that the weakest part of the report in this aspect is the environmental assessment relating to the alteration and interference of surface flow in the project area. The general comment "a sufficient number of culverts will be provided and carefully located to spread the flow and thus prevent excessive erosion or flooding below these flow concentration points" has little significance because adequate data and evaluation of the environmental impact of this factor has not been presented. Certainly data should be acquired: 1) to pinpoint those locations where significant surface water discharge occurs during periods of heavy rainfall, and 2) to obtain an accurate measurement of the discharge at these locations. Of course, evaluation of this factor would be more important for the Alternative B route (in the area of higher rainfall) than for the Alternative A route.

12F Page II-4.

The concept "scrub vegetation type" is unexplained or inadequately described and does not permit a fair appraisal of the consequence of construction in terms of "biological effect."

12G Page II-5.

Use of relatives like "about 10 percent" and "about 16 percent" don't give full measure of impact of construction on secondary forest. The quality or characteristics of the particular area to be traversed may be of far greater significance and impact than the quantity of land affected.

12H Page II-6.

The statement: "The economic benefits of the principal alternatives to the road user have been noted in terms of the benefit-to-cost ratios given in Chapter 1 of this statement" is a presumption. See comment above on Pg. I-21.

September 15, 1976

12I Pages II-9, 10.

The section on Societal Considerations is not a very convincing discussion either for or against the highway construction and deserves more study as evidenced by this statement regarding negative effects: "However, the direct connection between such changes [weakening of family and community ties] and either of the alternative highway alignments is speculative."

12J Page II-14.

The use of the Environmental Protection Agency's "HIGHWAY" computer model in estimating projected carbon monoxide levels resulting from vehicular traffic is commendable. In particular, it addresses a comment contained in a letter (Oct. 30, 1975, page two) to Admiral Wright from Mr. Alan Tyler, Environmental Coordinator, Kona Conservation Group. The accompanying figures, II-1 to II-3, indicate that Hawaii standards will not be exceeded. The EIS should note the assumptions underlying the emission factors used. It is not clear whether the vehicular distribution type for urban areas are the same for rural areas.

Page IV-3.

12K In Alternative D, the values for capacities for a four lane and six lane highways appear to be quite low. Even with steep grades and considerable truck traffic, the presence of additional lanes (as opposed to a two-lane facility) would permit segregation of vehicle types on the upgrade, thereby providing substantial increases in capacity.

12L Not mentioned in the EIS is whether or not any road materials are going to be obtained locally. We assume that they are going to be hauled in from some outside source. A brief statement describing this aspect of the project should be included in the final EIS.

In summation, the traffic components of the draft EIS could be elaborated further in view of the relatively low benefit to cost ratios. Quite clearly, portions of the existing highway are substandard and strongly merits highway improvements. The benefit-cost ratios should include benefits from reduced accident rates likely to result from roadway improvements. Greater consideration should be given to the importance of establishing the need and then choosing among the alternative proposals.

Yours very truly,

Doak C. Cox
Director

cc: OEQC
H. Baker, Ag. Econ.
P. Ho, Civil Engr.
J. Halbig, Hilo College

EVALUATION

University of Hawaii

Environmental Center

- 12A. The suggestion will be included in the Final EIS.
- 12B. The cost-benefit analysis is based on the assumptions contained in an Informational Report - Road User Benefit Analyses for Highway Improvements published by the then American Association of State Highway Officials. This report acknowledges the significance of the cost of accidents as an important element of the road users cost. However, most data is sketchy and not accurate enough to provide any definite statistical correlation with highway design. It is common knowledge that appropriate geometrical characteristics of the highway such as the curvature, superelevations, sight distances, width of shoulders, grades and other amenities such as guard rails, warning signs and other highway appurtenances could reduce accident potentials. However, no one can yet predict with a certain degree of accuracy the number and cost of accidents resulting from drunken driving, improper passing, violations of the rules of the road and other accidents caused by drivers' behavior. And even if accurate cost data are available a freak accident could distort the figures so that they could become meaningless especially if the figures were projected for the life of the project. Therefore, the potential savings resulting from fewer accidents were not included in calculation of the benefit-cost ratios.

Inconvenience during construction would be minimal since construction activities during peak hours would be suspended.

- 12C. Additional traffic information such as DHV, directional division of traffic during peak hours, percent of trucks during peak hours and percent of trucks for 24 hours will be added in the EIS.

In addition to sight distance and grades, Sections G, H and I were considered substandard because of the narrow widths of shoulders and pavement.

- 12D. The basic assumptions for determining the cost-benefit ratios are described on Page I-20 of the DEIS. The benefit-to-cost ratios of Alternative A (1.07) and B (1.15) are close enough to be considered as the same. It must be understood, however, that the selection of either A or B is not totally dependent upon the benefit-to-cost ratios but to other factors as well. See Appendix H of the DEIS. The other factors are the number of residences affected, number of acres of land zoned agriculture, etc.
- 12E. The basis of the general comment is to define the concept to be used in the design of the drainage structures. Data pertaining to the exact location and estimating discharges will be done during the design stage of the project.
- 12F. The scrub vegetation type is described as follows by Dr. Charles H. Lamoureux in his biological study of the proposed highway:

SCRUB: This is a vegetation type dominated by various species of shrubs, with only occasional trees or grassy openings. The more common and widely distributed shrubs include Christmasberry, lantana, koa haole, castor bean, guava, and waiawi. Other kinds of shrubs are somewhat less common or less widely distributed; among these are noni, 'akia, ilima, a'ali'i, pukiawe, hialoa, ma'o, kolomona, and klu. The vines huehue and koali-'awahia are common. A few kinds of trees are found as scattered individuals or in small groups; these include monkeypod, Chinaberry, 'opiuma, kiawe, kukui, Java plum, 'ohe makai, lama, and ohi'a-lehua.

The appearance of the scrub vegetation type differs greatly from place to place and is correlated with such factors as rainfall, temperature (elevation), soil or substrate type and age, and past history of any given site. At lower elevations, in dryer areas, on more recent lava flows, the individual shrubs will be only 2 or 3 feet high and widely spaced, and the general impression is of an open lava flow with small scattered shrubs. At middle elevations, in wetter areas, on well-developed soils the same species may form shrubs 12 or 15 feet tall

which grow so densely as to form nearly impenetrable thickets. Between these two extremes one can find several intermediate types, but all seem to be determined largely on the basis of localized soil and climatic factors, and most of the plant species are similar. Consequently, only one "scrub" vegetation type is recognized in this report.

Most of the scrub vegetation occurring in the project area seems to be basically a secondary type of vegetation - that is, it represents vegetation which has been modified by man or his activities. In some places it seems to have formed after forests were cleared or after pastures or cultivated lands were abandoned. In some parts of the project area there are livestock using the scrub although it is a very inferior type of pasture.

- 12G. It is true that finite estimates would be desirable than estimates of magnitude such as about 10% of Alternative A passes through secondary forest However, these estimates of magnitude are sufficient for our purposes since this type of forest has a much lower intrinsic value than the primary forest. Dr. Charles H. Lamoureux describes the secondary forest as follows:

This is forest which has been disturbed in the past by land clearing activities, grazing, burning, or other factors. It is still forest land and some of the native trees which are common in the primary forest such as 'ohi'a-lehua, lama, and ohe makai still occur here as scattered plants. However, many of the trees, shrubs, and herbs characteristic of native forest have disappeared and been replaced by such introduced species as kukui, monkeypod, Java plum, mango, ironwood, silk oak, Ceara rubber, albizia, guava, waiawi, 'opiuma, and Chinaberry. This forest type sometimes supports a few native birds, when the proportion of native trees in the forest canopy is high, but it has a much larger intrinsic biological value than the native forest does.

- 12H. See comment on 12D.

- 12I. A Social Study was made by Morris G. Fox, ACSW concerning the societal effects of the road construction in Kona. Mr. Fox's comments on the effect of new routes of travel on Personal and Family Life follows:

"Changes in employment patterns, uses made of leisure time, increased time at home for younger students, increased time spent away from home by mobile youth, and greater participation of adults, including the elderly, in community affairs resulting from new routes of travel are changes in the social lives of the people which are likely to be perpetuated.

The increased mobility of youth, due in part to improved travel routes, will likely result in an irreversible increase in delinquency and crime if the experience elsewhere in the country is an indicator."

The full text of his study was included in the technical appendix of the Draft EIS.

- 12J. The average emission factors were by calendar years based on emissions of light duty, gasoline-powered vehicles; heavy duty, gasoline-powered vehicles; and heavy duty, diesel-powered vehicles. Contributions by diesel-powered, light duty and gaseous-fuel-powered vehicles, and from motorcycles were assumed to be insignificant.

Emission data are based on a generalized cycle that involves operation typical of everyday driving patterns. Adjustments were also made for wind speed, mixing height, stability class, and receptor location. The exhaust emissions of carbon monoxide are based on an average speed of 19.6 miles per hour and adjusted by a speed correction factor for the project conditions.

- 12K. We concur that a four lane capacity would virtually provide a lane for slow moving vehicles but there are also other factors to consider in determining highway capacity. On line D especially between Honalo and Captain Cook, there would be no access control, except possibly one driveway

per lot; vehicles would back out of their garages; and there would be parking on the shoulders. Thus, out of the two lanes in each direction only one lane could be considered as a through lane since the other lane will virtually become a service lane for the adjacent properties. Left turns to adjacent properties and at intersections would also interfere with the through lane. This interference could be avoided by a fifth center lane. These movements account for the low capacity values.

- 12L. Most of the road materials such as base course, asphaltic concrete and portland cement concrete could be obtained locally. Binders such as asphalt and cement, lumber, reinforcing bars, traffic signs and metal guard rails would be imported either from Honolulu or the mainland.

13E Justification for the following statement appearing on Page II-3 of the Draft EIS should be given:

"Neither alternative alignment would disturb vegetation soil rock equilibrium to the extent that surface runoff and sediment loads would increase and groundwater infiltration rates would be decreased."

13F Estimates regarding the quantity and quality of runoff water from the project and a discussion of potential impact of this runoff on receiving water should be included.

13G The FEIS should estimate the numbers of residents (current and projected) that will be impacted by noise levels greater than FHWA design goals.

13H EPA recommends that the environmental noise impact analysis for this action employ the Leq/Ldn noise descriptor methodology. EPA has approved the Leq/Ldn methodology as the uniform environmental noise descriptor for Federal agency actions.

EPA appreciates the opportunity to comment on this draft environmental impact statement, and requests two copies of the final statement when available.

If you have any questions about our comments, please contact Patricia Sanderson Port, EIS Coordinator. Ms. Port can be reached at (415)556-3232.

Sincerely,

for David J. Collier
Paul De Falco Jr.,
Regional Administrator

Enclosure

cc: Council on Environmental Quality

EIS CATEGORY CODES

Environmental Impact of the Action

LO--Lack of Objections

EPA has no objection to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER--Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these aspects.

EU--Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1--Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2--Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3--Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

EVALUATION

ENVIRONMENTAL PROTECTION AGENCY

- 13A. The increases in vehicle miles (VMT) traveled in the project area due to an increase in tourism could not be mitigated short of limiting the number of tourists that would visit that area. This, however, would result in serious economic consequences to the tourist industry on that island. Most of the tourists now travel in groups by buses, but more than half the length of the existing road is too narrow for the buses.
- 13B. The Final EIS will contain air quality projections for 1978, 1988 and 1998.
- 13C. The project is rather controversial in that some residents object to the project in principle, some are fearful that productive agricultural lands will be taken, some do not agree with the alignment beyond Captain Cook, and others favor the project. The most critical objections refer to the agricultural lands and the alignment beyond Captain Cook. This matter has been mitigated by altering the alignment so that the proposed project will not traverse through the coffee farms between Captain Cook and Honaunau and will reconnect with the existing road at Keokea via the upper segment of the City of Refuge Road.
- 13D. The waterways that may be affected by this proposed project are the intermittent Kiilae Stream, which originates near elevation 2,000 feet and ends at Kiilae Bay near Keokea, and a flood prone area near the beginning of the project at Holualoa. The other flood prone areas are located approximately 1,000 to 5,000 feet away and uphill from the proposed project. These will not be affected since the runoff would disappear into the ground before it reaches the proposed project because of the high vertical infiltration of the basaltic rock. Even defined water courses such as Kiilae Stream show only a 5.4 percent runoff/rainfall proportion.

Presently, there is a culvert in the existing road that serves as a water course for Kiilae Stream. Since the proposed project will be routed over the existing road, the size and length of the culvert will be reviewed during the design stage of the project.

There is a defineable water course that drains the flood prone area at Holualoa. A drainage structure will be provided at the intersection of the proposed project and the water course of this flood prone area.

13E. This statement was made because the infiltration rate for storm flow is so great. Consequently, there is no overland flow that would transport sediments over the areas adjacent to the project.

13F. The coastal waters would not be affected by the runoff from the road surface due to the high infiltration of the basaltic rock. However, runoff from the road will rinse contaminants from its surface, and some of the contaminants will eventually reach the groundwater. The quantity, though, will be minute relative to the flux of water in the basal lens, and the effects on groundwater quality will probably not be measurable. An example of contamination under exaggeratedly bad conditions would be to assume that the quality of the runoff from the road would be the same as that of storm runoff of a typical city. According to Vitale and Sprey (1974), the average toxic pollutant load per curb mile per day of city storm runoff is:

Pb	0.38 lbs/curb mile/day
Zn	0.53 lbs/curb mile/day
Hg	0.016 lbs/curb mile/day

If these values were applied to Kona, they would add 0.009 ppm Pb, 0.013 ppm Zn, and 0.004 ppm Hg to the groundwater, all very much below acceptable limits. Actually, the contaminant load would be far less than the values computed above because runoff from a rural region would not accumulate the high pollutant load characteristic of drainage from city streets.

13G. The noise projections were made on the basis of field measurements taken at selected noise sensitive facilities along the existing road. It is assumed that residences and businesses strung between these facilities would also be impacted. The number of residents that may be impacted by noise were not counted, but the number of structures (residences and businesses) located 100 feet from the centerline of the existing road and the degree of impact are listed below on the basis of with or without the project.

<u>Location</u>	Total Number of Structures	Number of Structures Impacted	
	<u>1978</u>	<u>Without Project</u> 1998	<u>With Project</u> 1998
Kuakini Highway:			
Holualoa to Kam III Rd	15 M*	15 G*	15 G*
Kam III Rd to Honalo	23 M	23 G	23 M
Mamalahoa Highway:			
Honalo to Capt. Cook	92 M	92 G	92 M
Capt. Cook to Honaunau	103 M	103 M	103 M
Honaunau to Keokea	24 N	24 M	24 M
Keokea to Hookena	24 N	24 N	24 N
Hookena to Papa	3 N	3 N	3 N

* Degree of Impact: G - Great; M - Moderate; N - No Impact. These degrees of impact were determined on the bases of the design hourly traffic volume or peak hour traffic.

It can be noted from the above tabulation that without the project the exterior noise levels will change from moderate to great on 130 structures, whereas, with the project, the exterior noise levels will change from moderate to great on 15 structures. These 15 structures are located at the north end of the project and would be impacted with or without the project.

The number of structures in the project area undoubtedly will increase due to the projected increase in population. However, growth trends in housing construction appear to be in Kalaoa and Kealakahe (north of the project) and between Kailua and Keauhou. Subdivisions in the project area proposed by large land owners have not yet been approved, and it is rather difficult at this time to predict where the developments will take place and whether they would be impacted by the project.

- 13H. The noise analysis for the proposed project was made according to the L₁₀ methodology. FHPM 7-7-3 of the Federal Highway Administration states that either the L₁₀ or Leq (but not both) design noise levels may be used on a project.

5478

RECEIVED BROWN & BETTENCOURT
ATTORNEYS AT LAW
1011 FINANCIAL PLAZA OF THE PACIFIC
HONOLULU, HAWAII 96813

RECEIVED
OCT 6 1 21 PM 1976
TELEPHONE
(808) 521-3491
DEPT. OF TRANSPORTATION

OCT 7 1 10 PM '76
ST. DEPT. OF TRANS.
HWYS DIV
PLANNING BR. September 30, 1976

BOYCE R. BROWN, JR.
DAVID BETTENCOURT

Director E. Alvey Wright
Hawaii State Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

Re: Comments to Draft EIS for Hawaii Belt Road, Holualoa to
Papa, Project No. F-011-1(8)

Dear Admiral:

The following comments show that the Draft EIS for
the proposed Hawaii Belt Road project is INADEQUATE in that
it "manufactures" a need for the highway project by using er-
roneous and misleading data, such as obsolete population
projections; it fails to disclose recent efforts and proposals
that drastically reduce the need for this highway; and it
fails to satisfy the mandates of 23 USC Section 138 regarding
the Kona Field System.

More specifically:

1. Chapter I, DESCRIPTION OF THE PROPOSED PROJECT
AND SURROUNDINGS.

We strongly believe that the need for the project
is not justified for the following reasons:

14A

A. It is based on outdated population pro-
jections. Since the publication of the cited reference (Data
Book, Hawaii County, 1974), a major development project plan-
ned for South Kona with a projected population of 8,800
residents has been either cancelled or postponed indefinitely
(Bishop Estate's New Honaunau Community). Therefore, the
population projections should be lowered accordingly.

14B

B. There is no disclosure of the recent ef-
forts to alleviate the traffic congestion and accident problems:
1) an off-street parking lot in Kainaliu;
2) the relocation of the Kealakekua Post
Office, with off-street parking;
3) the relocation of the Captain Cook
Post Office, with off-street parking; and

Admiral E. Alvey Wright
September 30, 1976
Page 2

4) the Kuakini truck-passing lane.
These actions will significantly alter
the need for the proposed highway and as such should have
been discussed in the EIS.

14C

2. ENVIRONMENTAL CONDITIONS OF THE PROJECT AREA,
pp. I-21 - 34.
Two important factors that should not have been
overlooked in the Draft EIS but were are:
A. Kona's air inversion condition; and
B. Kona's heavy vog conditions.
These omissions seriously misrepresent to the
decision maker the significant air degradation this highway
will bring.

14D

3. SOCIETAL CONSIDERATIONS, pp. II-9 - 11.
A fuller discussion of probable accelerated
growth and growth patterns in the area is needed. CEQ guide-
lines are very clear that secondary or indirect consequences
of a proposed action are to be afforded the same degree of
consideration that is given primary effects.

14E

4. EFFECT ON ARCHAEOLOGICAL AND HISTORICAL RE-
SOURCES, p. II-19.
The lessons of (T)H-3 pass too quickly for the
major issue there was 23 USC § 138; 49 USC § 1655(f) referred
to as 4(f). When a transportation project proposes to "use"
an historic site, the Secretary of Transportation must deter-
mine that (1) there are no feasible and prudent alternatives
to the use of such land, and (2) such proposal includes all
possible planning to minimize the harm from such a project on
the historic site. Pertinent regulations mandate this 4(f)
finding be incorporated into the EIS. Since there was no
discussion of this matter in the EIS, it is deficient.

14F

It is hoped that the Final EIS will deal satisfac-
torily with the points mentioned herein. It is further hoped
that additional hearings on this matter will be held in
CENTRAL Kona, where the population to be impacted live, rather
than in Kailua.

Sincerely,


John F. Schweigert

cc: Thomas S. Kleppe

EVALUATION

MR. JOHN F. SCHWEIGERT

- 14A. The population projections were obtained from the best available sources. Population is not the only element in justifying the need for the road. There are other factors such as geometric conditions of the existing road, volume of traffic, accident frequency and capacity.
- 14B. These will be discussed in the EIS. However, the construction of the off-street parking lots would result in some improvement to the traffic conditions but would not reduce the volume of traffic on the existing road particularly between Honalo and Captain Cook. The vehicles will still use the roadway to get to the parking lots.

The truck climbing lane would increase the capacity of Kuakini Highway and may reduce the number of accidents through a section of that highway but, the trucks would still travel on the existing road between Honalo and Captain Cook and the traffic through this area would not be relieved by the traffic climbing lane.

- 14C. For most locations close to the pollution source, the mixing height (inversion layer) will have very little influence on the calculation of pollution concentration. When the receptor is located at a great distance from the pollution source and the travel time of the pollutant from source to receptor location is long, the mixing height will be the limiting height to which pollution will spread vertically. If the location of the receptor selected will be within a few hundred meters from the road, the mixing height will have little or no influence on pollution dispersion during the short travel time the pollutant moves from the road to the receptor. (Source: HIWAY: A HIGHWAY AIR POLLUTION MODEL, Environmental Protection Agency).

The table showing the highest level of concentrations calculated along the proposed highway reflects the levels at a distance of approximately nine (9) meters from the pollutant source.

There is no evidence of correlation between or compounding of pollutants from volcanic and auto emissions.

Volcanic emissions are composed of fine particulate matter and gases. The particulate matter includes silica, aluminum oxide, iron oxide, and a variety of lesser constituents. The gases emitted are made up of water, carbon dioxide, sulfur dioxide, and a variety of lesser constituents. There is also evidence of carbon monoxide emissions close to the source but it soon dissipates into the atmosphere.

The major auto emissions are nitrogen oxides, hydrocarbons, and carbon monoxide.

During normal eruptions there appears little evidence of increased levels of carbon monoxide, nitrogen oxides or hydrocarbons.

Catalyst-equipped automobiles do produce small quantities of sulfate emissions; however, EPA is examining means of controlling these emissions. One measure under serious consideration is to require widespread availability of low sulfur gasoline.

Hawaii is Priority III for sulfur oxides and according to EPA Regulations, the State's control strategy need only demonstrate that the air quality levels will be maintained below the national secondary ambient air quality standard. This standard has not been exceeded in the State.

However, should an air pollution emergency occur, Hawaii has an emergency plan to safeguard the public's health. One provision allows the State to restrict motor vehicle operations during emergency periods.

- 14D. A study of the secondary impacts was made and included in the technical reports that supplements the DEIS. The highway economic impact in Kona will result in altered travel, production, and land use behavior and the redistribution wealth.
- 14E. Since the proposed project will pass through the Kona Field System, a Section 4(f) Statement will be included with the final environmental impact statement. The statement will also contain a Memorandum of Agreement as required by CFR Part 800, Historic Preservation Procedures

of Historic and Cultural Properties which was jointly executed by the Advisory Council, the Federal Highway Administration and the State Historic Preservation Officer.

The Memorandum of Agreement contains provisions which will mitigate any adverse effects of the proposed highway improvement on resources within the selected highway corridor.

- 14F. On January 12, 1977 a public informational meeting was held in Captain Cook to solicit public input on revisions made to the original alignments. These revisions were a direct result of the public hearing testimonies.

FRIENDS OF THE EARTH

WEST HAWAII CHAPTER

RR1-125 CAPTAIN COOK 96704

October 5, 1976

Admiral E. Alvey Wright, Director
State Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

SUBJECT: Comments to Draft EIS, Hawaii Belt
Road, Holualoa to Papa, Project No.
F-011-1(8)

Our comments to subject EIS are as follows:

- 15A 1. p. 2, re AIR POLLUTION: The statement that neither Line A or B will significantly increase air pollution should be revised. Kona's air inversion and periodic vog conditions and the growth induced by the construction of the highway will significantly increase air pollution.
2. p. 3: TWO OTHER ALTERNATIVES that should have been included are:
- 15B A. The Kona Community Development Plan recommendation which was for Line A from the Holualoa end to Captain Cook, and only improvement of the existing road from Captain Cook to Papa. (See Incl. #1.)
- 15C B. ONLY WIDENING AND STRAIGHTENING where no one will be displaced, but no new highway. With the following projects underway, traffic congestion and accident problems will be greatly reduced:
- (1) Kuakini slow-vehicle lane, ready in 1978 or 1979
 - (2) off-street parking lot for 50+ cars in Kainaliu, 1977
 - (3) relocation of the Kealakekua Post Office, Nov. 76
 - (4) relocation of the Captain Cook Post Office, 1977
 - (5) recently completed "spot improvements" on the present highway south of Hookena, involving some straightening of sharp curves and some widening.
- 15D 3. p. I-1, par 5: This should be changed to reflect the information on projects in #2B above.
- 15E 4. p. I-3: re TRAFFIC: The list of deficiencies should be revised to show which deficiencies apply to which segments of the highway, and a re-evaluation of the traffic problems is needed in two or three years when all the projects mentioned in #2B above will have been completed.
- 15F 5. p. I-5 and 6, re ZONING: Per letter from Hawaii County Planning Department, the correction should be made regarding the General Plan designations shown (not zoning). Present zoning and anticipated zoning should be disclosed and discussed also.
- 15G 6. p. I-8 to 12, re ACCIDENTS:
- A. Table I-1 is misleading without a column showing the number of accidents per mile since the highway segments are of varying lengths, and the average daily traffic, which was shown separately in Fig. I-5. Bringing these figures together with the others, we get this picture:

FROM - TO	DISTANCE (miles)	NOA 1974	ACCIDENTS PER MI.	AV. DAILY TRAFF. '74
Hualalai - Honalo	6.01	42	7.	6500-7000
Honalo - Kainaliu	2.58	12	5.	8400
Kainaliu - Kealakekua	1.13	23	20.	8000.
Kealakekua - Capt. Cook	2.00	11	5.5	7600
Capt. Cook - Napoopoo Rd.	4.30	25	5.8	4400
Napoopoo Rd. - City of Refuge Rd.	2.10	6	3.	4400, 1850*
City of Refuge Rd.-Hookena B.A. Rd.	2.50	7	2.8	850
Hookena B.A. Rd.-Milolii B.A. Rd.	12.52	17	1.4	550

* first figure is for Napoopoo Rd. to Middle Keel Rd; second for remainder of segment to City of Refuge Rd.

The following interpretations from the data should be used in re-evaluating the need for a new highway:

(1) Two of the projects mentioned in #2B above will alleviate problems in the highest accident per mile segment from Kainaliu to Kealakekua (Kainaliu parking lot and relocation of Kealakekua Post Office)

(2) The Kuakini truck lane project is in the segment with the second highest number of accidents per mile.

B. There seems to be an error somewhere in the naming of the highway segments when comparing Tables I-1 and I-2 with the map, Fig. I-5. Should the names on the Tables be, for the fourth to the sixth segments:

- from Kealakekua to Napoopoo Road?
- from Napoopoo Road to Middle Keel Road?
- from Middle Keel Road to City of Refuge Road?

7. p. I-10, re TRAFFIC: The projected traffic volumes should be adjusted to show the change in plans of Bishop Estate's New Honaunau Community and the County Planning Commission's disapproval of the Keel golf course. (See also Comment #11 re population projections, & #50B.)

8. p. I-10, 12, re ACCIDENTS: The analysis of accidents should pinpoint exact causes as much as possible. This should bring out major causes such as:

A. re #1, p. I-10: minor damages from parked cars backing out into traffic at Kainaliu and Kealakekua Post Office and at Captain Cook Post Office. (It is significant to note that both Post Offices will have off-street parking at their new locations.)

B. re #2, p. I-12: most of the 17 fixed object accidents between Hualalai and Honalo were probably due to fast driving downhill and also a few bad turns. In the Milolii segment, it should be noted that the highway has had some straightening and widening done over the past two years, also that the 11 accidents cover a 12.52 mile segment, or an average of less than 1 accident per mile per year.

C. re #4: An analysis in percentages is very misleading when dealing with very small actual figures: the highest number of accidents

Admiral E. Alvey Wright, October 5, 1976, page 3

in this category (overturned, etc.) was 5 for a 6.01 mile segment; the next highest was 4 for a 4.30 mile segment PER YEAR. Again, the specific accident sites should be analyzed for any identifiable problem that needs correcting. Until this is done, and considered along with present projects underway, it seems that to conclude that a new highway is THE answer is not justified.

15K 9. p. I-11 (Fig. I-5), re LEVEL OF SERVICE: Please substantiate the rating of:

A. Segment A and B as Level D in 1974. The description of Level of Service A or B in Appendix E, page II, seem to be more appropriate for these segments from our personal knowledge;

B. Segments F, G, H, and I as Level of Service E, which is defined as characterized by unstable flow and stoppages of momentary duration. This description does not seem to reflect the actual conditions on these segments.

15L 10. p. I-20 -21; re BENEFIT-COST RATIO:

A. The road user benefit-cost ratio should be defined in the EIS to caution reviewers and decision-makers of its limited definition as used in this EIS. Then a discussion should follow, including the meaningful information below:

(1) Per Technical Report #1, p. I-5, VI-1 and 2: the costs are "essentially the costs of land acquisition and highway construction incurred by government. The benefits are essentially the travel time savings, reduced vehicle operating cost, and reduced accidents enjoyed by users of the improved highway system."

(2) Per same report, pp. IV-2 to 4, VII-1: Initially, travel on the new highway would be cheaper and faster, but this will INDUCE more travel, thereby reducing the level of service in a few years.

(3) per same report, pp. VI-1 to 7, VII-7: "Part of the benefits created by the highway improvements would remain with their initial recipients, the highway users. However, MOST OF THE BENEFITS WOULD BE INVOLUNTARILY TRANSFERRED TO THE PRIVATE OWNERS OF REAL PROPERTY IN THE VICINITY OF THE IMPROVEMENT." (Emphasis added.)

(4) Per same report, p. VII-7: About 3/4 of the land in this 31-mile stretch is owned by five major interests: Bishop Estate, Keala-kekua Ranch, Frank Greenwell, W. H. Greenwell, and McCandless Heirs. THEY would benefit most from a new highway, NOT the road users.

15M 11. p. I-32, Table I-6, POPULATION PROJECTIONS: These figures should be lowered. They are outdated by more recent projections, e.g.,

A. The Revised EIS on the Honokohau Boat Harbor, 20 November 1975, prepared by your Department of Transportation, gives a 1990 figure of 19,500 (p. II-46). A discussion following that table lowers the population for the year 2010 from 32,500 to 22,000, therefore even the 1990 figure of 19,500 should be lowered accordingly. (See Incl. #2.)

B. The Kona Community Development Plan, dated July 1975, projects a 1990 population of 17,900 (midpoint between 17,500 and 18,300).

C. The Hawaii Water Resources Regional Study report projects a 1990 population of 20,500 or 21,500 for Hydrographic Area IV, which

Admiral E. Alvey Wright, October 5, 1976, page 4

is close but does not correspond exactly to the North and South Kona districts. (See Study Element: Social Base, Apr. 75, p. 36, and Supplement, May 76.)

D. Per The State of Hawaii Data Book, 1975, DPED, November 1975, page 21, Table 9, the population projection for Hawaii County for 1990 is 113,400. Kona's share of the population, even at a generous 17%, would be 19,278, NOT 27,400 to 29,800 as stated in the EIS.

E. The locations and size of the development projects upon which these population projections were made should be disclosed and discussed in the EIS, per EIS Regulation 1:42 e.

12. p. I-33, par. 5, re FARMERS: There seems to be an assumption here that the farmers are being adversely affected by the present highway. If so, this was not substantiated. If not, the statement that they "would be served best in terms of better transportation by Alternate B" should be considered of MINOR benefit compared with other "costs" to them, including, for example:

A. probability of more flooding

B. rise in the cost of farmland and farming activity

C. likelihood of some farmland being taken out of agriculture, subdivided, and speculated on (Technical Report discusses this on p.V-17). Also, inadequate feeder roads may be a problem for them, rather than the condition or location of the present highway.

13. p. I-35, par. 1, IMPACT ON PRESENT BUSINESSES: The discussion of the businesses on the existing highway in one paragraph is INADEQUATE. The statement that the resident oriented businesses in the Keauhou to Captain Cook area "SHOULD NOT BE DETRIMENTALLY AFFECTED, considering the projected dramatic increase in the resident population" should be revised. This is a gross oversimplification and is inconsistent with Technical Report #1, pp. V-18, 20, VII-6 and 7 in particular.

A. Per this report, p. V-18: "The traffic projections indicate that a VERY SUBSTANTIAL PORTION OF TRAFFIC ALONG THE EXISTING HIGHWAY WILL BE DIVERTED BY THE CONSTRUCTION OF A BYPASS. THIS WILL HAVE A DEFINITE DETRIMENTAL EFFECT ON THE DEMAND FOR GOODS AND SERVICES DEMANDED ON FIRMS IN THE BYPASSED AREA." (Emphasis added.)

B. p.V-19-20: "We suspect that Holualoa's decline in production is attributable in large part to the fact that it was bypassed 20 years ago. The evidence there confirms our conclusion that Lines A or B WOULD HAVE A DETRIMENTAL EFFECT ON COMMERCIAL PRODUCTION IN THE HONALO-CAPTAIN COOK area." (Emphasis added.)

C. pp. V-19: "Expected increases in population and income in the Kona region generally are likely to buoy the demand for their goods and services, perhaps sufficiently to offset the bypass impact, enabling them to survive. It is quite possible that they will even improve their lot over time in spite of the bypass, especially if restrictive zoning and provision of public facilities deter the establishment of competitive firms along the bypass route."

We believe the merchants in these areas are being asked to take a very big gamble, the outcome of which will depend on the answers to these and other questions not yet brought out for discussion:

Admiral E. Alvey Wright, October 5, 1976, page 5

(1) What if the population does not increase as projected in numbers and location?

(2) Can they hold out until the population increases enough to overcome the loss of revenue due to being bypassed?

(3) Most of the big development projects are planned for the Keauhou-Kailua-Kealahou areas. What will induce the residents from there to shop in the Honalo to Captain Cook area when there are already two new shopping centers in Kailua, with another planned, and the possibility of new shopping centers starting near these population centers, for example, in Keauhou or Kealahou?

(4) How many of these businesses (existing) are able or are willing to relocate to the new highway, especially if the adverse effects of being bypassed are very severe?

(5) How will relocation of some affect the remaining ones?

D. To say that the community will prosper does not reveal the fact that the EXISTING businesses may fold while new, larger chain-store, super-market type businesses replace them (see p. V-11). This human factor is not being considered here. Part of the character of Kona is the presence of these small family businesses. These should be supported, not subverted, as is being done in this EIS.

E. The cited report states many times that its study has concentrated on the Honalo-Captain Cook area. The businesses from Machado Store to Fujihara Store (including Ege Store, Shimizu Store, Stan's Fishery, Cho's Fish Market, Dinson's Service Station, Morihara Store, and Higashi Store) have not been studied yet. They would most likely be very seriously affected, like the Holualoa area was 20 years ago by being bypassed. The interdependence between these businesses and the communities they serve has not been addressed in either the economic or the social reports. Without a thorough study of the effects of a bypass on this area from Machado Store to Fujihara Store, it would be irresponsible to proceed with plans to bypass this area.

15P 14. p. I-35, re HISTORIC SITES: Per EIS Regulation 1:42c, archaeological and historic sites are to be given SPECIAL EMPHASIS in this section. We believe the mere mention of the Kona Field System is inadequate to meet this requirement. Pages 8 to 11 of the Technical Report #5 should be included in the body of the EIS at the least, especially since the Technical Report is not readily available (see p. II-1 of EIS). EIS Regulation 1:43 states that an EIS should be essentially a self-contained document. The present draft EIS is not. (See Incl.#3, pp.8-11 of report and map.)

15Q 15. p. II-1, re ENVIRONMENTAL IMPACT:

A. The second sentence is false - air quality was not discussed in Chapter I. (See Comment #1 above.)

B. The discussion on archaeological-historic sites was inadequate. (See Comment #14 above.)

C. The availability of the Technical Reports only at the two locations in Honolulu, Island of Oahu, for a project proposed for Kona, Island of Hawaii, should be pointed out for the benefit of reviewers and decision-makers outside the State. This must surely be considered "undue cross-reference", per EIS Regulation 1:43. This lack of access to the reports makes imperative the inclusion of good summaries in the EIS.

Admiral E. Alvey Wright, October 5, 1976, page 6

14R 16. p. II-6 to 9, re ECONOMIC EFFECTS:

A. This section should be revised to reflect more accurately the findings of Technical Report #1 or explanations why differences occur in the EIS when compared with that report. (See Comment #10 and 15)

B. The statement that the increase in value of property along the adopted route will BENEFIT the owner should be qualified - it will benefit only those who SELL their land, but for those who live there and plan to stay there, this increase in value of property means increased property taxes, which is a burdensome cost.

C. A fuller discussion of probable accelerated growth and growth patterns in the area is needed. Per EIS Reg. 1:42e, secondary and indirect consequences of this project SHALL be thoroughly discussed.

15S 17. p. II-9, ECONOMIC AND SOCIETAL EFFECTS:

A. Two of the three desirable primary effects stated should be qualified as TEMPORARY - a decrease in traffic congestion and an increase in the convenience of travel in Kona. Per Technical Report #1, p. IV-2 to 4, the convenience of travel will induce more travel, thus causing lower level of service - congestion, increased travel time. Accelerated growth due to the highway must also be considered here.

B. The severe adverse effect on the stores from Machado to Fujihara must be disclosed and discussed. (See Comment #13 above.)

C. The demand for public facilities and services needs to be discussed in the EIS, per letter from DPED. (Your reply stated that you would, however it is NOT in the EIS.)

5T 18. p. II-12, re EFFECT ON AIR QUALITY:

A. See Comment #1.

B. The cumulative and long-term effect on Kona's air quality must be discussed in terms of future growth, per EIS Reg. 1:31.

C. The Hawaii County General Plan states, on page 16, that the Kona coast has "a great potential for smog conditions to develop, especially if vehicular and other air pollution sources increase ... The State Department of Health is in the process of developing air quality standards and will implement and enforce regulations which will become effective in 1971." The General Plan found this a significant factor to mention in its planning document, yet the consideration of the three factors - air inversion and vog conditions and the added vehicular pollution - was not evident in the EIS.

D. The "worse" conditions of air inversion and vog should be combined with the vehicular emission projections to get a realistic picture of what could happen to the residents of Kona.

15U 19. p. II-19, re HISTORIC SITES:

A. The statement that either alternative MAY adversely affect the Kona Field System should be corrected to read WILL adversely affect Any further intrusion into a historical site is an adverse effect on that historical site EVEN IF NO SINGLE ELEMENT IN IT IS DAMAGED.

B. The EIS should discuss the possibility that any further intrusion, with attendant growth along the highway, may jeopardize its next step, which is being placed on the National Register of Historic Places.

C. It should also discuss the possibility that, along with this loss of recognition, less protection is afforded it, and it may eventually be lost altogether by further and further intrusions once the initial impetus is provided by the construction of a new highway through it.

D. This possibility makes absolutely necessary a thorough investigation of ALL alternatives to building a new highway.

20. Chapter III, ADVERSE EFFECTS THAT CANNOT BE AVOIDED: These effects should be included in this chapter:

A. loss of revenue for existing businesses from Honalo to Captain Cook which may be recovered IF growth of population in the area is great and soon, and new businesses, especially big chain stores and supermarkets, do not get established on the new route.

15V B. loss of revenue for existing businesses from Machado Store to Fujihara leading to closing of business because no major growth is expected in this area and many of the residents will shop along the new highway or go longer distances while staying on the new highway. Few, if any, of these businesses can be expected to relocate on the new route. New businesses that become established on the new route will hasten the closing of the existing businesses.

C. The communities served by these businesses from Machado to Fujihara will suffer a great loss.

15W D. Machado Store, being tourist-oriented, will suffer the quickest and most.

15X E. Land values will rise along the new highway - this is seen as a benefit to the landowners who plan to sell their land or are leasing or renting. It is seen as a cost (increase in taxes and pollution) to those who own their own homes and land and do not plan to move, or for those who lease or rent from the landowner.

15Y F. The TEMPORARY road user benefit-cost ratio will soon be transferred to the landowners along the highway. The initial improved highway will induce more travel among present residents and accelerate growth, thereby lowering the level of service.

15Z G. The "rural atmosphere" that characterizes Kona, especially in mauka and South Kona (See Kona Plan, 1960; the General Plan, p. 42; and the Kona Community Development Plan, p. 1) will be adversely affected by a new highway. Increased speeds on the highway also will detract from the "Relaxed way of life" in Kona.

Many of the retired coffee farmers and their old vehicles which are accustomed to slower speeds will become "objectionable" on a high-speed highway.

15AA H. The new highway will add further to the problem of land speculation because more land will become accessible.

15BB I. The highway will open up more land for development and this in turn will increase demands for public facilities and services; police and fire protection, construction of schools, etc.

- 1 CC J. More land will be taken out of agriculture as the cost of land and the pressure for development increase.
- 15DD K. The further intrusion into the Kona Field System by constructing a new highway and its attendant growth will lessen its integrity and jeopardize its being placed on the National Register of Historic Places.
- 1 EE K. When more wives work in hotels, because of improved transportation and more hotels being built, studies have shown an accompanying increase in the rate of family problems and divorce.
- 1 FF 21. p. IV-3, re PROJECTED TRAFFIC: The projected traffic under #1 should be lowered to reflect the lower population projections. (See Comment #11 above.)
- 15GG 22. p. IV-5, re OTHER ALTERNATIVES:
- A. See Comment #2 above.
- B. It should be noted that the Kona Community Development Plan/
to build a new highway ONLY AS FAR AS CAPTAIN COOK has received much wider community support than either Alternative A or B at the two public information meetings of June 1974 and January 1975, and also at the recent public hearing of September 15. (See news articles of these meetings, Incl. #4.)
- C. EIS Regulation 1:42g requires a "rigorous exploration ... of all reasonable alternatives", including "alternatives requiring actions of a significantly different nature which would provide similar benefits with different environmental impacts." The fact that after two public information meetings, the alternative mentioned in B above has not been included in the EIS as an alternative shows a lack of "rigorous exploration ... of all reasonable alternatives." Also, "alternatives requiring actions of a significantly different nature" should be explored to include these considerations:
- (1) The expansion of the present bus system, or any kind of mass transit, van pooling, etc., is not even mentioned as a possible alternative or partial solution.
- (2) The possibility of the recurrence of another energy crisis has not been discussed. No energy conservation measures are discussed. Should we project traffic "demands" and build more highways which in turn accelerate growth and fulfill these prophecies? Honolulu's traffic problems may NOT be due to the lack of highways, and constructing more and more highways is not the ONLY answer to relieving the traffic problem. New Federal legislation now permits the use of Federal funds for projects OTHER THAN highway construction. This should be fully explored.
23. p. V-1, re LONG/SHORT TERM EFFECTS:
- 5HH A. The ONE short-term gain is the TEMPORARY benefit gained by the road user. It will transfer to the landowners along the highway. (See Comment #10 above.)
- 5II B. The second paragraph is unsubstantiated and needs revision.

C. The long-term losses are:

(1) loss of revenue for the existing businesses from Honalo to Captain Cook, with the possibility that they will be forced to close as a direct result of being bypassed and/or competition from new businesses becoming established on the new route;

15JJ (2) closing of the existing businesses from Machado Store to Fujihara Store directly due to being bypassed. Their situation is similar to that of Holualoa 20 years ago.

(3) The decline of these existing communities by the closing of the stores and movement of residents toward a new highway and/or new subdivisions along it, job centers.

15KK (4) Accelerated growth along the new highway and attendant increased costs for public facilities and services.

15LL (5) Increased land speculation, especially near the highway, loss of more agricultural land due to the increased cost of land and the pressures for rezoning and development. Future generations of residents will not be able to afford to live in Kona.

15MM (6) Deterioration of Kona's "rural atmosphere", its relaxed way of life due to highway, high speed, and accelerated growth, and very importantly, the decline of the present small communities with their family businesses.

15NN (7) air pollution potential with increased growth, in addition to air inversion and vog conditions.

1500 (8) possible loss of protection for the Kona Field System due to further degradation caused by highway and attendant growth.

24. D. IV-1; RE IRREVERSIBLE COMMITMENTS ...:

15PP A. The further degradation of the Kona Field System and any other historic site must be identified here, per EIS Reg. 1:42j.

15QQ B. The change in lifestyle brought about by the highway and resulting growth should be identified also.

15RR C. The highway will lead to the decline and/or deterioration of the bypassed communities that characterize the mauka and South Kona areas, the "pastoral and charming environment ..." per p. IV-4 of EIS.

15SS D. The highway will lead to higher land values and therefore higher property taxes, rentals and leases and the attendant rise in other costs of living.

25. D. VII-1 to 3, MITIGATING MEASURES NEEDED TO MINIMIZE IMPACT:
This section should include:

15TT A. An open discussion WITH THE EXISTING BUSINESS PEOPLE of the probable impact of the highway on their businesses as the result of a bypass. This is especially crucial for the businesses from Machado to Fujihara Store, so that they can participate in this EIS process and/or plan for the future. Considering the erroneous statements in the draft EIS that existing businesses will NOT suffer when Technical Report #1 says they WILL, and the total lack of discussion of the area from Machado Store to Fujihara Store in either the report or the EIS, this matter needs correction immediately.

15UU B. Per letter from DPED, the concern for agricultural land was

Admiral E. Alvey Wright, October 5, 1976, page 10

not discussed in the EIS, despite DOT's reply that the suggestion would be followed.

15VV C. Per letter from Hawaii County Planning Department, the land-owners SHOULD be notified as a mitigation measure.

26. re APPENDIX A, p. 2:

17WW A. Both public information meetings were held in conjunction with Gordon Jacoby, consultant for Wolbrink and Associates, and his work in formulating the Kona Community Development Plan under contract with the Hawaii County Planning Department. Therefore, the Kona Community Development Plans's recommendation should have been included as an alternative in the EIS.

17XX B. EIS Reg. 1:42 m states: "Reproduction of comments and responses made during the consultation process" is required. This was not done. The EIS completely ignores the fact that the public opposed both Lines A and B at these meetings and especially any new highway in South Kona. (See also Comment #22B, and Incl. #4.)

15YY C. The consultant's name of Sunn, Low, Tom, and Hara does not appear in Appendix A or as author of this EIS. EIS Reg. 1:421 requires disclosure of this consultant firm's part in this project.

27. re APPENDIX D. RESPONSES AND REPLIES TO THE PREPARATION NOTICE...:

15ZZ A. We believe that some of the questions in the letter from the Kona Conservation Group to you were not answered; i.e.,

(1) re benefit-cost ratio; par. 1 of your reply states that the criteria and the assumptions used will be given in the EIS. They were not. See our Comment #10. also.)

AAA (2) Question #4 regarding Federal funding eligibility requirements was not answered in your reply nor in the EIS.

15BBB (3) Your reply #5, par. 5 should be reconsidered and fully discussed as a viable alternative. With the primary emphasis on NOT DISPLACING ANY RESIDENT OR BUSINESS, the existing highway could be widened as needed and possible, and the sharp turns could be eliminated.

Taking into consideration the decreased population projection (see Comment #11 above), and therefore decreased traffic projections, and the improvement projects discussed in Comment #2B above, we strongly believe that this alternative must be fully explored. We disagree that this is similar to a "no project" alternative. Please substantiate this contention.

5CCC (4) Your reply regarding accident rates in terms of per million vehicle miles is incomplete for an objective analysis without showing that we are really dealing with 6 and 7 accidents PER YEAR on these road segments.

Also, the highest percentages given for collisions with fixed objects confirm our recommendation that the road segments should be straightened and widened BUT NOT to the 100 or 150-foot right-of-way widths.

B. Other letters with questions that were not answered either in your reply or in the EIS were:

15DDD (1) DPED's - re demand for public facilities and services, and mitigation measures.

Admiral E. Alvey Wright, October 5, 1976, page 11

15EEE (2) U.S. Department of Agriculture -- re PL 566, Kona Watershed Project. This should be fully discussed in the EIS, especially in relation to Alternative B.

28. APPENDIX E:

15FFF A. p. I-II: Please cite the page number of the Hawaii County General Plan reference. The discussion of Transportation on pp. 70-73 of the General Plan does not use this term "principal arterial" even once, contrary to your statement. If it is used elsewhere, it is most likely used in a general way to mean "the most important" or "main", and not with the technical definition used in the EIS.

15GGG B. p. III: Reference the last sentence in this section: "The highest level of service should be the design objective; however, level of service C is considered the appropriate accepted design level of performance." This statement has profound implications. It seems to show that there is an awareness that highways have been, in many cases, the unwitting impetus for accelerated growth, increased induced travel, and demand for public facilities and services that have in turn aggravated the problem the highway was designed to cure. If this is so, all these factors should be thoroughly discussed in relation to this particular project. Summaries of studies that have shown successful and unsuccessful coping with this dilemma should be included for thoughtful review in relation to this project, especially for the residents of the area who will have to live with the good and bad effects of this highway project.

29. APPENDIX F:

15HHH A. The following businesses should be added to the list. They were operating a year ago.

Shimizu Store
Stan's Fishery
Cho's Fish Market
Dinson's Service Station
Higashi Store
Fujihara Store

15III B. These businesses are all in South Kona. Not only will Alternative A or B bypass them, even the EIS bypasses them!

30. REFERENCES:

15JJJ A. The Kona Community Development Plan should be consulted and listed here. It represents a year of work by the consultant with the Kona community, with numerous meetings over that period of time.

15KKK B. Item #27 should be dropped. This Bishop Estate plan for an 8,800 resident project is no longer valid since two basic elements in this plan - the County's municipal golf course and a "scenic drive" - have been turned down.

15LLL 31. EIS Regulation 1:45, STYLE, states: "Care should be taken that the Statement remains an essentially self-contained document, capable of being understood by the reader" (members of the public and by public decision-makers, per earlier statement) "without the need for undue cross-reference." We believe that the following measures need to be taken in order to conform to these regulations:

Admiral E. Alvey Wright, October 5, 1976, page 12

A. All pages in the EIS should be numbered consecutively.

B. Summaries of Technical Reports, especially #1, 2, and 5, should be included in the EIS since these reports are not readily available.

C. A more detailed Table of Contents would be highly recommended, especially since there is no index.

32. TECHNICAL REPORT #2, SOCIAL IMPACT ASSESSMENT:

15MMM A. p. 1: The footnote refers to page 35, List of organizations of informants. Kona Conservation Group did not participate in this study to the best of our knowledge. We suspect the same for The Hawaiians. Please substantiate this or correct it.

1 NNN B. p. 3: Reliability: "Limitation of project resources did not permit an in-depth survey of a scientifically selected sample of the Kona Community. Thus, it is not possible to say how the majority of Kona residents feel about any particular feature of the highway proposals and their likely impacts." Inclosure #4 reports the meetings held in Kona on this proposal and the public's response to the alternatives.

C. p. 8: "Kona informants were almost unanimous in their opposition to the years of inconvenience which would result from the periods of restricted traffic that would be required in the absence of feasible detours." In view of the excerpt from page 3 above, this "unanimous" view must be read with caution.

1 000 D. p. 30: Route Y - this seems closest to the alternative suggested in the Kona Community Development Plan, except that the South Kona area road should NOT be widened as much as to include a 100 or 150-foot right-of-way.

15PPP E. p. 32: Re effects of the construction of either Route A or B:

(1) "Relocation would be almost nil as residences and businesses along the highway would remain."

(2) "The unique character of the present roadside corridor would be preserved."

These two statements may be true for a very short time. But very soon, the decline in traffic in the bypassed area will lead to the closing of these businesses and the moving of residents away from these areas to the new highway or to the areas closer to resort development, and the bypassed areas will suffer the deterioration that is discussed in Technical Report #1, pp. V-18 to 20.

15QQQ 33. TECHNICAL REPORT #5, IDENTIFICATION OF HISTORICAL RESOURCES:

As stated in Comment #14, a summary of this report should be in the EIS, at least pages 8 to 11. (See Inclosure #3.)

15RRR 34. TECHNICAL REPORT #7, AIR POLLUTION STUDY AND SUMMARY OF AIR QUALITY ANALYSIS:

A. Please substantiate why the Line A figures are not higher than Line B since Line A will accelerate growth in the areas along the route more than Line B would, per Technical Reports #1 and 2 and this EIS.

Admiral E. Alvey Wright, October 5, 1976, page 13

B. Please substantiate whether the tables in the Summary of Air Quality Analysis take into consideration:

15SSS

(1) Kona's air inversion condition

(2) Kona's severe vog conditions during volcanic eruptions, especially in the low-lying pocket between Kealahou Bay and the City of Refuge.

15TTT

35. SUMMARY: To summarize, since our comments followed the content of the EIS and thus the same subject matter is discussed in different places:

We believe the following are the most significant deficiencies in the EIS and need to be corrected:

SEE COMMENT #:

A. There is no mention of the several projects now underway that would drastically lessen the traffic congestion and accident problems.

2B, 4, 8A, 8B

B. The discussion on air quality does not include Kona's air inversion and vog problems.

1, 15A, 18, 23C(7), 34

C. Some other alternatives should definitely be considered.

2, 22, 27A(3), 32D

D. The Kona residents' responses to the project have not been disclosed.

22B, 26B, Incl. #4

E. The benefit-cost ratio is either erroneous or misleading and is too limited in definition to be meaningful in this EIS.

10, 27A(1), 27B(1)

F. The discussion on economic and social impacts of the project conflict with information in Technical Report #1 and needs to be corrected and greatly expanded.

12, 13, 16, 17, 20,
23, 24, 25, 29, 32

G. The population projections need to be updated, for they are grossly overestimated.

11

H. The discussions on historic sites need to be expanded.

14, 15B, 19, 23C(8),
24A, 33, Incl. #3

I. The traffic and accident information is misleading. Also, the need for a new highway should be reassessed in the light of the projects mentioned in A above and the other factors mentioned above.

4, 6, 7, 8, 9, 21,
27A(4).

15UUU

36. RECOMMENDATIONS: In the light of the foregoing discussion, we would like to make this recommendation:

This project should be shelved for a few years and its need reassessed then because:

A. The five remedial measures mentioned in Comment #2B should be evaluated after their completion as to their effects in reducing traffic congestion and accidents;

Admiral E. Alvey Wright, October 5, 1976, page 14

B. If either Alternative A or B is to be implemented now, the businesses from Machado Store to Fujihara Store will almost certainly be forced to close down shortly after being bypassed. Thus, they will be adversely affected like Houlualoa was 20 years ago.

C. The businesses in the Honalo-Captain Cook area will suffer adversely too, but probably not as much and/or as fast.

D. Population growth is expected mostly in the Keauhou, Kailua, and Kealahou areas. These areas are all north of the Honalo-Captain Cook area. The residents from those areas will most likely shop in the two (shortly three) shopping centers in Kailua or at other new shopping centers that will probably establish themselves near those areas of growth.

37. We hope these comments will be helpful in revising the EIS on this highway project.

Sincerely yours,

Alan Tyler

ALAN TYLER
Statewide Coordinator
FRIENDS OF THE EARTH

cc: Sec. of Transportation
National Hdqtrs., FOE
Office of Env. Quality
Advisory Council for Hist.
Preservation
Attorney John F. Schweigert

Incl: 4

- #1: Kona Community Devt. Plan, p. 228
- #2: Honokohau Boat Harbor Revised EIS, pp. II-46, 47
- #3: Technical Report #5, pp. 8-11 and map
- #4: newspaper articles (Hawaii Tribune-Herald, 6-9-74
West Hawaii Today, 2-4-75
West Hawaii Today, 9-21-76)

EVALUATION

FRIENDS OF THE EARTH

- 15A. Air quality studies indicate that this project will not cause pollutant levels to exceed State and Federal air quality standards.

Although the possibility exists that the combination of low inversion layers and volcanic eruptions may cause pollution problems, automobile emissions should not be a contributing factor.

For most locations close to the pollution source, the mixing height (inversion layer) will have very little influence on the calculation of pollution concentration. When the receptor is located at a great distance from the pollution source and the travel time of the pollutant from source to receptor location is long, the mixing height will be the limiting height to which pollution will spread vertically. If the location of the receptor selected will be within a few hundred meters from the road, the mixing height will have little or no influence on pollution dispersion during the short travel time the pollutant moves from the road the receptor.

The table showing the highest level of concentrations calculated along the proposed highway reflects the levels at a distance of approximately nine (9) meters from the pollutant source.

There is no evidence of correlation between or compounding of pollutants from volcanic and auto emissions.

Volcanic emissions are composed of fine particulate matter and gases. The particulate matter includes silica, aluminum oxide, iron oxide, and a variety of lesser constituents. The gases emitted are made up of water, carbon dioxide, sulfur dioxide, and a variety of lesser constituents. There is also evidence of carbon monoxide emissions close to the source but it soon dissipates into the atmosphere.

The major auto emissions are nitrogen oxides, hydrocarbons, and carbon monoxide.

During normal eruptions there appears little evidence of increased levels of carbon monoxide, nitrogen oxides or hydrocarbons.

Catalyst-equipped automobiles do produce small quantities of sulfate emissions; however, EPA is examining means of controlling these emissions. One measure under serious consideration is to require widespread availability of low sulfur gasoline.

Hawaii is Priority III for sulfur oxides and according to EPA Regulations, the State's control strategy need only demonstrate that the air quality levels will be maintained below the national secondary ambient air quality standard. This standard has not been exceeded in the State.

However, should an air pollution emergency occur, Hawaii has an emergency plan to safeguard the public's health. One provision allows the State to restrict motor vehicle operations during emergency periods.

- 15B. The Kona Community Development Plan (Kona Plan) is based on a good concept but is not a feasible one. The Kona Plan alignment and corridor Line A are both west of the existing highway between Honalo and Captain Cook and are compatible in this respect. The difference, however, lies in the connection to the existing road south of Captain Cook. Visually, such a connection would cross contour lines in the same manner as the upper segment of the City of Refuge Road. A similar alignment from the west side of Captain Cook would cut diagonally across the existing farmlands between Captain Cook and Honaunau and, thus the location problem becomes one of either cutting through the farmlands, as suggested in the Kona Plan, or selecting another route (other than Line A) that would minimize the severance on the existing farms. We have opted to minimize the severance on the farms and subsequent to the public hearing on September 15, 1976, Line A was modified so that from Captain Cook it would continue southwesterly until it connects with the existing upper segment of the City of Refuge Road to Keokea. From there it would follow the existing road to Papa. This revised line, designated as corridor Line A-1, is our selected alignment and was discussed at a public information meeting held on January 12, 1977 at the Yano Memorial Hall.
- 15C. This alternative would improve driving conditions to some degree but the present right-of-way width could accommodate only two lanes of traffic. Four lanes are needed to carry the traffic. For this reason, it could not be considered as a viable alternative.

The construction of the truck climbing lanes, off-street parking lots and other improvements would result in some improvement to the traffic conditions but would not reduce the volume of traffic, particularly between Honalo and Captain Cook. The vehicles will still use the roadway to go to the parking lots.

We concur that the existing road should be improved in the interest of traffic safety, convenience and community appearance.

15D. We will mention the projects in the final EIS.

15E. The deficiencies on the existing road in terms of widths of pavements and shoulders are shown on the Highway Inventory Map.

Refer also to response to Comment 15UUU.

15F. The General Plan designations will be corrected as suggested by the Hawaii County Planning Department. The County zone map is depicted on Figure I-3 of the draft EIS. We cannot discuss anticipated zoning as this is the function of the County of Hawaii and is generally acted upon either on their own initiative or on individual requests.

15G. The State cannot subscribe to the suggestion of reducing the accidents on a per mile basis since it does not take into account the volume of traffic. The accident rates shown on the Table I-1 were derived according to a formula that has been accepted nationally and it takes into account the number of accidents and vehicle-miles of travel along a certain segment of a highway. The suggestion has some merits in that it points out that the most accident-prone section of the existing road is between Kainaliu and Kealakekua. The accident rate on Table I-1 also lists that section as the highest among the other sections.

The Kainaliu off-street parking lot would reduce the incidence of accidents caused by vehicles backing in or out of the parking spaces along the shoulders of the existing road and the Kuakini truck climbing lane would reduce or completely eliminate rear end collisions and sideswipes. At the present time, we can only speculate on the effectiveness of these improvements and trust they will indeed reduce the number of accidents. However, these improvements are localized in nature and we should not lose sight of the other 20 or 25 miles in the project.

15H. The segment designations will be changed as suggested because they are more meaningful since all the roads leading makai are identified as Government Road on the maps.

15I. It would not be necessary to revise the traffic projections because of the disapproval of the Bishop Estate's New Honaunau Community Development plans.

The basic approach used in the traffic projections has been to reflect the basic growth pattern of the study area as indicated by eight years of recent historical traffic growth trends.

We feel that traffic and travel data are major indicators of changes in population, land use, tourism, the general economy, employment, etc., and as such can be readily applied in updating the traffic forecasts frequently and on a timely basis as required. Adjustment of traffic volumes because of changes in development plans would require an enormous amount of effort to constantly monitor and update the forecasted traffic. We feel that in most instances, reaction to such changes will not alter our results significantly enough to change our conclusions.

15J. It is unfortunate that the collated accident records do not allow us to do a micro analyses of all the accidents that occurred along the 30-mile stretch of the Kona Road as suggested. Using the best available data, a macro analysis was conducted which showed that the accident rates on several stretches exceeded the island average. However, it must be realized that the need for the road is not justified solely by the accident rates and other factors need to be considered.

15K. The calculations were checked and it was verified that Level D is correct for speeds less than 40 mph at peak hour in segments A and B. The same is true for segments F, G, H and I. Momentary stops are made by some drivers to permit large buses and trucks travelling in the opposite direction to pass through.

15L. The benefit cost ratios were derived from the tangible benefits accruing to the road user in relation to the amortized cost of improvements. A discussion of Technical Report No. 1 will be included in the final EIS as economic impacts.

15M. The population figures were rechecked and found to agree with the 1990 projections contained in Table 5 of the County of Hawaii Data Book of July, 1975.

North Kona	21,700 to 23,000
South Kona	<u>5,700</u> to <u>6,800</u>
	27,400 to 29,800
Midpoint	28,600

The difference in the population figures between the above projection (28,600) and Kona Development Plan's projection (17,900) of 10,700 could not be totally attributed to the proposed project. The population figures developed by the County of Hawaii were cited to show the probable population trend.

We cannot tell you where the developments will take place because the County of Hawaii has specific policies on land use. We refer you to page 77 of the General Plan, County of Hawaii.

15N. The statement was made by comparing the service areas of Line A and Line B. It has no bearing on the existing road.

15O. The discussions on the economic effects of the bypass will be included in the final EIS.

The length of the existing road that will be bypassed by Line A-1 is about 13.7 miles from Kamehameha III Road to the City of Refuge Road. This is about 3.0 miles shorter than Line A bypass. According to the traffic estimates, the traffic volume on the existing road will also increase in spite of the bypass because the major destination areas along the existing road such as the hospital, satellite city hall, post offices, schools, library, churches, stores, etc.

The traffic estimates at selected locations are as follows:

	<u>1978</u>	<u>1988</u>	<u>1998</u>
Kainaliu - existing road	6,550	8,175	9,770
Line A-1	4,570	9,580	<u>14,600</u>
Total			24,300

Captain Cook - existing road	5,500	6,475	7,400
Line A-1	4,570	9,580	<u>14,600</u>
Total			22,000
Honaunau - existing road	2,700	4,250	5,850
Line A-1	2,080	4,250	<u>4,520</u>
Total			10,370

Based on the above figures, the growth in traffic on the existing road is still substantial and if the existing stores, such as those in the vicinity of Honaunau, can survive with a daily traffic of 2,700 vehicles per day, certainly they would not go out of business when the traffic increases to almost double in 1998. The degree of diversion in this example is 4,520 vehicles or 43 percent.

It is not expected that the traffic will go below the 1978 level and as long as the major destinations remain in their present locations, the bypassed area will not likely be another Holualoa.

We cannot answer all of the questions because they are subjective. However, it should be noted that some organizations in Kona such as the Captain Cook Community Association, the Kainaliu Businessmen's Association, the Kona Soil and Conservation District, and the Kona Chamber of Commerce have written in favor of Line A. Their letter dated November 8, 1975 is included in the EIS.

Refer also to the response to comment 15HHH.

- 15P. At this stage, it has been determined that there are no feasible or prudent alternatives that would not go through the Kona Field System. The Section 4(f) Statement will contain a Memorandum of Agreement that defines the measures to minimize harm to Section 4(f) lands. This Memorandum was prepared by the Advisory Council on Historic Preservation and jointly executed by the Advisory Council, the Federal Highway Administration, and the State Historic Preservation Officer.

The 4(f) Statement and Technical Report No. 5 will be included in the final EIS.

15Q. These topics will be more fully discussed in the final EIS and summaries of the technical reports will either be included in the body of the final EIS or as an appendix.

15R. As previously stated, a fuller discussion of the economic effects will be contained in the final EIS.

As pointed out in the economic report, the land values may go up, particularly those lands that will become accessible because of the road. However, accessibility is not the only factor that adds to the value of the land; other factors are zoning, topography, availability of utilities, assessment value and rates of taxation. Moreover, the assessment value is determined by the State Department of Taxation and this value may or may not reflect the market value while the tax rates are determined by the County legislative and administrative bodies. The determination of the tax rates and the expected revenues depend upon the financial needs of the county. In many cases taxes go up even when there are no improvements that enhance the value of the property.

15S. The fact that there would be an increase in travel is an accepted assumption. The road facility is expected to carry the anticipated traffic at service level C in the next 20 years. No congestion is expected in the next 20 years.

The traffic along the highway that borders the segment from Machado Store will not decrease but will double in the next 20 years. It is also possible that if the attractiveness of these stores are retained, Machado Store in particular will continue to be a destination store.

The demand for public utilities will increase--just how much more is difficult to predict at this time. There will be a beneficial effect in the installation of utilities in that another corridor will be available and a separate right-of-way need not be acquired. Another beneficial effect indicated by the "Social Impact Assessment - Kona Highway" is that public health, social services, fire and police protection may be more efficiently provided because of the new road.

We anticipate the most beneficial societal effect, is that Honalo to Honaunau will remain as it is and maintain its original charm.

15T. Refer to response to Comment No. 15A.

15U. The Kona field system is a strip of land that measures 3 miles in width and 18 miles in length and it includes the existing roads and towns from Palani Road to Honaunau. It cannot be avoided because of its size, and about 16 miles of the project will be in the Kona Field System through lands that are zoned "unplanned" and "agricultural." At present most of these lands are used for pastures and farms.

It is true that pressures would be brought about by land owners for urban development, particularly between Kamehameha III Road and the City of Refuge Road; however, there are some safeguards that may prevent or mitigate the destruction of significant monuments of historical value in the Kona Field System. These safeguards are as follows:

The re-zoning of land is subject to the policies and administrative procedures of the County of Hawaii.

Section 10 of Chapter 6, Historic Preservation, Hawaii Revised Statutes contains protective clauses about historic properties on private land.

Refer also to response to Comment 15P.

15V. Loss of Revenues - To assume that all the businesses that will be bypassed will suffer loss of revenue would be very subjective because there would still be growth in the communities bordering the existing road. However, the growth trend in business may be at a lower rate. Refer also to responses to Comments 150 and 15S.

15W. Tourist oriented stores such as the Machado Store may suffer some loss.

15X. Land values may rise because some inaccessible land will become accessible--just how much more is hard to predict.

15Y. The actual cost to the road user will decrease and the resultant savings may be absorbed by the rise in the cost of real estate, but there are still some savings in travel time.

- 15Z. We envision that the proposed project will provide a faster road than the existing road. Since the roads will be far apart, the relaxed way of life in the old Kona will better be maintained with the project than without. Many of the retired coffee farmers and their old vehicles would be objectionable on the faster road but the existing road would provide them with an alternative route.
- 15AA. Land speculation will always be a problem and will become more severe because of inflation.
- 15BB. Judicious land use planning and rezoning are measures which may be used to counter undesired growth.
- 15CC. Refer to response to Comment 15BB.
- 15DD. Refer to responses to Comments 15P, 15U and 15BB.
- 15EE. Separations and divorces are not trends that can be attributed to changes in the main roads. Employment of women in the tourist industry in Hawaii has resulted in an increase in broken families, but this does not appear to be an impact of a highway to any significant degree.
- 15FF. Refer to response to Comment 15I.
- 15GG. Refer to responses to Comments 15B and 15NNN.

Alternative modes of transportation such as mass transit and van pools will be discussed in the final EIS.

Regarding mass transit, it is our opinion that a bus transit system would be more appropriate for Kona rather than a fixed rail system. However, the operation of the existing bus system does not provide very good indications for the feasibility of a mass transit system in Kona. The ridership on the Hilo to Honaunau route is very low, ranging from a high of nineteen to a low of six and for the inter-Kona trip, a high of twelve to a low of one passenger.

The ridership on the intra-Kona route, known as the Kona Koaster, is also very low, ranging from a high of 17 passengers to a low of five during a morning trip. The County of Hawaii Bus Coordinator informed us that the ridership for Kona Koaster totals about 100 passengers a day of which 30 are hotel workers and 70 are senior citizens. The County of Hawaii recovers 35 percent of the cost from the fare box and 65 percent is subsidized by the County.

Perhaps, the reasons for the low ridership is the fact that the population in Kona is spread out among the farms where the dwelling units are some distance away from the main road. Due to the low ridership of the existing bus system, it is not anticipated that some other form of mass transit would be a feasible alternate to the bus system.

The Van Pooling or Van-Go program has just been started in Honolulu. It is adapted for home to work trips and the service could also be extended for home to school trips or any trips that involve commuting from a low-density area to a high-density destination.

Although the federal government subsidizes the cost of administration and furnishes funds for the purchase of the equipment, the cost of the equipment must be repaid in four years to the State. Thus, the fare structure is based on amortizing the cost of the vehicles plus the operating costs. For a 20-mile round trip, the fare is now \$29.25 per passenger per month. The demand is increasing and it is planned that 12 more vans will be added to the present fleet of 10 vans by 1978-1979 fiscal year. The present ridership is about 100 to 105 passengers per day. Drivers are not paid salaries for driving the vehicles but they are not required to pay monthly fares and they have the added privilege of using the van for private purposes up to a distance of 100 miles. Beyond that distance, the driver must pay mileage fees.

Of the 100 to 105 passengers in Honolulu, it is not known how many own cars as well.

The Van-Go System may have limited applications in Kona because of the employment centers at the hotels in Keauhou, Kailua and at the Maunakea Beach Hotel in Hapuna.

There is now some car pooling among the high school students commuting to Konawaena School and school buses for eligible students. Perhaps, car pooling has a greater potential in Kona than either Van-Go or mass-transit system.

The combined capacities of the bus system, car pooling among students, school buses and perhaps even the Van-Go would not materially decrease the traffic on the Kona roads because they would serve mostly commuter trips. There will still be trips for shopping, visiting friends, recreation and other purposes. It must also be realized that these transfer systems are

for moving people and would not be useful for moving goods and produce from the farms to processing and shipping centers.

15HH. This may be true only when road users buy or lease lands along the proposed project.

Refer also to responses to Comment 15Y and Comment 15BB.

15II. We consider the second paragraph as self-explanatory in light of previous discussions.

15JJ. We do not agree that the long-term losses are as absolute as stated for items (1), (2), and (3). It is more likely that after the road is completed, the growth trend in business may be at a slower rate.

15KK. Refer to response to Comment 15BB.

15LL. Refer to response to Comment 15BB.

15MM. The rural atmosphere and relaxed way of life is best demonstrated along the existing road and because of the by-pass, that prevailing atmosphere will not likely be destroyed. The by-pass, at a lower elevation, would create a visual impact that may be disruptive to the rural atmosphere but this can be mitigated by landscaping and volunteer vegetation growth.

15NN. Air pollution studies indicate no significant impact on air quality.

1500. As mentioned in the response to Comment 15P, there are mitigating measures to avoid the degradation of the field system.

15PP. Refer to response to Comments 15P, 15U and 15BB.

15QQ. Changes in lifestyle is a social impact and was discussed on pages II-9 to II-11 of the draft EIS and Technical Report No. 2 - Social Impact Assessment. Lifestyle is not considered a commitment of resources.

15RR. The pastoral and charming atmosphere of Kona can be attributed to intermittent pastures, existing structures, rock walls, flowering shrubs, gardens, old houses, board walks in front of some shops, and winding roads. Amidst this background are the unhurried and friendly people. These things will not be affected by the bypass road. But they would be, if too much traffic is jammed through the villages.

15SS. Refer to response to Comment 15BB.

- 15TT. Open discussions on the proposed project were held at the public information meetings on June 6, 1974, January 29, 1975 and January 12, 1977 at the Yano Memorial Hall and a public hearing was held in Kailua on September 15, 1976.
- 15UU. Line A-1 was developed to minimize the impact on agricultural lands.
- 15VV. The question of notifying the property owners was answered in our letter dated December 15, 1975 to Mr. Raymond Suefuji. This letter is contained in the draft EIS.
- 15WW. The Kona Community Development Plan has not yet been accepted by the County of Hawaii. It remains an unofficial document but we will discuss the Kona alignment in the final EIS.
- 15XX. All comments and responses received in the consultation process were reproduced and answered in the draft EIS.
- 15YY. The Consultant's name will appear in the final EIS.
- 15ZZ. The assumptions used were given on page I-20. Refer also to response to comment 15L.
- 15AAA. Various references to the Federal Aid Primary System were made in the draft EIS. The following is a summary of their requirements.
- (1) The project from Holualoa to Papa is in the Federal Aid Primary System of the State.
 - (2) It is eligible for 70-30 funding, 70 percent federal funds and 30 percent state funds. No county funds are needed.
 - (3) The design criteria must follow federal aid standards.
 - (4) The road must be maintained to acceptable standards.
- 15BBB. Improving the existing highway was one of the initial studies; however, widening and improving the substandard sections could not be done without displacing any resident or business.

15CCC. Refer to response to Comments 15G and 15J.

15DDD. DPED advised that we contact the Hawaii County agencies regarding public facilities and services. The information we received are as follows:

Water - The upper Kona area from Keauhou to Hookena is served with water. The Hawaii County Department of Water Supply has advised us that they prefer Line A, the lower route. The reason for this choice is that if developments occur along the highway, it is more economical to serve water along the lower area. Their letter is included in the draft EIS.

Sewer - There is no sewer along the project area. Presently, only Kailua has a sewer system. Plans are being prepared to extend the service area along Alii Drive as far as Keauhou. Preliminary investigations for a sewer system from Keauhou towards Captain Cook are being made but it will take a long time before such a system is designed and implemented.

15EEE. The water shed is located east of the existing highway and will not be affected by Line A-1.

15FFF. The term primary arterial which is the same as principal arterial is found in the Facilities Map of the County of Hawaii General Plan. Other terms used on the map are secondary arterial and collector street. The General Plan was prepared by professional planners and although they do not necessarily use the same expressions as engineers, the meaning of primary arterial/principal arterial, secondary arterial/minor arterial and collector street/collector are the same.

15GGG. Levels of service refer to the operation of the highway. The general definitions are given in Appendix E. Service level C is the lowest category of the three stable traffic flow conditions. Briefly it is described as follows:

Flow still stable. Operating speeds for uninterrupted flow of 40 mph or above with the total volume for both directions reaching 70 percent of capacity with continuous passing sight distance, or 1,400 passenger vehicles per hour under ideal conditions.

Note that this description does not in any way refer to the implications attributed to it.

15HHH. The stores listed in Appendix F will be affected by the taking of land. The stores suggested for addition will not be similarly affected and therefore will not be included in the list.

15III. Higashi Store and Fujihara Store will not be bypassed by Line A-1. The other stores in Honaunau will.

15JJJ. The Kona Community Development Plan has not yet been adopted by the County of Hawaii but we will note it as a preliminary draft.

15KKK. We do not see the reason for eliminating item 27 whether it was approved or not approved.

15LLL. The pages in the report are numbered consecutively by chapters and pages in the chapter. This is an accepted way of numbering pages because it provides the convenience of changing only the page numbers in a chapter rather than changing the page number of the whole report when corrections or insertions are made.

We will include more of the significant conclusions of the technical reports in the body of the EIS.

We will consider a more detailed Table of Contents.

15MMM. The name of the person contacted on October 15, 1974 from the Kona Conservation Group is William (Bill) Hale who was the head of the group at that time. Mr. Renwick Tassill was the contact man from The Hawaiians.

15NNN. Enclosure No. 4 - The first sentence of the article reads, "Several persons expressed strong opposition to the State's tentative plans for possible realignment and the construction of a state roadway along a 30-mile stretch from Kilohana Subdivision near Kailua-Kona to Hookena in South Kona."

Another quote from the article reads, "General agreement at the meeting, chaired by Charles Schuster, of the Big Island office of the State Department of Transportation, was that something is needed to be done for improvement."

The above quotations reveal that several persons and not all expressed opposition for the possible realignment and that there was a general agreement that improvements are needed.

It should be realized that there are both proponents as well as opponents for a new highway. This is not surprising, since the project is in excess of 30 miles in length, will bypass at least four towns and will traverse farmlands, native forests, historic areas and residential and commercial lots. Conflicting views (both oral and written) have been received on this project.

15000. Refer to response to Comment 15B.

15PPP. Refer to response to Comments 150 and 15S.

15QQQ. The Section 4(f) Statement and "Identification of Historical Resources Located in the Kona Highway Project Area" will be included in the final EIS.

15RRR. The air pollution studies were conducted for automobile emissions. Line B has a higher pollution concentration because of its less favorable operating conditions.

15SSS. Refer to response to Comment 15A.

15TTT. Refer to previous responses.

15UUU. The purpose of the present study is to select a corridor through which a more precise alignment may be designed based on controlled maps. In the next phase of this project, the possible alignments within the selected corridor will be investigated in greater detail and public meetings and a design hearing will be held. Thus, the pros and cons of this project are still subject to debate for several years to come before actual construction takes place.

Even then, because of the lengthy construction time involved, we will be monitoring the traffic growth in Kona to substantiate the need for each increment prior to its construction. Therefore, a decision now does not commit the State to a construction timetable but rather, it provides the various governmental agencies and the County with a master planned route on which orderly development can be planned.

15VVV. The assistance rendered by the Friends of the Earth in revising the EIS is appreciated.

SPARK M. MATSUNAGA
1ST DISTRICT, HAWAII

WASHINGTON OFFICE:
442 CANNON BUILDING
20515

HONOLULU OFFICE:
218 FEDERAL BUILDING
96813

Congress of the United States
House of Representatives
Washington, D.C. 20515

DEPUTY MAJORITY WHIP

MEMBER:

COMMITTEE ON RULES
STEERING
AND POLICY COMMITTEE

CHAIRMAN, SUBCOMMITTEE
OF SELECT
COMMITTEE ON AGING

August 6, 1976

Mr. Ralph T. Segawa
Division Administrator
Federal Highway Administration,
Region Nine
677 Ala Moana Boulevard, Suite 613
Honolulu, Hawaii 96813


Dear Mr. Segawa:

Thank you for providing me with a copy of the Draft Environmental Impact Statement on proposed improvement of the Hawaii Belt Road from Holualoa to Papa.

While I have no comments on the proposal at this time, I certainly appreciate the opportunity to review the DEIS. If I can be of any assistance to the Federal Highway Administration in this or other matters, please contact me.

Aloha and best wishes.

Sincerely,



Spark Matsunaga
Member of Congress

ROBERT M. YAMADA
Chairman & Presiding Officer

TOMIO FUJII
Vice Chairman



COUNTY COUNCIL
County of Hawaii
Hawaii County Building
Hilo, Hawaii 96720

August 2, 1976

RECEIVED	
HI AUG 3 1976	
DE	
IC	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	

DANTE K. CARPENTER
FRANK DE LUZ, III
IKUO HISAOKA
WILLIAM S. KAWAHARA
MERLE K. LAI
ANDREW C. LEVIN
JOSEPHINE R. YADAO
Council Members

Mr. Ralph T. Segawa
Division Administrator
U.S. Department of Transportation
677 Ala Moana Blvd., Suite 613
Honolulu, Hawaii 96813

RE: Hawaii F-011-1(8) Draft Environmental Impact Statement,
FHWA-HI-EIS-76-02-D, Hawaii Belt Road, Holualoa to Papa

Your letter of July 26, 1976 (915EC), was received and referred to the Council's Public Works Committee for study and recommendation.

When the Hawaii County Council acts on your letter, you will be notified.


Robert M. Yamada
COUNCIL CHAIRMAN



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

P. O. BOX 1820

HILO, HAWAII 96720

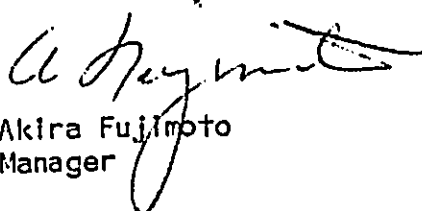
25 AUPUNI STREET

August 9, 1976

Mr. Ralph T. Segawa
Division Administrator
U. S. Department of Transportation
Federal Highway Administration, Region Nine
677 Ala Moana Blvd., Suite 613
Honolulu, HI 96813

Re: Hawaii F-011-1(8) Draft Environmental Impact
Statement, FHWA-HI-EIS-76-02-D, Hawaii Belt
Road, Holualoa to Papa

We have no comments other than what we answered previously. Thank you
for allowing us to review the final draft.

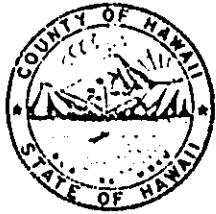

Akira Fujimoto
Manager

WHS

... Water brings progress...

HERBERT T. MATAYOSHI
MAYOR

EDWARD K. HARADA
CHIEF ENGINEER



BUREAUS AND DIVISIONS:
AUTOMOTIVE EQUIPMENT & MOTOR POOL
BUILDING CONSTRUCTION & INSPECTION
PLANS AND SURVEYS
ROAD CONSTRUCTION AND MAINTENANCE
SEWERS AND SANITATION
TRAFFIC SAFETY AND CONTROL

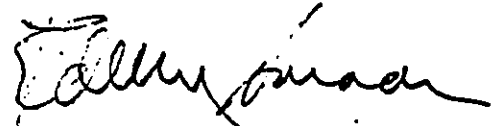
COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS
25 AUPUNI ST.
HILO, HAWAII 96720

August 10, 1976

Mr. Ralph T. Segawa
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
677 Ala Moana Boulevard, Suite 613
Honolulu, Hawaii 96813

SUBJECT: Hawaii F-011-1(8) Draft Environmental
Impact Statement, FHWA-HI-EIS-76-02-D
Hawaii Belt Road, Holualoa to Papa

We reviewed the draft EIS submitted by Letter 915EC (7/26/76)
and have no additional comments. Our earlier comment suggesting
map clarification noting that both Lines A & B following the
existing road between Alae and Papa has been shown on Figure I-9.


EDWARD HARADA
Chief Engineer

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

PACIFIC-ASIA REGION
P. O. BOX 4009
HONOLULU, HAWAII 96813



AUG 11 1976

U. S. Department of Transportation
Federal Highway Administration
677 Ala Moana Boulevard
Suite 613
Honolulu, Hawaii 96813

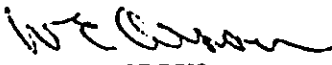
Gentlemen:

Subject: Hawaii F-011-1(8) Draft Environmental Impact Statement,
FHWA-HI-EIS-76-02-D, Hawaii Belt Road, Holualoa to Papa

We have reviewed the Draft Environmental Impact Statement for the proposed Hawaii Belt Road construction from Kealakowaa Heiau at Holualoa to Milolii Junction at Papa and it appears that the project would not have any adverse impact on aeronautical facilities and activities; therefore, we do not feel it necessary to participate in any follow-up action or conference.

Thank you for the opportunity to review the Draft Environmental Impact Statement.

Sincerely,


W. E. OLSON
Acting Chief, Airway Facilities Division, APC-400

cc:
State DOT



UNITED STATES DEPARTMENT OF COMMERCE
National Bureau of Standards
Washington, D.C. 20234
OFFICE OF THE DIRECTOR

AUG 12 1976

Mr. Ralph T. Segawa
Division Administrator
U.S. Department of Transportation
Suite 613
667 Ala Moana Boulevard
Honolulu, HI 96813

Dear Mr. Segawa:

In response to your letter of July 26, 1976, the National Bureau of Standards has no comments to offer on the Draft Environmental Impact Statement pertaining to the proposed construction of the Hawaii Belt Road, Project No. F-011-1(8), on the Island of Hawaii.

Sincerely,

Ernest Ambler
Acting Director

75 YEARS
NBS
1901-1976



GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



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

August 16, 1976

CHRISTOPHER COBB, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

Mr. Ralph T. Segawa
Federal Highway Administration
677 Ala Moana Blvd., Suite 613
Honolulu, HI 96813

Dear Mr. Segawa:

Thank you for the opportunity to review the draft EIS
for the Holualoa-Papa Highway.

We have no comments to offer on this matter other than
those of the Historic Preservation Office who will make a
direct response to you.

Very truly yours,

Christopher Cobbe
CHRISTOPHER COBB
Chairman of the Board

cc: Office of Environmental Quality Commission
Department of Transportation
Historic Sites

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801

August 19, 1976

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

Audrey W. Mertz, M.D., M.P.H.
Deputy Director of Health

Henry N. Thompson, M.A.
Deputy Director of Health

James S. Kumagai, Ph.D., P.E.
Deputy Director of Health

In reply, please refer to:
File: EPHS - SS

MEMORANDUM

To: Dr. Richard E. Marland, Director
Office of Environmental Quality Control

From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement (EIS) for Hawaii Belt Road,
Holualoa to Papa

Thank you for allowing us to review and comment on the subject EIS. Please be informed that we have no objections to this project.

Staff comments are: Generally speaking, the construction of a highway from Holualoa to Papa will provide an alternate, free-flowing route from the existing, winding road. Since traffic will flow faster, with less decelerations and accelerations of the vehicle, it can be safely assumed that the emissions per vehicle will be less on the proposed highway compared to the existing road. The increased traffic of the future projections will simply aggravate the situation on the existing roadway.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.


JAMES S. KUMAGAI, Ph.D.

cc: ✓ Mr. Ralph Segawa, State DOT
Mr. Tetsuo Harano, Federal Highway Administration

GEORGE R. ARIYOSHI
GOVERNOR



ANDREW I. T. CHANG
DIRECTOR OF SOCIAL SERVICES & HOUSING

STATE OF HAWAII
DEPARTMENT OF SOCIAL SERVICES AND HOUSING
P.O. Box 339
Honolulu, Hawaii 96809

August 25, 1976

U.S. Department of Transportation
Federal Highway Administration
Region Nine
677 Ala Moana Blvd, Suite 613
Honolulu, Hawaii 96813

Attn: Mr. Ralph T. Segawa

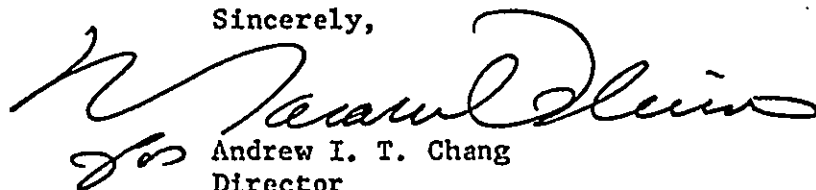
Re: Hawaii F-011-1 (8) Draft Environmental
Impact Statement, FHWA-HI-EIS-76-02-D,
Hawaii Belt Road, Holualoa to Papa

Dear Mr. Segawa:

In reference to your letter of July 26, 1976, S/N 915 EC, same subject,
we have no comment to offer.

We would appreciate receiving a copy of the final Environmental Impact
Statement.

Sincerely,


Andrew I. T. Chang
Director

GEORGE R. ARIYOSHI
GOVERNOR



VALENTINE A. SIEFERMANN
MAJOR GENERAL
ADJUTANT GENERAL

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
FORT RUGER, HONOLULU, HAWAII 96816

27 AUG 1976

HIENG

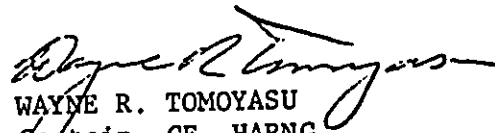
Mr. Ralph T. Segawa, Division Administrator
U. S. Department of Transportation
Federal Highway Administration
677 Ala Moana Boulevard, Suite 613
Honolulu, Hawaii 96813

Dear Mr. Segawa :

Hawaii Belt Road
Project No. F-011-1(8)

Thank you for sending us a copy of the Environmental Impact Statement
for the proposed subject project. We have reviewed the publication
and have no comments to offer.

Yours truly,


WAYNE R. TOMOYASU
Captain, CE, HARNG
Contr & Engr Officer

Enclosure



REGION IX
450 Golden Gate Avenue
P.O. Box 36003
San Francisco, California 94102

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
AREA OFFICE
1000 BISHOP STREET, P.O. BOX 3377
HONOLULU, HAWAII 96813

August 31, 1976

IN REPLY REFER TO:
9.7F (Johnson/
546-5554)

U. S. Department of Transportation
Federal Highways Administration
Attention: Mr. H. Kusumoto
677 Ala Moana Blvd., Suite 613
Honolulu, Hawaii 96813

Gentlemen:

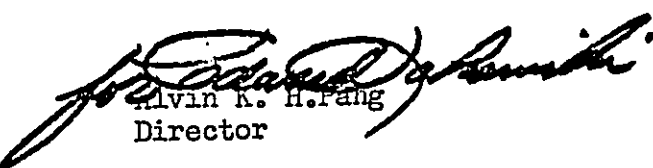
Subject: Hawaii F-011-1(8) Draft Environmental Impact Statement,
FHWA-HI-EIS-76-02-D, Hawaii Belt Road, Holualoa to Papa

The two alternative highway alignments having approximately 31 miles between Holualoa and Papa in North and South Kona have been reviewed by this office for HUD concerns.

Alternative A appears to cause less disruption to the community and provides a more advantageous alignment for serving the settlements along the coastline.

We appreciate the opportunity to comment on the Draft Statement and look forward to receiving the Final Statement.

Sincerely,


Alvin K. H. Pang
Director

cc:
Council on Environmental Quality



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGIONAL OFFICE

50 United Nations Plaza
SAN FRANCISCO, CALIFORNIA 94102

Office of Environmental Affairs

OFFICE OF REGIONAL DIRECTOR
RECEIVED
HI SEP 27 1976

September 23, 1976

Ralph T. Segawa
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
677 Ala Moana Boulevard, Suite 613
Honolulu, Hawaii 96813

Dear Sir:

The Draft Environmental Impact Statement for Hawaii Belt Road, Project No. F-011-1(8) has been reviewed in accordance with the interim procedures of the Department of Health, Education and Welfare as required by Section 102(2)(c) of the National Environmental Policy Act, PL 91-190.

The major concerns of this Department are related to possible impacts upon the health of the population, services to that population and changes in the characteristics of the population which would require a different level or extent of services. At this time we have no comments to offer.

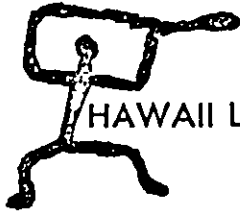
The opportunity to review this Statement is appreciated. We would like to receive a copy of the Final EIS when it is circulated.

Sincerely;


James D. Knochenhauer
Regional Environmental Officer

cc: CEQ
OEA, Washington, D.C.

DE	
1	
ES	
123	
LT	
PH	
RW	
1	
FM	
123	
AU	
GU	
AS	
RF	
FILE	
201	



HAWAII LEEWARD PLANNING CONFERENCE

September 27, 1976

Mr. Ralph T. Segawa
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
Suite 613, 677 Ala Moana Blvd.
Honolulu, Hawaii 96813

SUBJECT: PROJECT NO. FHWA-HI-EIA-76-02-D
HOLUALOA TO PAPA HIGHWAY PROJECT

RECEIVED	
HI SEP 28 1976	
	DC
	I
	LC
	123
	CC
	PR
	HW
	I
	AM
	123
	AU
	GU
	AS
	HP
	FILE
	201

Dear Mr. Segawa:

Thank you for permitting us to review the Draft Environmental Impact Statement for the Holualoa to Papa State Highway Project. There is a definite need for this highway, especially in view of the emerging growth pattern for Kona.

We are particularly concerned with that section from Honalo to Captain Cook. We had written to the State earlier on the importance of this section of the proposed highway. Only one road services this heavily populated area of Kona and during strong rains, the roads are flooded and traffic between South and North Kona is disrupted. This is a critical situation which requires early attention.

We have examined the alternatives shown in the impact statement and endorse Line No. A. The reasons outlined by the consultants demonstrate amply the advantage of this alternative. Further, if one looks at the growth arrangement of Kona, more subdivisions are being developed below the mauka road. In this respect, there would be greater utility to Line A, rather than Line B.

For many years, a highway program has been developed to construct a modern highway completely around the island. This section fulfills another important section of that highway system.


Mr. Ralph T. Segawa
September 27, 1976
Page Two

At our meeting of September 24, the Directors of the Hawaii Leeward Planning Conference formally went on record to endorse Project No. FHWA-HI-EIA-76-02-D and in support of Alternate Line No. A.

Thank you.

Aloha,

HAWAII LEEWARD PLANNING CONFERENCE


W. Y. Thompson
Executive Secretary

WYT:ma

cc: Tetsuo Harano, Chief
Highways Division



**KAMEHAMEHA
DEVELOPMENT
CORPORATION**

700 BISHOP STREET, SUITE 601, HONOLULU, HAWAII 96813 / PHONE: 521-1408 / CABLE: KAMDEVCO

September 30, 1976

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

Attention: Mr. T. Harano, Chief

Subject: Hawaii Belt Road, Holualoa to Papa, Project
Number F-011-1(8)

Gentlemen:

We have reviewed the conceptual plan showing alternative project corridors for this new highway. A northerly segment of the project traverses land owned by our company.

In general, we have no objection to the proposed alignments, and tend to favor Line "A" which runs makai of Kuakini Highway.

Further, we endorse the proposal to widen Kuakini Highway north of the Kamehameha III Road intersection to accommodate four traffic lanes, as we believe that further development of our properties will warrant such higher traffic capacities.

Implementation of this project will require acquisition of right-of-way from us. We are concerned and vitally interested in the plans for access to adjacent lands from the highway. We will appreciate early advice as to proposals for acquisition of the necessary right-of-way and provision of appropriate access points within our property.

Very truly yours,

Guido Giacometti
President

GG/ew

cc: Ralph T. Segawa

APPENDIX G
Administrative Action
Section 4(f) Statement

HAWAII BELT ROAD
HOLUALOA TOWARDS PAPA
PROJECT NO. F-011-1(8)

involving the
construction of highway from
Holualoa to Papa
North and South Kona
Island of Hawaii, Hawaii

ADMINISTRATIVE ACTION

SECTION 4(f) STATEMENT

U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration

and

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION
Land Transportation Facilities Division

Submitted pursuant to 49 U.S.C. 1653(f)
and 16 U.S.C. 470(f)

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	I-1
II. PROJECT DESCRIPTION	II-1
The Existing Highway	II-1
Background	II-3
Need for the Project	II-7
Proposed Highway Improvement - Corridor Line A-1	II-8
Highway Corridors Considered	II-9
Corridor Line A	II-9
Corridor Line B	II-9
Corridor Line C	II-10
Corridor Line D	II-11
Corridor Line A-2	II-12
No Project	II-12
III. DESCRIPTION OF 4(f) LANDS	III-1
Cultural and Archaeological	III-1
Kona Field System	III-1
Other Archaeological Sites	III-3
Type	III-3
Available Activities	III-3
Facilities	III-3
Usage	III-3
Relationship to Other Similarly Used Land	III-3
Access	III-4
Ownership	III-4
Applicable Clauses Affecting Title	III-4
Unusual Characteristics	III-4
Consistency with Community Goals	III-5
Physical Effects on Section 4(f) Land User	III-5
IV. DETERMINATION THAT THERE IS NO POSSIBLE OR PRUDENT ALTERNATIVE	IV-1
Alternatives	IV-1
Magnitude and Urban Areas in the Kona Field System	IV-1
Other Alternatives	IV-1
Description of Coordination with Public Agencies Having Jurisdiction over Section 4(f) Land	IV-1
V. MEASURES TO MINIMIZE HARM TO SECTION 4(f) LAND	V-1

TABLES

II-1	Accident Rates and Number of Accidents	II-5
II-2	Distribution of Accidents by Type	II-6

Contents, Cont.

EXHIBITS

- II-1 Island of Hawaii - Location of Project and Highway Classification
 - II-2 Highway Inventory, Kuakini and Mamalahoa Highways
 - II-3 Traffic Projections on Existing Kuakini and Mamalahoa Highways
 - II-4 Historic Resources and Alternative Corridors
 - II-5 Archaeological Inventory of the Kona Districts
 - III-1 Existing Walls in the Kona Field System
- APPENDIX I Letters of Coordination Between Public Agencies

SUMMARY STATEMENT

The project consists of determining the location and evaluating the feasibility of a highway corridor through North and South Kona on the island of Hawaii. The proposed corridor is 31 miles long. The first 18-mile segment of the corridor will impact the Kona Field System, an areal resource measuring 3 by 18 miles that has been determined to be eligible for inclusion in the National Register of Historic Places by the Department of the Interior's National Park Service, Office of Archaeology and Historic Preservation.

Because of its depth and length and due to the fact that existing towns and villages to be served are located in the field system, it has been determined that there is no other possible or prudent alternative to the proposed highway corridor alignment.

I. INTRODUCTION

The Land Transportation Facilities Division of the State Department of Transportation, in cooperation with the Federal Highway Administration, proposes to establish a highway corridor for the realignment and/or improvement of the existing Hawaii Belt Road and Mamalahoa Highway in North and South Kona on the island of Hawaii.

The proposed highway will traverse and impact certain Section 4(f) land in North and South Kona.

Section 4(f) land is publicly owned land, such as a park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, as determined by the federal, state, or local official having jurisdiction thereof, or land from historic sites of national, state, or local significance, as determined by such official.

Section 1653(f) of 49 U.S.C. and Section 138 of 23 U.S.C., permit the Secretary of Transportation to approve a project that requires the use of such land only if a determination has been made that there is no feasible and prudent alternative to the use of such land and that such project includes all possible planning to minimize harm to the Section 4(f) lands resulting from such use.

The purpose of this Section 4(f) statement is to document the consideration, consultations, and alternatives studied and to document all planning done to minimize harm to the Section 4(f) lands.

II. PROJECT DESCRIPTION

THE EXISTING HIGHWAY

The main highway running in the north-south direction through Kona is composed of segments of Kuakini and Mamalahoa highways and the Hawaii Belt Road, which are part of the around-the-island highway system. The project area is shown on Exhibit II-1.

Located one to two miles from the coastline, the existing highway traverses the slopes of Hualalai and Mauna Loa, climbing from an elevation of about 400 feet above sea level at Holualoa to about 1,500 feet at Captain Cook, then sloping gradually to about 875 feet at Honokua and climbing again to about 1,720 feet at Papa.

The highway is identified as Route 11 in the Federal Aid Primary System and the State Highway System. Although the highway is included in the State Highway System, its maintenance is under two jurisdictions; approximately 24.8 miles are under the state and 6.5 miles are under the county of Hawaii. This mixed jurisdiction is made evident by signs along the highway and is even more evident by the differences in design standards and quality of maintenance.

The county sections pass through the more heavily populated towns of Honalo, Kainaliu, Kealakekua, Captain Cook, and part of Honaunau, while the state sections pass through the sparsely populated areas.

The sections under the state's jurisdiction have been constructed with state and federal funds and are maintained with state funds; the county sections are maintained with county funds.

The extent of the ±31-mile project in Kona is from the vicinity of Kealakowaa Heiau at Holualoa in the north to south of Milolii junction at

Papa. It runs through or near the main towns of Holualoa, Keauhou, Kainaliu, Kealahou, Captain Cook, Napoopoo, Honaunau, and Hookena.

Traffic through the project area is generated largely by--

1. Travel to and from adjacent properties and between towns;
2. Business and retail shops strung along the highway;
3. Kona Civic Center, which houses the state and county offices, including police and court agencies, and utility maintenance yards;
4. Federal agencies in North and South Kona;
5. Kona Hospital in Kealahou;
6. Kona School, which contains the only high school in North and South Kona;
7. Agricultural Experiment Station in Kainaliu;
8. Farm products, including livestock; and
9. Tour buses and around-the-island bus service.

The existing highway is also a segment of the Hawaii Belt Route and provides transportation links to Kawaihae Harbor and Keahole Airport. Thus, the present highway may be considered a multipurpose road serving local, intra-, and interregional traffic. In terms of classification, the existing highway through Kona functionally serves as a local road, minor arterial, and primary arterial.

BACKGROUND

The existing highway in the project area is composed of segments of Kuakini Highway (Kealakowaa Heiau to Honalo) and Mamalahoa Highway (Honalo to Captain Cook) and the Hawaii Belt Road (Captain Cook to Papa). The highway is identified as Route 11 in the Federal-Aid Primary System and the State Highway System. The maintenance of the highway is the responsibility of the state for about 24.8 miles and of the county for about 6.5 miles. The county sections pass through the more densely populated towns of Honalo, Kainaliu, Kealakekua, Captain Cook, and part of Honaunau, while the state-maintained sections pass through sparsely populated areas. The extents of the state and county jurisdictions are shown on Exhibit II-2 along with the varying pavement, shoulder, and right-of-way widths of the existing highway.

The primary purpose of the proposed project is to provide a level of service of at least category C for the anticipated traffic flow up to the year 1998. The present and projected average daily traffic volumes are shown on Exhibit II-3 along with the level of service if no improvements are made.

These traffic projections were made by the State Department of Transportation using standardized techniques (as prescribed in A Policy on Geometric Design of Rural Highways by the AASHTO Committee) involving historical traffic counts as well as its relationship to population and future land use. Intermediate values were estimated by straight line interpolation.

It is apparent from these projections that, if no improvements are made, the undesirable levels of service, E and F, will continue to 1998, especially in the stretch between Keauhou and Captain Cook. The proposed

project alternatives are each designed to alleviate the present and projected congestion by providing an additional parallel highway either west (alternatives A, A-1, and C) or east (alternative B) or through the existing road (alternative D).

The accident rates per million vehicle miles for the project area are shown in Table II-1. There appears to be no readily apparent trend in the rates with time, but the absolute number of accidents grows with increasing traffic.

Table II-2 shows the distribution of accidents by type. The number of accidents on the various segments of the existing highway and on the entire island was averaged for the period between 1970 and 1974. The percentage of collisions on the existing road, when compared with the island averages, indicates the following:

1. Collisions between motor vehicles in transport occur more often between Honalo and Captain Cook.
2. There are more collisions with fixed objects on Kuakini Highway between Hualalai and Honalo and on the Hawaii Belt Road between Captain Cook and Milolii.
3. There are more collisions with pedestrians in the more densely populated regions between Kainaliu and Napoopoo.
4. The absolute number of accidents due to overturning, collision with parked vehicles, and other causes may be considered relatively small but shows higher percentages in some segments of the existing highway.

The funds for the proposed project would be derived from both federal and state sources. The project is in the state- and federal-aid system

TABLE II-1

ACCIDENT RATES & NUMBER OF ACCIDENTS

Dist. Miles	From To	See Note	Y E A R										
			1967	1968	1969	1970	1971	1972	1973	1974			
6.01	Hualalai Honalo	AR NOA	3.88 22	3.30 21	4.74 43	2.44 27	4.21* 50	3.50* 45	2.99 41	3.34* 42			
2.58	Honalo Kainaliu	AR NOA	8.23	10.37 4	19.02 9	2.02 10	2.75 18	4.06* 24	3.49* 22	2.07 12			
1.13	Kainaliu Kealakekua	AR NOA	0.67 2	2.51 8	2.05 8	13.36* 29	7.71* 21	12.29* 32	7.99* 20	10.11* 23			
2.00	Kealakekua Napoopoo Road	AR NOA	0.24 4	5.79 10	5.89 12	3.14 9	2.91 10	2.43 11	3.64* 19	2.32 11			
4.30	Napoopoo Road Middle Keel Road	AR NOA	3.14 7	2.22 5	1.49 4	2.65 13	2.46 14	2.71 27	4.42* 27	4.50* 25			
2.10	Middle Keel Road City of Refuge Road	AR NOA	2.40 9	2.80 11	1.56 7	5.64* 5	4.45* 5	5.57* 7	10.46* 14	4.93* 6			
2.50	City of Refuge Road Hookena Beach Access Road	AR NOA	3.81 7	1.54 3	5.02 10	3.60* 2	3.19* 2	4.67* 4	5.48* 5	8.43* 7			
12.52	Hookena Beach Access Road Milolii Beach Access Road	AR NOA	7.47 1	21.51 3	10.69 2	7.78* 14	6.92* 14	1.84 5	3.80* 11	6.44* 17			
	Island of Hawaii Average on FA System	AR	NA	NA	NA	3.17	3.10	3.09	3.02	2.58			

Note: AR - Accident rates per million vehicle miles

NOA - Number of accidents

* - Accident rate higher than island average

Source: Summary of Highway Accidents, State Highway System

TABLE II-2

DISTRIBUTION OF ACCIDENTS BY TYPE
(Five-year average figures 1970 to 1974)

From: To:	See Note	MV in Transport	Fixed Objects	Pedestrian	Over- Turned	Parked Vehicles	Others	Total No.
Hualalai Honalo	NOA %	22 48.9	17 37.8*	1 2.2	2 4.5*	1 2.2	2 4.4	45 100.0
Honalo Kainaliu	NOA %	12 60.0*	5 25.0	0 0	1 5.0*	2 10.0	0 0	20 100.0
Kainaliu Kealakakua	NOA %	17 65.4*	4 15.4	2 7.7*	0 0	2 7.7*	1 3.8	26 100.0
Kealakakua Napoopoo Road	NOA %	8 66.7*	3 25.0	1 8.3*	0 0	0 0	0 0	12 100.0
Napoopoo Road Middle keei Road	NOA %	10 41.7	8 33.3*	2 8.3*	1 4.2*	2 8.3*	1 4.2	8 100.0
Middle Keei Road City of Refuge	NOA %	3 37.5	4 50.0*	0 0	0 0	0 0	1 12.5*	8 100.0
City of Refuge Hookena	NOA %	1 25.0	3 75.0*	0 0	0 0	0 0	0 0	4 100.0
Hookena Milolii	NOA %	2 14.3	11 78.6*	0 0	1 7.1*	0 0	0 0	14 100.0
Island of Hawaii	NOA %	850 50.3	556 32.9	41 2.5	69 4.1	81 4.8	91 5.4	1688 100.0

Note: NOA - Number of accidents

% - Percent of total

* - Exceeds island percentage

Source: Summary of Traffic Accidents- Island of Hawaii, Highways Division, Dept. of Transportation

and is eligible for participation at the ratio of 75 percent federal funds and 25 percent state funds.

NEED FOR THE PROJECT

The project is needed because the present highway in the project area does not conform with desired level-of-service criteria for a minor arterial due to the following geometric deficiencies:

1. Segments without safe-stopping sight distance because of winding alignment with short vertical and horizontal curves
2. Segments with narrow pavement and shoulder widths that restrict the capacity below the level of service required to provide adequate service for the present and anticipated future traffic volumes up to 1998
3. Segments with the length of grade long enough to decrease the speed of loaded trucks by more than 15 mph below the average running speed

Aside from the above geometric deficiencies, the existing road will not be able to accommodate the projected increase in traffic and, consequently, the undesirable levels of service, E and F or forced traffic flow, will continue to 1998. The 9-mile section of the project, from Holualoa to Captain Cook, is densely populated. At the midpoint of this section, the average daily traffic will increase from 9,150 in 1978 to 19,850 in 1998. The existing highway will not be able to accommodate this volume of traffic.

Through the sparsely populated area between Captain Cook and the end of the project, a distance of approximately 21 miles, the average daily traffic volume tapers from 4,400 to 550 in 1978, but, by 1998, the

projected traffic volume would increase from 12,350 to 1,500 respectively. The accident rates through 17 miles of this section have consistently exceeded the island average between 1971 and 1974.

PROPOSED HIGHWAY IMPROVEMENT - Corridor Line A-1

The proposed highway improvement, Corridor Line A-1, would be a part of the Federal Aid Primary System on the island of Hawaii and would include the construction of about 31 miles of highway in North and South Kona. It begins from the vicinity of Kealakowaa Heiau at Holualoa and follows Kuakini Highway until it passes Kamehameha III Road. At that point, it would continue on the west side of the existing highway until it connects with the existing upper segment of the City of Refuge Road to Keokea. From there, it would follow the existing road from Keokea to Papa. This line was developed subsequent to a public hearing held on September 15, 1976 in Kailua and was discussed at a public information meeting held on January 12, 1977 at Kealakekua. Because of the lesser impact on farm lands, this corridor is the most feasible alternative.

The general route of this corridor as well as the routes of the other corridors are shown on Exhibit II-4. (Archaeological sites are also shown on Exhibit II-4 and are listed in Exhibit II-5.)

The proposed improvement will be designed according to the following criteria:

Highway Classification	-	Minor arterial
Access Control	-	Partial
Design Speed	-	60 mph (may be decreased to 45 mph along the existing road)
Right-of-Way	-	Varies from 100 to 150 feet
Number of Lanes	-	Two and four lanes

HIGHWAY CORRIDORS CONSIDERED

Other alternate alignments were investigated in this study (see Exhibit II-4).

Corridor Line A

Line A would be connected with Kuakini Highway until it passes Kamehameha III Road. At that point, it would leave the existing highway and continue south on the west side of the highway until it connects with Hawaii Belt Road at Waiea, west of Hookena. This alignment would be on the east side of an abandoned railroad bed in Keauhou, skirt the western boundary of the farms and orchards below Kainaliu, Kealakekua, and Captain Cook, wind through the middle of the orchards below Honaunau, and follow the existing highway south of Hookena. It would connect with intersecting roads and include two new connections to the existing highways: one would connect with Kuakini Highway north of Honalo and the other to Mamalahoa Highway between Konawaena School and Captain Cook.

This line is not considered feasible because it would pass through the middle of the existing productive coffee orchards below Honaunau and through a detached parcel of the City of Refuge National Park, a national register site, used as an upland garden area and native plant nursery. Since this parcel is also protected by Section 4(f) of the Dept. of Transportation Act, this line is not considered as a prudent alternative because it can be adjusted to avoid the detached parcel of the City of Refuge National Park and other alternatives are also available.

Corridor Line B

Somewhat shorter than Line A, Line B runs along an alignment east of the existing highway. As with Line A, the northern and southern ends of

this line would connect with Kuakini Highway and the Hawaii Belt Road in the vicinities of Honalo and Hookena Beach Road respectively. It would run above the Agricultural Station in Kainaliu, the Kona Hospital in Kealakekua, and the Konawaena School in Kealakekua and across the coffee farms and orchards 2,000 to 3,000 feet east of the existing highway.

The major adverse impact attributable to this alternative is the removal of some of the endemic Hawaiian trees in the native forest ecosystem and on the secondary forest ecosystem. Although the adverse effect directly attributable to the road is confined principally to the right-of-way, its existence may result in the increase of roadside development that would have an even greater disrupting effect on the native forest.

This corridor would pass a higher rainfall area where the runoff flows overland in undefined water courses with little or no erosion. This drainage pattern would be changed due to the construction of culverts that concentrate flows, thus causing more erosion and adversely impacting some localized areas.

Corridor Line C

The 1971 county general plan and the 1960 plan for Kona show a coastal road between Keauhou and the City of Refuge at Honaunau. The general highway map of the state of Hawaii also shows a Federal Aid Secondary County Highway along the coast between Kealakekua Bay and the City of Refuge. The roads shown on these documents are intended to provide access to beach and recreation areas as well as to open up areas with developmental possibilities.

Line C was selected as an alternate corridor to provide access to historical sites and the proposed park areas at Hookena, Palemano Point,

and other locations. This line will traverse the existing pastures and land areas, which are marginal in nature. It is located farther west than Corridor Line A and would have the advantage of being in a drier area, but it is not considered a feasible and prudent alternative because it would pass through the Kealahou Historical District, which is included in the National Register of Historic Places. Adverse impact on the historical district can be avoided by changing the location of the proposed project or through selection of another alternative.

Corridor Line D

This alternative alignment is developed along the existing route-- Kuakini Highway, Mamalahoa Highway, and the Hawaii Belt Road--with a right-of-way width of 80 feet. The additional right-of-way taking will be along either the western or eastern sides or both sides of the existing highway, depending on the types of development along the existing right-of-way.

This line has the least detrimental impact on the natural environment but was eliminated for the following reasons:

1. The four-lane undivided highway, proposed as alternative D, will not be sufficient for the projected peak hour traffic of 1,036 vehicles in 1984. A six-lane highway with a peak hour capacity of 1,320 vehicles would be required in 1988 and another two lanes would be needed by 1995.
2. The initial widening of the existing road to 80 feet would dislocate 25 families and 52 organizations and businesses (half of those now situated along the road) and take 691 parcels of land. Subsequent widenings would increase the number of residents and businesses affected.

3. There are indications that about 50 structures of historical and archaeological significance may be affected.
4. The projected traffic would aggravate and intensify the existing dust and noise conditions, varying now from moderate to great.
5. The prevailing pastoral and charming environment created by the residences and community facilities now located along a strip on both sides of the existing road, interspersed with pastures, farms, and orchards, would be destroyed by widening the road.

Corridor Line A-2

This corridor would follow the same route of corridor lines A and A-1 from Kuakini Highway to Captain Cook. From Captain Cook, it would follow a southeasterly direction and connect with the existing road approximately 2.3 miles south of Captain Cook. This line would provide a connection nearer to Captain Cook than Corridor Line A-1, as desired by some people in the community, but it would cut diagonally across the existing farms.

No Project

The abandonment of the entire project is not considered as a feasible alternative because it would result in a failure to serve the best interests of the residents, visitors, agriculture, and the environment. Such action would not provide for the present and projected traffic in the Kona area, and the increasing congestion on the existing highway would result in added delays, inconvenience, noise, air pollution, and a higher accident rate.

III. DESCRIPTION OF 4(f) LANDS

CULTURAL AND ARCHAEOLOGICAL

Kona Field System

The Kona Field System is a strip of land along the Kona coast that measures 3 miles in depth and about 18 miles in length. Its north boundary is located at the north end of the project, while its south boundary is located in the vicinity of Waiea. It includes the Kahaluu Historical District, the Kealakekua Historical District, and the City of Refuge National Park (see Exhibit II-4).

The Department of the Interior's National Park Service, Office of Archaeology and Historic Preservation, has determined that this field system is eligible for nomination to the National Register of Historic Places.

Line A-1 would occupy a strip with an average width of 125 feet through 16 miles of the Kona Field System, or an area of 242 acres out of 34,560 acres (54 square miles) included in the field system.

The Kona fields form a patterned network of elongated rectangles lying as a band parallel to the sea. Ground inspections in the Kealakekua Bay area have shown that the patterning is caused by earthen and rock ridges that enclose rectangular field areas, generally oriented with their long axes perpendicular to the sea. This places the long sides of each rectangular field perpendicular to the topographic contours and parallel to the terrain slope. Some of the existing fields were found during a field reconnaissance trip by Mr. L.C. Fruto of M&E Pacific, Inc. on January 29, 1975. These fields can also be noted on the aerial photograph (see Figure III-1).

Individual fields vary in size from 30 feet wide by 50 feet long to 150 feet by 1,000 feet. Field boundaries vary from well-constructed stacked stone to simple mounds of earth and rock, all ranging in height from about 1.5 to 3 feet. The width of these field boundaries varies from about 3 feet for the stone walls to about 9 feet for the rounded earthen mounds.

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

The general symmetry of the Kealakekua fields and of the whole Kona system is well designed to take advantage of the western Hawaii Island environment. The alignment maximizes the available sunlight and exposure to periodic rain showers. Onshore winds are generally light so physical damage or excessive plant evapotranspiration would not have been a crucial factor in field alignment.

Historical documentation exists for the Kona Field System, primarily through the journal of Archibald Menzies¹, surgeon and naturalist, who periodically visited the area between 1792 and 1794. Menzies made two trips inland through portions of the system from the coast to the upper area. It is still possible to see clearly the boundaries of the traditional 'ili and ahupua'a land divisions. This gives an opportunity for

¹ For description of trips made by Archibald Menzies, refer to 1920 Hawaii Nei - 128 Years Ago by W.F. Wilson.

research into the organization and interrelationships of ancient Hawaiian society.

The innumerable remains of the habitations and of complete assemblages of other physical remains, such as burial areas, heiaus, cave shelters and refuges, animal enclosures, and work platforms, all contribute to the importance of this system to archaeological research.

Other Archaeological Sites

The proposed highway improvement will not affect the other archaeological sites shown on Exhibit II-4 and listed on Exhibit II-5 since many of the inventoried sites are along the coast.

Type

Cultural and archaeological information

Available Activities

None

Facilities

None

Usage

The Kona Field System has long been abandoned within the project area. Its earthen and rock walls have been compromised by the agricultural and urban facilities in the area. Other than the earthen and rock walls, there is no visible evidence of the ancient farming activity. The undeveloped areas have long since been overgrown with local scrub brush.

Relationship to Other Similarly Used Land

A similar agricultural field system, the Lapakahi Complex, exists on the Kohala coast approximately 50 miles north of the Kona Field System.

The complex is approximately 1 mile wide, extending from the sea to the crest of the Kohala ridge, some 4 miles inland, and is only a portion of the 2 by 13-mile Kohala Field System. It included both a major fishing village and an upland agricultural system and offered an excellent example of the native Hawaiians' use of various ecozones.

The Lapakahi Complex was placed on the National Register of Historic Places in 1973 and is planned to be developed as a major state historical park.²

Access

Access to the Kona Field System is unlimited due to its immense size. The highway will have no effect on its accessibility and, as a matter of fact, may be improved by providing lookouts to important historical sites.

Ownership

There is only one parcel of public land owned by the county of Hawaii along the selected Corridor Line A-1. All other lands are not restricted and are privately owned. All existing leases are between the property owners and the tenants.

The public land owned by the county is not restricted.

Applicable Clauses Affecting Title

There are no applicable clauses affecting title.

Unusual Characteristics

The Kona Field System is considered by Hawaiian archaeologists to be one of the most extensive and monumental work of ancient Hawaii. The

² State of Hawaii, Department of Land and Natural Resources, The Hawaii Register of Historic Places, 1974.

system is unique in Hawaii and probably the nation in terms of the amount of land that was modified by prehistoric inhabitants. Its complexity and size are comparable to the Kohala Field System, which contains the Lapakahi Complex, and the field systems of Central and South America. It is a physical demonstration of the highly developed farming economy of ancient Hawaii and illustrates the complexity and advanced state of Hawaiian culture.

The system, because of its size, can only be seen in its entirety from the air or by means of aerial photographs.

Consistency with Community Goals

This project is consistent with the overall transportation goals and policies of the General Plan of the County of Hawaii. It could be considered as the implementing project for the improvement of the present Kona-Kau Road that is listed as one of the courses of action defined in the General Plan for the Kona District.

Physical Effects on Section 4(f) Land User

The project will not create any significant effect in the Section 4(f) land users.

Although construction of a new alignment would have a more beneficial effect on the noise levels along the entire length of the existing highway than if there were no improvements, there would be areas at the beginning of the project in which the noise standard may be exceeded. Noise level predictions may be more than the Federal Highway Administration's noise level standard ($L_{10} = 70$ dBA) at the urbanized part of the Kona Field System along Kuakini Highway.

Line A-1 would be about 8,000 feet east of the City of Refuge National Park and it would not be impacted by the traffic noises because of this distance.

Projections of the vehicle emission of carbon monoxide concentrations indicate that the state standard of 10 milligrams per cubic meter will not be exceeded. The grading of the roadway would denude the roadway area and there would be excavation and embankment areas. The depth of cuts and fills would be minimized as much as possible.

IV. DETERMINATION THAT THERE IS NO POSSIBLE OR PRUDENT ALTERNATIVE

A determination was made that there is no feasible or prudent alternative to the proposed highway improvement, based on the consideration and studies of alternatives and on consultation with the appropriate agencies.

ALTERNATIVES

Line A-1, the selected alternative as well as the other highway corridors that were considered would all pass through the Kona Field System.

However, Corridor Line A-1 is considered to have the least impact upon Section 4(f) lands. Approximately 6 miles of this road from Kamehameha III Road toward Captain Cook has low rainfall and very poor soil. The land is less arable and it may not have been farmed as extensively as the lands adjacent to Line B.

On the other hand, Corridor Line B would pass through an area in the Kona Field System where there is higher rainfall and more fertile land. Probably, it was through this area where the early Hawaiians cultivated the land more extensively.

Corridor Line A aside from impacting the Kona Field System will also impact a detached parcel of land operated by the City of Refuge National Park.

Corridor Line C will pass through the Kona Field System and also through the Kealahou Historical District.

Corridor Line D would pass through the existing road and villages in the Kona Field where it has been reported that about 50 structures of historical and archaeological significance may be affected by the road improvement.

MAGNITUDE AND URBAN AREAS IN THE KONA FIELD SYSTEM

The Kona Field System occupies an area of 54 square miles. From the coastline, it extends 3 miles inland and includes the ribbon of urbanized areas along the existing road for a distance of 18 miles. The existing villages and towns that would be served by the proposed highway are located approximately 1-1/2 to 2 miles from the shoreline.

OTHER ALTERNATIVES

There are no other feasible alternative corridors that would not pass through the Kona Field System because the west boundary is along the coastline and the construction of a highway along the coastal waters is not feasible. A highway along the north boundary may be possible from the standpoint of highway construction, but the urban areas will not be served by such a highway.

DESCRIPTION OF COORDINATION WITH PUBLIC AGENCIES HAVING JURISDICTION OVER SECTION 4(f) LAND

The procedure outlined in Section 106 of the National Historic Preservation Act has been followed by an exchange of letters between the Federal Highway Administration and the State Historic Preservation Officer. These agencies concur that the Kona Field System may adversely be affected because of the probable alteration of the undisturbed portions of the field system that may be caused by the construction of the highway.

Other agencies with jurisdiction over Section 4(f) lands are the Advisory Council on Historic Preservation, the United States Department of the Interior, the United States Department of Agriculture, and the United States Department of Housing and Urban Development. The record of coordination with these agencies is included in Appendix 1 of this report.

V. MEASURES TO MINIMIZE HARM TO SECTION 4(f) LANDS

A Memorandum of Agreement as required by 36 CFR Part 800, Historic Preservation Procedures for the Protection of Historic and Cultural Properties, was prepared by the Advisory Council on Historic Preservation and jointly executed by the Advisory Council, the Federal Highway Administration, and the State Historic Preservation Officer.

The Memorandum of Agreement, which mitigates any adverse effects of the proposed highway improvement on resources within the selected highway corridor contains the following stipulations in the letter dated September 8, 1977 from R. G. S. Young, Director, Office of Environment and Design, Federal Highway Administration Region Nine and the executed Memorandum of Agreement (see Appendix I).

From letter of September 8, 1977:

- "1. If Alignment A or B is selected, a preliminary archaeological reconnaissance survey will be conducted. Such a preliminary survey will minimally consist of:
 - a. An on-foot visual survey of the proposed corridor of such intensity that the number and kind of archaeological sites can reliably be estimated (+10%).
 - b. A map of the proposed corridor showing the estimated location of sites and site concentrations and relating such locations to terrain features.
 - c. Certification of areas where no archaeological sites exist.
 - d. Description of each site or concentration of sites sufficient to document the need for further archaeological survey or excavation.

- e. Recommendations for further work, if necessary.
2. Individual archaeological features, identified by the archaeological survey, which have substantial individual potential to yield information important in the prehistory or history of Hawaii which may be altered or destroyed by this project or any action ancillary to the project construction (such as spoil or borrow areas; access, storage or turn around areas for machinery) shall be tested by rigorous archaeological methods, and if such tests confirm their importance, they shall be recommended for total scientific data retrieval to the State Historic Preservation Officer.
 3. If the Historic Preservation Officer accepts the recommendation for total scientific data retrieval, the U. S. Department of Transportation will set aside time and funds for such work and will undertake to do or have such work done.
 4. The scope of work for historical/archaeological surveys will be reviewed by the State Historical Preservation Officer prior to initiation."

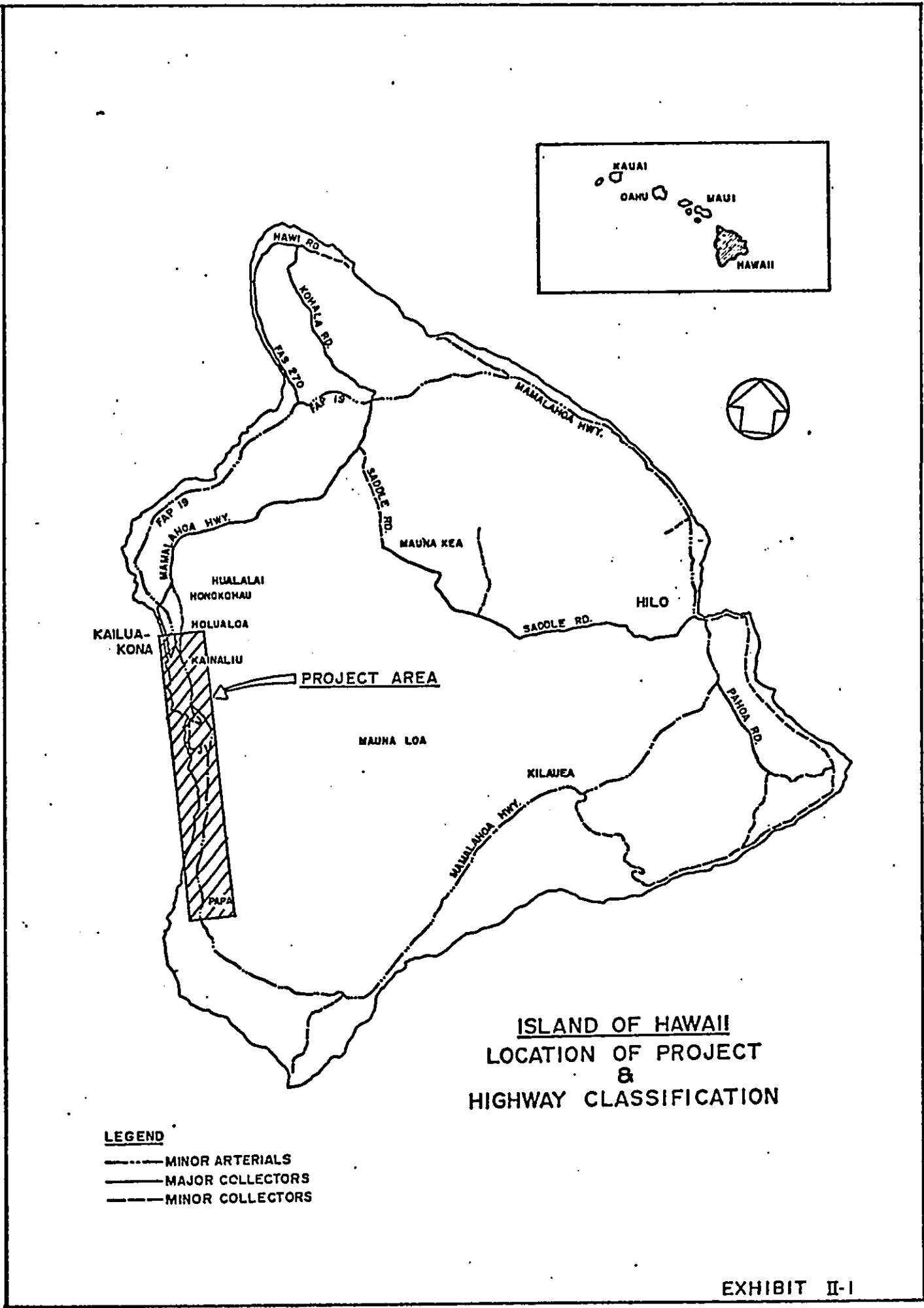
From executed Memorandum of Agreement:

- "1. Should an archaeological recovery program requiring excavation become necessary it will be based on a detailed and systematic research design, meeting standard levels of professional acceptability including provisions for curation of the artifacts and other materials recovered and the publication of a report of the findings of the research project, which must be reviewed and approved by the Hawaii State Historic Preservation Officer prior to excavation; and,

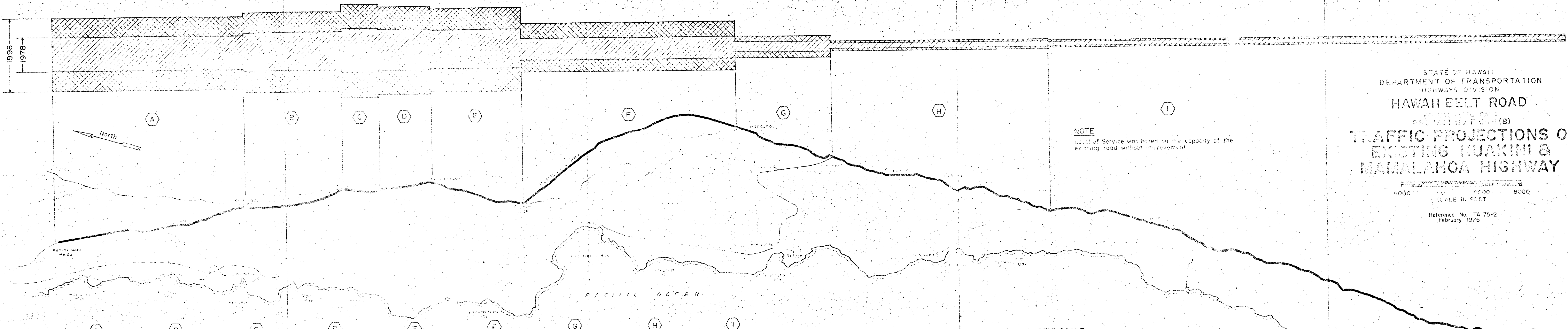
2. Should the Secretary of Transportation determine, after review of the report prepared by the Federal Highway Administration pursuant to Section 4(f) of the Department of Transportation Act of 1966, that the project must be changed from that which has been described to the Executive Director, the Federal Highway Administration will so advise the Council and again request comments in accordance with the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) as appropriate prior to proceeding with the proposed undertaking."

These two sets of stipulations are considered complementary.

EXHIBITS

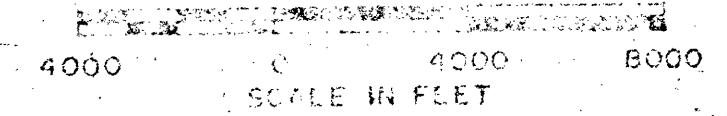


304



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HAWAII BELT ROAD
HONOLULU TO PAHA
PROJECT NO. F 3-1 (8)
**TRAFFIC PROJECTIONS ON
EXISTING KUAKINI &
MAMALAHOA HIGHWAY**



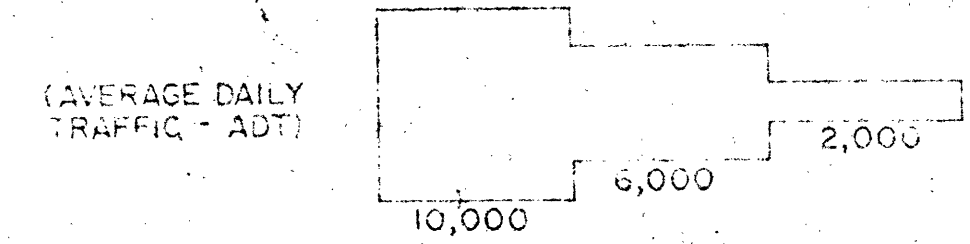
Reference No. TA 75-2
February 1975

NOTE
Level of Service was based on the capacity of the existing road without improvement.

LEGEND

- 1978 AVERAGE DAILY TRAFFIC (24 HOUR TRAFFIC)
- 1998 TRAFFIC ASSIGNMENT (24 HOUR TRAFFIC)

TRAFFIC SCALE



	A		B		C		D		E		F		G		H		I	
	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE	ADT	LEVEL OF SERVICE
1974	8,500	D	7,000	D	8,400	F	9,000	E	7,800	E	4,400	E	1,450	E	850	E	550	E
1978	8,450	D	9,150	D	10,900	F	10,400	F	9,850	F	5,700	E	2,400	E	1,100	E	700	E
1988	13,400	E	14,550	F	17,300	F	16,450	F	15,600	F	9,350	L	3,900	E	1,700	E	1,100	E
1998	18,300	F	19,850	F	23,600	F	22,500	F	21,300	F	12,750	F	5,200	E	2,350	E	1,500	E

98-010

EXHIBIT II-5

(See Exhibit II-4 for location of historical sites)

Archaeological Inventory of the Kona Districts

The data for this inventory were obtained from the State Department of Land and Natural Resources, Division of State Parks, Hawaii Register of Historic Places Section, and corresponds with its numbering and filing system. The site locations and their accompanying numerical designations are as complete as those found in the Hawaii Register's USGS maps; however, the information regarding the sites is incomplete as not all the files were available during the research period. This accounts for the large number of sites with a 'no information' classification. Also, there are a number of sites having a file but whose location could not be determined; hence, they are not listed on this inventory.

- 3833 Kealakowaa Heiau. Also known as Halehau Heiau, this site is located at the beginning point of the project less than 50 feet from the ocean side of Kuakini Highway. It is a complex of five platforms dating back to the time of King Umi.
- 2033 Hamakaokahai Ko'a. Ancient Hawaiian fishing shrine
- 2036 House platform
- 2038 Holualoa complex
- 2037 Costa cava. Habitation site with petroglyph
- 2040 House platform
- 2041 House platform
- 3829 Hikapaia Heiau
- 2059 Kamoia Pt. complex. Possibly encloses Keolonanini Heiau with its freshwater pond and petroglyphs, and Haleaama Heiau
- 2058 Kaumalumalu complex. Contains a habitation site and burials
- 2021 Pahoehe complex. Habitation site and puoa burials
- 2009 Heiau and house site
- 2068 Complex of house platforms
- 2055 Laaloa burials. Also contains a habitation site
- 2054 Laaloa house sites
- 2053 House platform

Exhibit II-5, Cont.

- 2046 Kapalaalaea complex. Habitation site
- 4150 Kahaluu Historical District. Included in this area are Kuemanu Heiau, the only known major heiau dedicated to surfing; Pa-o-umi Heiau, once the residence of a king; and Keeku Heiau, which served as both a luakini (place of sacrifice) and a pu'uhonua (place of worship). The district also encompasses a breakwater built by Kalai-kini, habitation sites, burial platforms, enclosures, petroglyphs, and walls. It was recently listed in the National Register of Historic Places.
- 1735 Keauhou Heiau
- 1663 Heeia Bay complex. Includes Kumahaula Heiau
- 1669 Keauhou Heiau. Listed in the national register, it is the largest slide in the islands and was used for recreational purposes by the alii. Located just above Alii Drive in Keauhou, it is considered an engineering feat.
- 1656 Petroglyph
- 1657 Petroglyphs
- 1737 Habitation site
- 1739 Habitation site
- 1738 Habitation site
- 1740 Keauhou complex 2
- 1746 Platform
- 1748 Platform
- (1745)
3809 Kuamoo burials. Burial ground for Kuamoo battle warriors
- 4161 Honalo complex. Habitation area with numerous remains of house sites, working areas, and midden deposits. It also contains a number of puoa burials in good condition, a heiau, and a holua.
- 1760 Kuamoo platform
- 1761 Possible heiau at Kuamoo Pt
- 3805 Lonohelomoa Heiau
- 1814 Kuamoo Holua
- 1812 Lonohelomoa complex. Cave habitation
- 1815 Kuamoo complex. Habitation site
- 3804 Pauoa Heiau
- 1813 Fishing Heiau
- 1790 Leinokano complex
- 3803 Ukanipo Heiau
- 4162 Honuaino complex 1. A habitation complex consisting of platforms, walls, a salt-making area, and Pohakapu Heiau

Exhibit II-5, Cont.

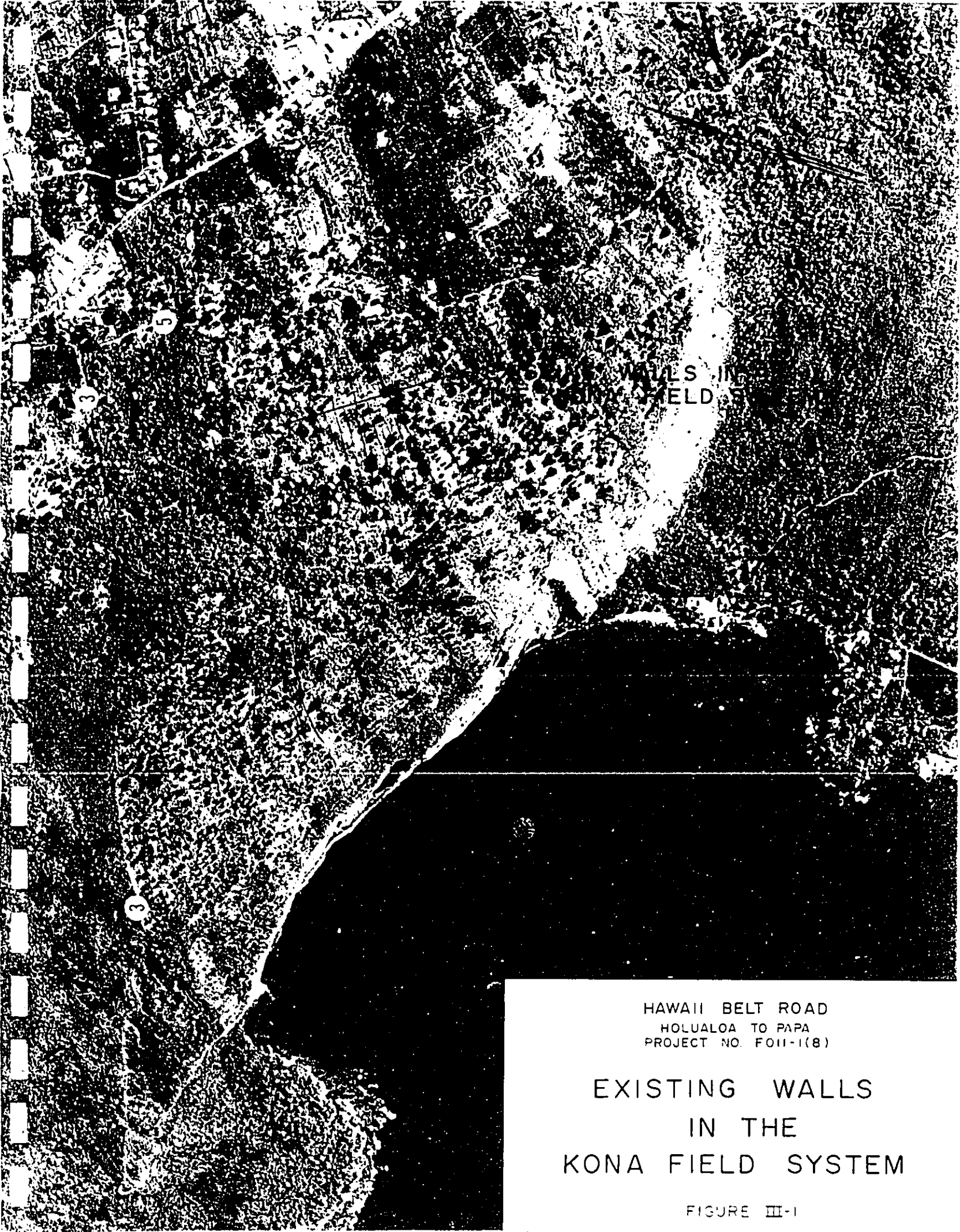
- 1876 Hokukano complex. Habitation site
- 1877 Kanaueue complex. Habitation site
- 1934 Kanaka burials
- 1944 Keopuka complex 1. Has religious significance associated with settlement patterns
- 1945 Keopuka burials 1
- 1946 Keopuka complex 2
- 1947 Keopuka platforms 1
- 1948 Keopuka complex 3. Habitation site
- 1949 Heiau at Keopuka
- 1950 Keopuka complex 4
- 1951 Keopuka shelter 1
- 1952 Keopuka complex 5
- 1953 Keopuka shelter 2
- 1954 Keopuka shelter 3
- 1955 Keopuka complex 6. Rock shelters and enclosures
- 1956 Keopuka platform 2
- 1958 Keopuka complex 7. Walled shelters and a possible heiau or puoa
- 1960 Keopuka burials 2. Burial platforms
- 1961 Keopuka complex 8. A habitation complex of platforms and walls
- 1962 Keopuka house structures. Possible historic kuleana
- 7000 Kealakekua Historical District. An area of both historic and pre-historic significance, this district is now listed in the National Register of Historic Places. Long famous as the location of Captain James Cook's discovery of the Sandwich Isles (original name of the Hawaiian Islands) and his subsequent death in Kealakekua Bay, this district also contains other noteworthy sites. Among them, Hikiau Heiau, a place where humans were sacrificed and Captain Cook was worshiped as the god Lono; Puhina-O-Lono Heiau, where Cook's body was prepared for disposal according to ancient Hawaiian custom; Pali-Kapu-O-Keoua, where many burial caves are located; and Umi's well. Also included are shelter caves, enclosures, grave sites, petroglyphs, clearings, trails, and part of the remains of an extensive aboriginal Hawaiian dry-land agricultural system.
- 1987 Keei complex 2. Includes platforms, walls, burials, and a trail
- 3745 Kipu housesite
- 1986 Keei complex 2. Habitation site having platforms, enclosures, and a single grave
- 3744 Habitation complex
- 3743 Platform. Midden material indicates it to be a habitation platform

Exhibit II-5, Cont.

- 3738 Walled enclosures
- 3741 Platform area. Associated with sites 3740 and 3743
- 3740 Large enclosure. Possibly a habitation or work area
- 3751 Fishing shrine
- (3723)
- 4203 Kiilae refuge cave
- (3722)
- 4208 Kekahuna cave. Small refuge cave
- 3759 Palianihi burial caves
- 3761 Kaohe house platform. Said to be Kaiawe's house
- (3763-69)
- 4188 Kukuiopae and Waikakuu complex
- 3770 Kolo housesites
- 3771 Kupuali Pt. Remains of Hawaiian activity mixed with a timber loading causeway
- 3772 Kupuaali Pt Trail. Runs down to Puao Pt.
- 3773 Puao Pt. cave
- 3774 Kaluahee stairway. Built of water-worn stones.
- 4192 Kipahoehoe Bay complex
- 4184. Alike Bay housesites. Also includes a shelter cave and a fishermen's shrine
- 4185 Papa Bay complex
- 6601 Kona Field System. A massive ancient Hawaiian dry-land agricultural field system stretching from Honokohau to Hookena, it encompasses a total of 1392 sq. km. It is without equal in Hawaii, and probably in the nation, in terms of the extensiveness of the prehistoric modification of the land. Although much of the system has been destroyed, there are still areas where it is in good condition; for example, the areas above Kealakekua Bay and east of Holualoa. At present the Kona Field System is being nominated to the National Register of Historic Places by the Hawaii register to protect it from further encroachment.

City of Refuge. Located just south of Honaunau Bay, it is a National Historical Park listed in the National Register. In ancient times it was a place of refuge or puuhonua for pursued persons lucky enough to reach its boundaries. There is also a structure there known as Hale-O-Keawe where the bones of Hawaiian chiefs were kept.

DOCUMENT CAPTURED AS RECEIVED



HAWAII BELT ROAD
HOLUALOA TO PAPA
PROJECT NO. FOII-1(8)

EXISTING WALLS
IN THE
KONA FIELD SYSTEM

FIGURE III-1

APPENDIX

APPENDIX I

Record of coordination with public agencies

STATE HISTORIC PRESERVATION OFFICER (SHPO)

February 14, 1975	Meeting with SHPO to determine historic resources in project area.
July 10, 1975	FHWA advises SHPO of determination of "adverse" impact on Kona Field System and "no effect" on other sites.
July 21, 1975	SHPO agrees with FHWA determinations.
August 27, 1975	Joint on-site inspection by SHPO, FHWA and Advisory Council.
March 10, 1977	FHWA sends Section 106 case report to SHPO.
August 8, 1977	SHPO concurs with Section 106 case report.
Present	Consultations on historic matters remain in progress.

ADVISORY COUNCIL ON HISTORIC PRESERVATION (AC)

August 27, 1975	Joint on-site inspection by SHPO, FHWA and Advisory Council.
August 26, 1976	AC reviewed draft environmental impact statement. Statement adequate concerning compliance with Section 106 of the National Historic Preservation Act of 1966.
September 8, 1977	FHWA sends case report to AC.
September 29, 1977	AC initiates consultation process.
February 8, 1978	AC approves jointly executed Memorandum of Agreement.

U.S. DEPARTMENT OF THE INTERIOR (DOI)

September 23, 1976

DOI reviewed DEIS and recommended archaeological surveys and preparation of a Section 4(f) Statement.

NOTE: The detached portion of the City of Refuge National Historic Park will not be affected by this project.

January 28, 1977

DOI determined Kona Field System is eligible for inclusion in National Register.

May 19, 1978

DOI reviewed preliminary Section 4(f) Statement and had no objections to Section 4(f) approval of this project.

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

August 31, 1976

HUD reviewed DEIS.

U.S. DEPARTMENT OF AGRICULTURE (DA)

August 26, 1976

DA (Forest Service) reviewed DEIS.

September 13, 1976

DA (Soil Conservation Service) reviewed DEIS.

NOTE: Non-historical comments from DA are addressed in the final EIS.

May 23, 1978

DA reviewed Preliminary Section 4(f) Statement.



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

PEP ER-78/257

MAY 19 1978

Ralph T. Segawa
Division Administrator
Federal Highway Administration
300 Ala Moana Blvd., Suite 4119
Box 50206
Honolulu, Hawaii 96850

Dear Mr. Segawa:

This responds to your request to comments on the draft Section 4(f) statement for Hawaii Belt Road, County of Hawaii, Hawaii.

Section 4(f) Comments

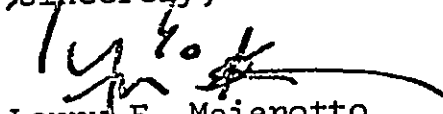
We concur that there are no feasible and prudent alternatives to the use of land from the Kona Field System, a property eligible for nomination to the National Register of Historic Places, by the preferred alternative A-1.

We note that a Memorandum of Agreement has been executed between the project sponsors, the Advisory Council on Historic Preservation, and the State Historic Preservation Officer. We concur that the mitigation measures outlined in the Memorandum of Agreement constitute all possible measures to minimize harm and that they satisfy the second proviso of Section 4(f).

Summary Comments

The Department of the Interior offers no objection to Section 4(f) approval of alternative A-1 for the proposed Hawaii Belt Road project.

Sincerely,


Larry E. Meierotto

Deputy Assistant SECRETARY

cc: Hawaii DOT

HAWAII

U.S.D.A. RURAL DEVELOPMENT COMMITTEE

P. O. Box 50004, Honolulu, HI 96850

May 23, 1978

Mr. Ralph T. Segawa
Division Administrator, Region Nine
Federal Highway Administration
U.S. Department of Transportation
P.O. Box 50206
Honolulu, Hawaii 96850

Dear Ralph:

Subject: Hawaii Project F-011-1(8), Hawaii Belt Road,
Holualoa to Papa, Preliminary Section 4(f)
Statement

Your letter of March 22, 1978, addressed to Blaine Bradshaw,
was referred to me as chairman of the USDA State Rural
Development Committee.

Subject statement has been reviewed and we have no comments
to offer. We would like to receive a copy of the final EIS
for this project.

Thank you for the opportunity to review this document.

Sincerely,


Jack P. Kanalz, Chairman
USDA State Rural Development Committee

cc:
Blaine Bradshaw, Vice-Chairman,
USDA State Rural Development Committee

COMMITTEE MEMBERSHIP

U.S.D.A.

- Agricultural Research Service
- Agricultural Stabilization and Conservation Service
- Animal & Plant Health Inspection Service
- Cooperative Extension Service
- Economic Statistics and Cooperative Service
- Farmers Home Administration
- Food and Nutrition Service
- Food Safety and Quality Service
- Forest Service
- Soil Conservation Service

OTHER FEDERAL AGENCIES

- Dept. of Housing and Urban Development
- Small Business Administration
- Social Security Administration

STATE AGENCIES

- Dept. of Agriculture
- Dept. of Hawaiian Home Lands
- Dept. of Planning and Economic Development

STATE HISTORIC PRESERVATION OFFICER (SHPO)



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE
Suite 613, 677 Ala Moana Blvd.
Honolulu, Hawaii 96813

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA

COPY

July 10, 1975
IN REPLY REFER TO
915EC

Ms. Jane Silverman
State Historic Preservation Officer
Department of Land & Natural Resources
465 S. King Street
Honolulu, Hawaii 96813

Dear Ms. Silverman:

Subject: Hawaii Project F-011-1(8), Hawaii Belt Road, Holua'oa to Papa

In accordance with 36 C.F.R., Part 800, we have determined that lines A and B will have an adverse impact upon the Kona Field System which has been nominated by the State for inclusion into the National Register of Historic Places.

This finding of adverse effect is based on the probable alteration of the undisturbed portions of the Kona Field System by the proposed highway improvement.

We have also determined that there is no effect on sites other than the Kona Field System based on physical separation between alternates under consideration and our research of known historic sites. For your information, line A is nearest to the known sites and will be beyond the boundaries of the Kahaluu and Kealakekua historical districts. The remainder of the sites are located from 1,000 feet to 2 miles away. The Historical Properties Report dated March 1975 which describes the cultural resources within the project area is attached for your use.

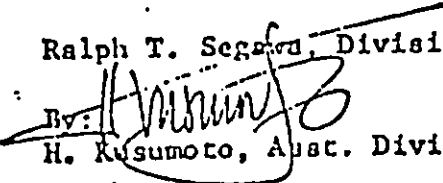
We ask your concurrence in our above determinations of effect as related to the subject Hawaii Belt Road improvement.

A detailed archaeological survey along the selected corridor will be conducted prior to construction to locate, identify, evaluate and preserve those historical and cultural resources deemed significant by a competent archaeologist. Measures to mitigate the adverse effect on the Kona Field System will also be determined at this time.

Thank you for your assistance.

Sincerely yours,

Ralph T. Segawa, Division Engineer

By: 
H. Kusumoto, Asst. Division Engineer

Enclosure

JOHN A. BURNS
GOVERNOR OF HAWAII



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

July 21, 1975

Mr. Ralph T. Segawa
Division Engineer
U. S. Department of Transportation
Federal Highway Administration
Region Nine
Suite 613, 677 Ala Moana Boulevard
Honolulu, Hawaii 96813

Dear Mr. Segawa:

Subject: Hawaii Project F-011-1(8), Hawaii Belt Road
Holualoa to Papa: Determination of Effect
on Archaeological and Historic Sites

Your determination of adverse effect upon the Kona Field System, a site eligible for inclusion on the National Register of Historic Places by the above project has been reviewed by this office in accordance with the criteria of 36 CFR, Part 800.9, and meets with our concurrence.

Your determination of no effect on other known sites in the vicinity of the above project is also concurred with.

This office will be pleased to assist in the preparation of a memorandum of agreement to mitigate the adverse effects to the Kona Field System, and agrees with the decision to carry out a detailed archaeological survey of the corridor selected.

Your interest and cooperation is greatly appreciated.

Sincerely yours,

Jane L. Silverman
Historic Preservation Officer
State of Hawaii

CG:jsh

RECEIVED

AUG 4

DIVISIONS:
CONVEYANCE
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE HISTORIC
WATER DIVISION

DEPT. OF

677 Ala Moana Blvd., Suite 613
Honolulu, Hawaii 96813

March 10, 1977

915EC

Ms. Jane Silverman
Historic Preservation Officer
State of Hawaii
Department of Land and Natural
Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Ms. Silverman:

Subject: Hawaii Project F-011-1(8); Hawaii Belt Road,
Kolualoa to Papa, Section 106 Case Report

Attached is our preliminary Section 106 Case Report on
the Kona Field System.

We solicit your comments on the Report, especially the
section regarding the Memorandum of Agreement. Please
feel free in editing, adding, or deleting the provisions
recommended for inclusion in the Memorandum of Agreement.

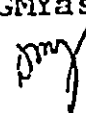
Your assistance is appreciated.

Sincerely yours,

Ralph T. Segawa
Division Administrator

By: 
H. Kusumoto
Assistant Division Administrator

Enclosures

GM Yasui:dsf


ADVISORY COUNCIL ON HISTORIC PRESERVATION (AC)

Advisory Council on
Historic Preservation
1522 K Street N.W.
Washington, D.C. 20005

August 26, 1976

Mr. Ralph T. Segawa
Division Administrator
Region Nine
Federal Highway Administration
677 Ala Moana Blvd., Suite 613
Honolulu, Hawaii 96813

Dear Mr. Segawa:

This is in response to your request of July 26, 1976 for comments on the draft environmental statement (DES) for the proposed construction of approximately 31 miles of the Hawaii Belt Road from Kealakowaa Heiau at Hualaloa to Milolii Junction at Papa. Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1969, the Advisory Council has determined that the DES appears adequate concerning compliance with Section 106 of the National Historic Preservation Act of 1966.

With respect to compliance with Executive Order 11593, "Protection and Enhancement of the Cultural Environment" issued May 13, 1971, we note that the proposed undertaking will have an adverse effect upon the Kona Field System, a property which has been nominated for inclusion in the National Register of Historic Places and may affect the Great Wall of Kauai and an abandoned railroad roadbed, properties which may be eligible for inclusion in the National Register. However, it also appears that the Federal Highway Administration (FHWA) is aware of the requirements of the Executive Order 11593 and will afford the Council an opportunity to comment pursuant to the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) at the appropriate time. Accordingly, we look forward to working with FHWA in accordance with the procedures in the future.

Nevertheless, until the requirements of the Executive Order 11593 and the procedures are met, the Council considers the DES to be incomplete in its treatment of the cultural resources. To remedy this

The Council is an independent unit of the Executive Branch of the Federal Government charged by the Act of October 15, 1966 to advise the President and Congress in the field of Historic Preservation.

Page 2

August 26, 1976

Mr. Ralph T. Segawa

Hawaii Belt Road, Hualaloa to Papa

deficiency, the Council will provide substantive comments on the undertaking's effect on the cultural resources through the process detailed in the procedures. Please contact Michael H. Bureman of the Council staff at P. O. Box 25085, Denver, Colorado 80225, telephone number (303) 234-4946, to assist you in completing this process as expeditiously as possible.

Your continued assistance and cooperation are appreciated.

Sincerely yours,

Michael H. Bureman

Louis S. Wall

for Assistant Director, Office
of Review and Compliance



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE

Two Embarcadero Center, Suite 530
San Francisco, California 94111

ALABAMA
ARIZONA
CALIFORNIA
CONNECTICUT
FLORIDA
GEORGIA
ILLINOIS
INDIANA
IOWA
KANSAS
KENTUCKY
LOUISIANA
MAINE
MARYLAND
MASSACHUSETTS
MICHIGAN
MINNESOTA
MISSISSIPPI
MISSOURI
MONTANA
NEBRASKA
NEVADA
NEW HAMPSHIRE
NEW JERSEY
NEW YORK
NORTH CAROLINA
NORTH DAKOTA
OHIO
OKLAHOMA
OREGON
PENNSYLVANIA
RHODE ISLAND
SOUTH CAROLINA
SOUTH DAKOTA
Tennessee
Texas
UTAH
VERMONT
VIRGINIA
WASHINGTON
WEST VIRGINIA
WISCONSIN
WYOMING

September 8, 1977
IN REPLY REFER TO
HED-09

Mr. Robert R. Garvey, Jr.
Executive Director
Advisory Council on Historic Preservation
1522 "K" Street, N.W., Room 430
Washington, D. C. 20005

Dear Mr. Garvey:

Enclosed for your use in preparing a Memorandum of Agreement, is a case report and supporting documentation for Hawaii Project RF-011-1(8) on the Island of Hawaii. The undertaking is an improvement to a portion of Federal-aid Route 11 located between Holualoa and Papa, and will have an adverse effect upon the Kona Field System which has been determined eligible for the National Register.

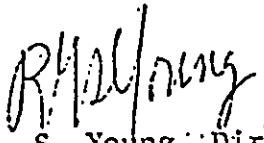
Your Denver staff and the State Historic Preservation Officer, have provided technical assistance in the identification of the historical resources and the effect of the undertaking upon them. Only one National Register property will be effected. A no build alternative is the only way to avoid an adverse effect.

FIHWA and the Hawaii SHA proposal contain certain actions that will mitigate the adverse effect. The mitigation steps have been developed with the SHPO.

Your efforts in a speedy preparation of a Memorandum of Agreement will be appreciated.

A copy of this letter and the supporting documentation is being sent to your Denver Office.

Sincerely yours,

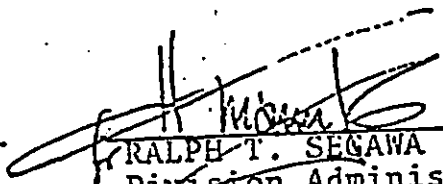

R. G. S. Young, Director
Office of Environment and Design

Enclosure

Hawaii Project RF-011-1(8), Hawaii Belt Road
Holualoa to Papa, North and South Kona, Hawaii

A Report Prepared Pursuant to Section 106 of the
National Historic Preservation Act of 1966

September 2, 1977
Date


RALPH T. SEGAWA
Division Administrator

INTRODUCTION

This report is prepared in compliance with provisions of Section 106 of the National Historic Preservation Act of 1966.

The Federal Highway Administration (FHWA), in cooperation with the National Park Service, has determined that the proposed Hawaii Belt Road, Holualoa to Papa Section, will adversely affect the Kona Field System, a property eligible for inclusion in the National Register of Historic Places. See Attachment "A".

With the concurrence of the State of Hawaii Historic Preservation Officer, FHWA has also determined that no other properties which are on, eligible to be placed on, or may be eligible for inclusion on the National Register of Historic Places, are affected by the proposed undertaking.

Since the project may be partially funded by Federal-aid Rural Primary Highway funds, Section 106 requirements must be met prior to design approval of the proposed highway improvement.

IDENTIFICATION OF RESOURCES

The Historic Properties Report, Attachment "B", which was prepared by the State's design consultant, identifies properties eligible for inclusion in the National Register of Historic Places, located within the area of the project's potential impact.

Appendix C of the project Draft Environmental Impact Statement (DEIS) Attachment "C", includes documentation pertinent to preservation of historic resources in the project area. Pages I-35, I-36, (Fig. I-12), II-19, III-2 and VII-1 of the DEIS provide additional information which may be of interest during preparation of the required Memorandum of Agreement.

An on-site inspection was conducted on August 27, 1975 which included the following participants:

Mr. Michael Bureman representing the Advisory Council of Historic Preservation
Ms. Jane Silverman, State Historic Preservation Officer
Ms. Beth Walton and Mr. Gary Cummins, Assisting the SHPO

Mr. George Kodani, District Design Engineer, LTFD
Mr. H. Kusumoto, Assistant Division Administrator/
Engineering Coordinator
Mr. Glenn M. Yasui, Area Engineer, FHWA
Mr. M. Tanner, Region 9 Office of Environment and
Design, FHWA
Mr. L. Pang, Jr. Engineer, FHWA

As a result of the on-site inspection, representatives of the Hawaii Division Office, State Historic Preservation Office and the Advisory Council determined that a public information meeting was not necessary. See Attachment "D".

MEMORANDUM OF AGREEMENT.

Based on the State Historic Preservation Officer's letter of May 14, 1975, (Attachment "E"), to the State Department of Transportation and subsequent meetings between FHWA representatives and the SHPO, the following provisions are recommended for inclusion in the Memorandum of Agreement to set forth mutually acceptable measures to mitigate adverse effects of the proposed highway improvement on identified archaeological/historical resources.

1. If Alignment A or B is selected, a preliminary archaeological reconnaissance survey will be conducted. Such a preliminary survey will minimally consist of:
 - a. An on-foot visual survey of the proposed corridor of such intensity that the number and kind of archaeological sites can reliably be estimated (+ 10%).
 - b. A map of the proposed corridor showing the estimated location of sites and site concentrations and relating such locations to terrain features.
 - c. Certification of areas where no archaeological sites exist.
 - d. Description of each site or concentration of sites sufficient to document the need for further archaeological survey or excavation.
 - e. Recommendations for further work, if necessary.
2. Individual archaeological features, identified by the archaeological survey, which have substantial individual

potential to yield information important in the pre-history or history of Hawaii which may be altered or destroyed by this project or any action ancillary to the project construction (such as spoil or borrow areas; access, storage or turn around areas for machinery) shall be tested by rigorous archaeological methods, and if such tests confirm their importance, they shall be recommended for total scientific data retrieval to the State Historic Preservation Officer.

3. If the Historic Preservation Officer accepts the recommendation for total scientific data retrieval, the U. S. Department of Transportation will set aside time and funds for such work and will undertake to do or have such work done.
4. The scope of work for historical/archaeological surveys will be reviewed by the State Historical Preservation Officer prior to initiation.

CONCLUSION AND RECOMMENDATION

The foregoing information, including Attachments, appears to adequately support our determination that the identified adverse effects on archaeological/historical resources within the proposed highway right-of-way can be effectively mitigated as required by Section 106 of the National Historic Preservation Act of 1966.

We therefore recommend preparation of a Memorandum of Agreement by the Executive Director of the Advisory Council for subsequent acceptance by the Regional Federal Highway Administrator and the State Historic Preservation Officer.

PROJECT STATUS

Draft Environmental Impact Statement accepted by FHWA, 7/6/76, and subsequently circulated for comments.

Formalization of Final EIS to proceed upon execution of a Memorandum of Agreement between the Advisory Council, FHWA and the SHPO.

Upon approval of the Final EIS and project Design Report, FHWA may issue design approval.

DA 11599

DETERMINATION OF ELIGIBILITY NOTIFICATION
NATIONAL REGISTER OF HISTORIC PLACES
OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION
NATIONAL PARK SERVICE

Request submitted by: H. Kusumoto, Federal Highway Administration

Date request received: December 21, 1976

Name of property: Kona Field System State: Hawaii

Location: Hawaii Island

Signature of the State Historic Preservation Officer:

(*) Eligible () Not eligible () No response

Comments: "'Without equal in Hawaii,' and...the complexity of the system show(s) the excellent practical engineering and environmental knowledge of the ancient Hawaiians.'"

Secretary of the Interior has determined that this property is:

(*) Eligible Applicable criteria: (A), (C), (D)

Comments: The Kona Field System contains the extensive remains of a system of terraced fields used by the ancient Hawaiians until historic times. The system, which can best be viewed from the air, employed a sophisticated cultivation system using appropriate crops in several distinct ecological sub zones. We would appreciate receiving a better map (preferably a USGS map) indicating site boundaries in order to complete our records.

Comments:

() Documentation insufficient (see accompanying sheet explaining additional materials required)

Acting Chief, Office of Archeology and Historic Preservation

Date: 1/28/77

WASO-125

HAWAII BELT ROAD
HOLUALOA TO PAPA
PROJECT NO. F-011-1(8)

IDENTIFICATION OF HISTORICAL
RESOURCES LOCATED IN THE
KONA HIGHWAY PROJECT
AREA

March 1975

SUNN, LOW, TOM & HARA, INC.

ENVIRONMENTAL ENGINEERS

ATTACHMENT "B"

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
DESCRIPTION OF PROJECT	2
The Existing Highway	2
Highway Corridors Under Consideration	4
HISTORICAL RESOURCES OF KONA	6
Archaeological	6
Kona Field System	8
IMPACT OF ALTERNATE HIGHWAY CORRIDORS ON HISTORICAL RESOURCES	11
APPENDIX	
Archaeological Inventory of the Kona Districts	
EXHIBIT	
Historic Resources & Alternative Corridors	

IDENTIFICATION OF HISTORICAL RESOURCES LOCATED
IN THE KONA HIGHWAY PROJECT AREA

INTRODUCTION

The Kona coast on the western side of the island of Hawaii has been growing steadily over recent years into one of the most desirable recreation areas for residents and one of the most popular tourist destinations in the state. New condominiums and homes, shopping centers, and business establishments are being developed to serve the new residents, while hotels, resorts, and related industries are springing up to cater to the visitors. Yet, to this date, there remains only one, main, two-lane highway running north and south through the Kona districts to handle the present and projected traffic volumes.

Anticipating the growing inadequacy of Kona's road system, the state legislature authorized and appropriated funds in 1968 and 1973 for the construction of a two-lane highway from Holualoa in North Kona to Papa in South Kona. The Highways Division of the State Department of Transportation subsequently authorized the current study to determine a corridor for that highway for the planning period between 1978 and 1998. The project is identified by the division as "Hawaii Belt Route, Holualoa to Papa, Project F-011-1(8)."

As a result of this study, the state would be able to design a modern highway through North and South Kona that would satisfy not only the traffic demands of a growing economy but also the environmental considerations of the communities through which it would pass.

Because of the historical and archaeological importance of the entire region, the protection of its abundant historical resources played a

significant role in the study. The importance of this component of the study is underscored by the fact that two major areas in the region have been designated historical districts, while a third is an area of great archaeological interest. In a state where much of the past is being crowded by civilization and even covered in concrete, the preservation of historical and archaeological sites is critical and of major importance to those concerned about the effect of a new highway on such areas.

DESCRIPTION OF PROJECT

The Existing Highway

The main highway running in the north-south direction through Kona is composed of segments of Kuakini and Mamalahoa highways and the Hawaii Belt Road, which are part of the round-the-island highway system.

Located one to two miles from the coastline, the existing highway traverses the slopes of Hualalai and Mauna Loa, climbing from an elevation of about 400 feet above sea level at Holualoa to about 1500 feet at Captain Cook, then sloping gradually to about 875 feet at Honokua and climbing again to about 1720 feet at Papa.

The highway is identified as Route 11 in the Federal Aid Primary System and the State Highway System. Although the highway is included in the State Highway System, its maintenance is under two jurisdictions; approximately 24.8 miles are under the state and 6.5 miles are under the county of Hawaii. This mixed jurisdiction is made evident by signs along the highway and even more evident by the differences in design standards and quality of maintenance.

The county sections pass through the more heavily populated towns of Honalo, Kainaliu, Kealakekua, Captain Cook, and part of Honaunau, while the state sections pass through the sparsely populated areas.

The sections under the state's jurisdiction have been constructed with state and federal funds and maintained with state funds; the county sections are maintained with county funds.

The extent of the ±31-mile project in Kona is from the vicinity of Kealakowaa Heiau at Holualoa in the north to south of Milolii junction at Papa. It runs through or near the main towns of Holualoa, Keauhou, Kainaliu, Kealakekua, Captain Cook, Napoopoo, Honaunau, and Hookena.

Traffic through the project area is generated largely by--

- a. travel to and from adjacent properties and between towns;
- b. business and retail shops strung along the highway;
- c. Kona Civic Center, which houses the state and county offices, including police and court agencies and utility maintenance yards;
- d. federal agencies in North and South Kona;
- e. Kona Hospital in Kealakekua;
- f. Konawaena School, which contains the only high school in North and South Kona;
- g. Agricultural Experiment Station in Kainaliu;
- h. farm products including livestock;
- i. tour buses and round-the-island bus service

The existing highway is also a segment of the Hawaii Belt Route and provides transportation links to Kawaihae Harbor and Keahole Airport. Thus, the present highway may be considered a multipurpose road serving local, intra- and interregional traffic. In terms of classification, the existing highway through Kona serves functionally as a local road, minor arterial, and primary arterial.

Highway Corridors Under Consideration

Although the present highway can be improved to continue as multifunctional and fulfill the legislative mandate, other alternate alignments were investigated in this study (see Exhibit 1). Relief routes A-1, A, B, and C were selected for the purpose of alleviating the congestion that now exists principally between Honalo and Captain Cook. Any one of these four routes plus the existing road can be considered as a road system wherein the existing road will function as a local/collector road and any one of the other routes will function as the arterial highway.

Alternate Line A-1. Corridor Line A-1, would be a part of the Federal Aid Primary System on the island of Hawaii and would include the construction of about 31 miles of highway in North and South Kona. It begins from the vicinity of Kealakowaa Heiau at Holualoa and follows Kuakini Highway until it reaches Kamehameha III Road. At that point, it would continue on the west side of the existing highway until it connects with the existing upper segment of the City of Refuge Road to Keokea. From there, it would follow the existing road from Keokea to Papa. This line was developed subsequent to a public hearing held on September 15, 1976 in Kailua and was discussed at a public information meeting held on January 12, 1977 at Kealahou. Because of the lesser impact on farm lands, this corridor is the most feasible alternative.

Alternate Line A. Line A will be connected with Kuakini Highway until it reaches Kamehameha III Road. At that point it will leave the existing highway and continue south on the west side of the highway until it connects with Hawaii Belt Road at Waiea west of Hookena. This alignment will be east of the abandoned railroad bed at Keauhou, skirt the western boundary of

the farms and orchards below Kainaliu, Kealahou, and Captain Cook, wind through the middle of the orchards below Honaunau, and follow the existing highway south of Hookena. It will connect with intersecting roads and include two new connections to the existing highways: one will connect with Kuakini Highway north of Honalo and the other to Mamalahoa Highway between Konawaena School and Captain Cook.

Alternate Line B. Somewhat shorter than Line A-1, Line B runs along an alignment east of the existing highway. As with line A, the northern and southern ends of this line will connect with Kuakini Highway and the Hawaii Belt Road, in the vicinities of Honalo and Hookena Beach Road respectively. It will run above the Agricultural Station in Kainaliu, the Kona Hospital in Kealahou, and the Konawaena School in Kealahou and across the coffee farms and orchards two to three thousand feet east of the existing highway.

This line will be connected to all the intersecting streets, and, in addition, there will be two new connections to Mamalahoa Highway: the first will be between Captain Cook and the other at Keokea. The connection at Keokea will be aligned with the City of Refuge Road.

Alternate Line C. The 1971 county general plan and the 1960 plan for Kona show a coastal road between Kealahou and the City of Refuge at Honaunau. The General Highway Map of the state of Hawaii also shows a Federal Aid Secondary County Highway along the coast between Kealahou Bay and the City of Refuge. The roads shown on these documents are intended to provide access to beach and recreation areas as well as to open up areas with developmental possibilities.

Line C was selected as an alternate corridor to provide access to historical sites and proposed park areas at Hookena, Palemano Point, and other locations. This line will traverse the existing pastures and land areas, which are marginal in nature.

Connections to existing roads can be provided, and a new connection to Mamalahoa Highway should be provided between Konawaena School and other locations. This latter connection would make line C act as a relief to Mamalahoa Highway.

Alternate Line D. This alternative alignment is developed along the existing route--Kuakini Highway, Mamalahoa Highway, and the Hawaii Belt Road--with a right-of-way width of 80 feet. The additional right-of-way taking will be along either the western or eastern sides or both sides of the existing highway, depending on the types of development along the existing right-of-way.

HISTORICAL RESOURCES OF KONA

Archaeological

Until the recent, rapid development of the Kona coast as a tourist and resort area and a desirable location for second homes, the evidence of ancient Hawaiian occupation was a prominent feature of the landscape. This was especially true of the Kealakekua Bay, Kahaluu, and Keauhou areas. New construction, however, has destroyed many of these sites, and the rest are being threatened as never before.

(There are numerous sites and a variety of structures found on them. What determines a site depends on recommendations of community associations and the archaeologist. A single-house platform may be considered

as one site or as part of an entire complex, depending on whether it stands alone or is associated with nearby structures. Hence, a site may be a single structure, such as a lone grave, or an entire complex, such as a village having enclosures, walls, platforms, etc.)

Many of the sites in the Kona districts have legendary and historical significance, and some continue to be respected by the local inhabitants. The three areas previously mentioned are especially rich in sites, so much so that two of them, Kahaluu and Kealakekua Bay, have been designated state historical districts and are listed in the National Register of Historic Places. Keauhou, though not a historical district, is, nevertheless, an area of great archaeological interest because it, along with Kahaluu, was greatly favored by the Hawaiian ruling chiefs as a place of residence and recreation. The popularity of these areas is evidenced by the number, size, and quality of the heiaus found there. Later Hawaiian royalty also chose these areas for the same reasons--the beautiful landing bays for canoes, the abundance of fish, flourishing gardens in the upland areas, and the famous surf.

Among the more famous sites in the Kahaluu Historical District (see 4150 on Exhibit 1) is Kuemanu Heiau, famed as the only known major heiau for surfers in the state. Surfers came here before competitions to pray for victory and, afterwards, to wash off the salt in its bathing pool Wai-kui. Keeku Heiau is said to have been built by Lono-i-ka-makahiki, ruler of the island of Hawaii in the late sixteenth and early seventeenth centuries. This heiau served as both luakini (place of human sacrifice) and pu'uhonua

(place of refuge), though probably at different times. Hapaiali'i Heiau is reputed to have been built by Kamehameha I after the Battle of Moku'ohai but was probably built during an earlier period, as local knowledge indicates it is older than the nearby Keeku Heiau. More likely, it was reconstructed and reconsecrated by Kamehameha. Besides heiaus, there is the Kahaluu Breakwater built by Kalai-kini, an engineering feat that once enclosed Kahaluu Bay. Less famous sites include the Kauaiilii Complex, which was used to plant sweet potatoes, platforms, puoas (burial cairns), petroglyphs, and caves.

On the way south to Keauhou, there is the Keauhou Holua, the best preserved slide in the islands and the largest, covering approximately ten acres. The Keauhou Heiau is also in this area, while the Kumahaula Heiau is in the nearby Heeia Bay Complex. Keauhou also has its share of platforms, petroglyphs, and habitation sites.

All along this coastal area there are a number of large sites. Farther south at Kealakekua Bay, the Kuamoo Burial Ground, set aside for the warriors of the Kuamoo Battle, has been designated as highly valuable in both the Hawaii State and National Registers of Historic Places. The Honalo Complex around Maihi Bay is an extensive habitation complex with burials, a heiau, and a holua.

Kealakekua Bay is famous for its historical significance. It was here that Captain James Cook made his historic landing in the Hawaiian Islands, and it was at the nearby Puhina-O-Lono Heiau (or Cook's Heiau, as it is more commonly known) that his body was prepared for distribution according to ancient Hawaiian custom. Kealakekua Bay is also important in that here one

can witness an untouched, native culture gradually transforming itself into a hybrid as it comes into increasing contact with the influence of western culture.

Of the numerous archaeological sites known, the majority are located on the coast. Inland are Kealakowaa Heiau near Kuakini Highway in the Holualoa ahupua'a (land division), the Keauhou Holua east of the coast highway (State 18), and the aboriginal field system above Kealakekua Bay (see following section). This does not mean, however, that no sites exist at all farther inland. The inland areas of the Kona districts are virgin territories not yet surveyed by archaeologists, mainly because of the dense vegetation covering the regions and their inaccessibility. As these districts were highly favored by the chiefs, chances are that unknown sites will be found along the proposed corridors. (For a partial archaeological inventory of the Kona districts, please see the appendix.)

Kona Field System

Essential to any discussion of the archaeological resources of the Kona districts is the Kona Field System, the most extensive and monumental work of ancient Hawaii. An integrated complex of remains in an area measuring 3 by 18 miles in size, the system can only be seen in its entirety from the air or by means of aerial photos.

The fields form a patterned network of elongated rectangles lying as a band parallel to the sea. Ground inspections in the Kealakekua Bay area have shown that the patterning is caused by earthen and rock ridges that enclose rectangular field areas, generally oriented with their long axes

perpendicular to the sea. This places the long sides of each rectangular field perpendicular to the topographic contours and parallel to the terrain slope.

Individual fields vary in size from 30 feet wide by 50 feet long to 150 feet by 1,000 feet. Field boundaries vary from well-constructed stacked stone to simple mounds of earth and rock, all ranging in height from about 1.5 feet to 3 feet. The width of these field boundaries varies from about 3 feet for the stone walls to about 9 feet for the rounded earthen mounds.

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

The general symmetry of the Kealakekua fields, and of the whole Kona system, is well designed to take advantage of the western Hawaii Island environment. The alignment maximizes the available sunlight and exposure to periodic rain showers. Onshore winds are generally light, so physical damage or excessive plant evapotranspiration would not have been a crucial factor in field alignment.

Excellent historical documentation exists for the Kona Field System, primarily through the journal of Archibald Menzies, surgeon and naturalist, who periodically visited the area between 1792 and 1794. Menzies made two trips inland through portions of the system from the coast to the upper elevations. In his walk through the northern portion, going towards Hualalai, he noted breadfruit plantations and edible roots and vegetables industriously cultivated. Heading back toward Kaawaloa, he found the

edge of the forest bounded by rich plantain and banana plantations. In another trip beginning at Kealakekua Bay in the southern portion of the system, he noted breadfruit plantations, with plantings in between the trees of sweet potatoes and wauke (cloth plant). As the land became more fertile, he noted the land was divided into plantations of 'ili, wauke, sweet potatoes, and taro, with boundaries composed of sugar cane and ti.

According to the Hawaii Register of Historic Places, the Kona Field System is without equal in Hawaii and probably in the nation in terms of the amount of land that was modified by prehistoric inhabitants. In its complexity and size, it is comparable to the well-known field systems of Central and South America, although differing in specific characteristics. It is a physical demonstration of the highly developed farming economy of ancient Hawaii, and it illustrates the complexity and advanced state of aboriginal Hawaiian culture.

The study of environmental and crop factors shows the ancient Hawaiians were knowledgeable and adept in molding their needs to live in harmony with nature. The Kona Field System is a dramatic illustration of their dependence upon the production of land foods, their primary subsistence source. Historical records show a strong appreciation of good conservation measures, such as fallowing and mulching.

The vastness and complexity of the system also show the excellent practical engineering knowledge of these people as well as the highly evolved social organization that could coordinate the work of so many individuals to create and maintain such a system. Within the overall system, it is still possible to see clearly the boundaries of the traditional

'ili and ahupua'a land divisions. This gives an unparalleled opportunity for research into the organization and interrelationships of ancient Hawaiian society.

The innumerable remains of the habitations and of complete assemblages of other physical remains, such as burial areas, heiaus, cave shelters and refuges, animal enclosures, and work platforms all contribute to the importance of this system to archaeological research.

Urban development and modern agriculture have caused moderate damage to the system, but ample physical remains are sufficiently well preserved to define the system's boundaries and to make it an invaluable addition to the Hawaiian heritage.

IMPACT OF ALTERNATE HIGHWAY CORRIDORS ON HISTORICAL RESOURCES

As shown in Exhibit 1, the three most important archaeological and historical areas in the Kona districts--the Kealahou Historical District (7000), the Kahaluu Historical District (4150), and the Kona Field System (6601)--overlap one another. Because of their location, the two historical districts can be avoided by a new highway corridor, but, because of its size, the Kona Field System cannot. West of the system the abundance of archaeological sites and the ocean itself prevent location of a highway, while the area above its eastern boundary lies at an elevation high enough to cause serious construction problems and to infringe into the native forest. More importantly, the existing towns that will be served by the alternate corridors are all located within the boundaries of the field system.

Careful consideration of the existing archaeological and historical sites influenced the selection of feasible corridors through the project

area. As shown in Exhibit 1, alignment C will pass through the Kealahou Historical District and may destroy some of the best preserved dry-land agricultural systems in that park. Line A would pass through a detached parcel of the City of Refuge National Park. It will be very difficult to obtain an environmental clearance on these alignments since there are other possible corridors to avoid the detached parcel and above the district. For these reasons, these corridors are not being considered further as feasible and prudent alternates. (An additional alternative corridor, a coastline route proposed in both the 1960 Kona Master Plan and the 1971 Hawaii County General Plan, was dismissed earlier from serious consideration because it, like alignment C, would pass through and close to several important archaeological and historical sites.)

All of the specific sites that are along the shoreline would not be directly influenced by any of the remaining alternative alignments, A-1, B, and D, although alignment A-1 would skirt the two historical districts. If it turns out that there are many archaeological sites located along alignment D, this alternate can be eliminated inasmuch as it already poses an adverse impact on the existing business establishments along the route and will displace many families.

In order to avoid damaging unknown sites, it will be necessary to make a more precise archaeological ground survey of the chosen route during the design phase of the project. The archaeologists and engineers should cooperate with each other in determining the finite location of the selected alternate, but the decision on whether a site should be preserved or re-located should be made by the archaeologist.

APPENDIX

Archaeological Inventory of the Kona Districts

The data for this inventory were obtained from the State Department of Land and Natural Resources, Division of State Parks, Hawaii Register of Historic Places Section, and corresponds with its numbering and filing system. The site locations and their accompanying numerical designations are as complete as those found in the Hawaii Register's USGS maps; however, the information regarding the sites is incomplete as not all the files were available during the research period. This accounts for the large number of sites with a 'no information' classification. Also, there are a number of sites having a file but whose location could not be determined; hence, they are not listed on this inventory.

- 3833 Kealakowaa Heiau. Also known as Halehau Heiau, this site is located at the beginning point of the project less than 50 feet from the ocean side of Kuakini Highway. It is a complex of five platforms dating back to the time of King Umi.
- 2033 Hamakaokahai Ko'a. Ancient Hawaiian fishing shrine
- 2036 House platform
- 2038 Holualoa complex
- 2037 Costa cava. Habitation site with petroglyph
- 2040 House platform
- 2041 House platform
- 3829 Hikapaia Heiau
- 2059 Kamoia Pt. complex. Possibly encloses Keolonanini Heiau with its freshwater pond and petroglyphs, and Haleama Heiau
- 2058 Kaumalumalu complex. Contains a habitation site and burials
- 2021 Pahoehoe complex. Habitation site and puoa burials
- 2009 Heiau and house site
- 2068 Complex of house platforms
- 2055 Laaloa burials. Also contains a habitation site
- 2054 Laaloa house sites
- 2053 House platform

- 2046 Kapalaalaea complex. Habitation site
- 4150 Kahaluu Historical District. Included in this area are Kuemanu Heiau, the only known major heiau dedicated to surfing; Pa-o-umi Heiau, once the residence of a king; and Keeku Heiau, which served as both a luakini (place of sacrifice) and a pu'uhonua (place of worship). The district also encompasses a breakwater built by Kalai-kini, habitation sites, burial platforms, enclosures, petroglyphs, and walls. It was recently listed in the National Register of Historic Places.
- 1735 Keauhou Heiau
- 1663 Heeia Bay complex. Includes Kumahaula Heiau
- 1669 Keauhou Helua. Listed in the national register, it is the largest slide in the islands and was used for recreational purposes by the alii. Located just above Alii Drive in Keauhou, it is considered an engineering feat.
- 1656 Petroglyph
- 1657 Petroglyphs
- 1737 Habitation site
- 1739 Habitation site
- 1738 Habitation site
- 1740 Keauhou complex 2
- 1746 Platform
- 1748 Platform
- (1745)
- 3809 Kuamoo burials. Burial ground for Kuamoo battle warriors
- 4161 Honalo complex. Habitation area with numerous remains of house sites, working areas, and midden deposits. It also contains a number of puoa burials in good condition, a heiau, and a holua.
- 1760 Kuamoo platform
- 1761 Possible heiau at Kuamoo Pt
- 3805 Lonohelema Heiau
- 1814 Kuamoo Holua
- 1812 Lonohelema complex. Cave habitation
- 1815 Kuamoo complex. Habitation site
- 3804 Pauoa Heiau
- 1813 Fishing Heiau
- 1790 Leinokano complex
- 3803 Ukanipo Heiau
- 4162 Honuaino complex 1. A habitation complex consisting of platforms, walls, a salt-making area, and Pohakapu Heiau

- 1876 Hokukano complex. Habitation site
- 1877 Kanaeue complex. Habitation site
- 1934 Kanaka burials
- 1944 Keopuka complex 1. Has religious significance associated with settlement patterns
- 1945 Keopuka burials 1
- 1946 Keopuka complex 2
- 1947 Keopuka platforms 1
- 1948 Keopuka complex 3. Habitation site
- 1949 Heiau at Keopuka
- 1950 Keopuka complex 4
- 1951 Keopuka shelter 1
- 1952 Keopuka complex 5
- 1953 Keopuka shelter 2
- 1954 Keopuka shelter 3
- 1955 Keopuka complex 6. Rock shelters and enclosures
- 1956 Keopuka platform 2
- 1958 Keopuka complex 7. Walled shelters and a possible heiau or puoa
- 1960 Keopuka burials 2. Burial platforms
- 1961 Keopuka complex 8. A habitation complex of platforms and walls
- 1962 Keopuka house structures. Possible historic kuleana
- 7000 Kealakekua Historical District. An area of both historic and pre-historic significance, this district is now listed in the National Register of Historic Places. Long famous as the location of Captain James Cook's discovery of the Sandwich Isles (original name of the Hawaiian Islands) and his subsequent death in Kealakekua Bay, this district also contains other noteworthy sites. Among them, Hikiau Heiau, a place where humans were sacrificed and Captain Cook was worshiped as the god Lono; Puhina-O-Lono Heiau, where Cook's body was prepared for disposal according to ancient Hawaiian custom; Pali-Kapu-O-Keoua, where many burial caves are located; and Umi's well. Also included are shelter caves, enclosures, grave sites, petroglyphs, clearings, trails, and part of the remains of an extensive aboriginal Hawaiian dry-land agricultural system.
- 1987 Keei complex 2. Includes platforms, walls, burials, and a trail
- 3745 Kipu housesite
- 1986 Keei complex 2. Habitation site having platforms, enclosures, and a single grave
- 3744 Habitation complex
- 3743 Platform. Midden material indicates it to be a habitation platform

- 3738 Walled enclosures
- 3741 Platform area. Associated with sites 3740 and 3743
- 3740 Large enclosure. Possibly a habitation or work area
- 3751 Fishing shrine
- (3723)
- 4203 Kiilae refuge cave
- (3722)
- 4208 Kekahuna cave. Small refuge cave
- 3759 Palianihi burial caves
- 3761 Kaohe house platform. Said to be Kaiawe's house
- (3763-69)
- 4188 Kukuiopae and Waikakuu complex
- 3770 Kolo housesites
- 3771 Kupuali Pt. Remains of Hawaiian activity mixed with a timber loading causeway
- 3772 Kupuaali Pt Trail. Runs down to Puao Pt.
- 3773 Puao Pt. cave
- 3774 Kaluahee stairway. Built of water-worn stones
- 4192 Kipahoehoe Bay complex
- 4184 Alike Bay housesites. Also includes a shelter cave and a fishermen's shrine
- 4185 Papa Bay complex
- 6601 Kona Field System. A massive ancient Hawaiian dry-land agricultural field system stretching from Honokohau to Hookena, it encompasses a total of 1392 sq. km. It is without equal in Hawaii, and probably in the nation, in terms of the extensiveness of the prehistoric modification of the land. Although much of the system has been destroyed, there are still areas where it is in good condition; for example, the areas above Kealakekua Bay and east of Holualoa. At present the Kona Field System is being nominated to the National Register of Historic Places by the Hawaii register to protect it from further encroachment.

City of Refuge. Located just south of Honaunau Bay, it is a National Historical Park listed in the National Register. In ancient times it was a place of refuge or puuhonua for pursued persons lucky enough to reach its boundaries. There is also a structure there known as Hale-O-Keawe where the bones of Hawaiian chiefs were kept.

REFERENCES

Barrera, William M., Jr.
"Archaeological Excavations and Survey at Keauhou, North Kona, Hawaii"
Dept. of Anthropology, B. P. Bishop Museum
Honolulu, Hawaii, October 1971

Crozier, S. Neal
"Archaeological Survey of Kamehameha III Road, North Kona, Island of Hawaii"
Dept. of Anthropology, B. P. Bishop Museum
Honolulu, Hawaii, July 1971

Emory, Kenneth P.
"Inventory of Archaeological and Historical Sites in the Districts of Kona and Kau and in Anaehoomalu, South Kohala, Island of Hawaii"
Dept. of Anthropology, B. P. Bishop Museum
Honolulu, Hawaii, December 1970

Emory, Kenneth P.; McCoy, Patrick C.; and Barrere, Dorothy B.
"Archaeological Survey: Kahaluu and Keauhou, North Kona, Hawaii"
Dept. of Anthropology, B. P. Bishop Museum
Honolulu, Hawaii, May 1971

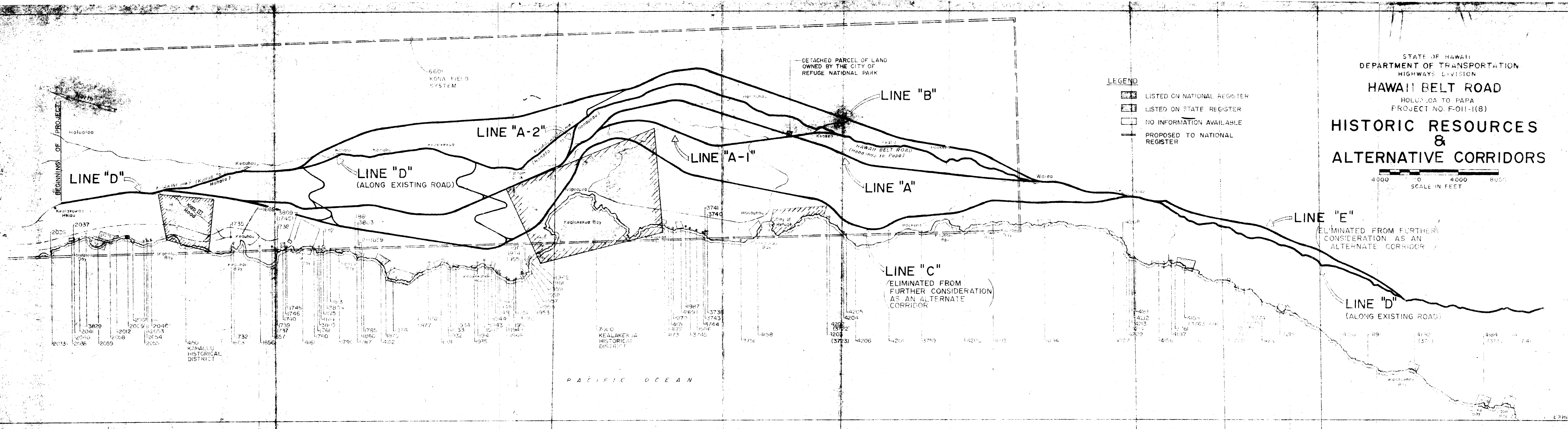
Hawaii Register of Historic Places Site Files

Soehren, Lloyd J.
"An Evaluation of the Archaeological Features Between Honaunau and Kaawaloa, South Kona, Hawaii"
Dept. of Anthropology, B. P. Bishop Museum
Honolulu, Hawaii, January 1968

Soehren, Lloyd J., and Newman, T. Stell
"The Archaeology of Kealakekua Bay"
Dept. of Anthropology, B. P. Bishop Museum
Honolulu, Hawaii

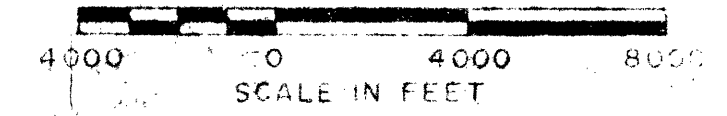
West Hawaii Highway Corridor Study
"Environmental and Urban Design Proposals for Hawaii"
West Hawaii Project

98-012



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
HAWAII BELT ROAD
 HILU TO PAPA
 PROJECT NO. F-011-1(8)

**HISTORIC RESOURCES
 &
 ALTERNATE CORRIDORS**



- LEGEND**
- LISTED ON NATIONAL REGISTER
 - LISTED ON STATE REGISTER
 - NO INFORMATION AVAILABLE
 - PROPOSED TO NATIONAL REGISTER

LINE "E"
 ELIMINATED FROM FURTHER
 CONSIDERATION AS AN
 ALTERNATE CORRIDOR

LINE "C"
 ELIMINATED FROM
 FURTHER CONSIDERATION
 AS AN ALTERNATE
 CORRIDOR

LINE "D"
 (ALONG EXISTING ROAD)

LINE "D"
 (ALONG EXISTING ROAD)

PACIFIC OCEAN

EXHIBIT

APPENDIX C

Letters between the Federal Highway Administration
and the State Historic Preservation Officer

on the

Kona Field System

ATTACHMENT "C"



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE
Suite 613, 677 Ala Moana Blvd.
Honolulu, Hawaii 96813

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA

COPY

July 10, 1975
IN REPLY REFER TO
915EC

Ms. Jane Silverman
State Historic Preservation Officer
Department of Land & Natural Resources
465 S. King Street
Honolulu, Hawaii 96813

Dear Ms. Silverman:

Subject: Hawaii Project F-011-1(8), Hawaii Belt Road, Holoaloa to Papa

In accordance with 36 C.F.R., Part 800, we have determined that lines A and B will have an adverse impact upon the Kona Field System which has been nominated by the State for inclusion into the National Register of Historic Places.

This finding of adverse effect is based on the probable alteration of the undisturbed portions of the Kona Field System by the proposed highway improvement.

We have also determined that there is no effect on sites other than the Kona Field System based on physical separation between alternates under consideration and our research of known historic sites. For your information, line A is nearest to the known sites and will be beyond the boundaries of the Kahaluu and Kealakekua historical districts. The remainder of the sites are located from 1,000 feet to 2 miles away. The Historical Properties Report dated March 1975 which describes the cultural resources within the project area is attached for your use.

We ask your concurrence in our above determinations of effect as related to the subject Hawaii Belt Road improvement.

A detailed archaeological survey along the selected corridor will be conducted prior to construction to locate, identify, evaluate and preserve those historical and cultural resources deemed significant by a competent archaeologist. Measures to mitigate the adverse effect on the Kona Field System will also be determined at this time.

Thank you for your assistance.

Sincerely yours,

Ralph T. Segara, Division Engineer

By: 
H. Kusumoto, Asst. Division Engineer

Enclosure

1075

JOHN A. BURNS
GOVERNOR OF HAWAII



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

RECEIVED

AUG 4

DIVISIONS:
CONSERVATION
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE HISTORIC
WATER RESOURCES
DIVISION

DEPT. OF LAND AND NATURAL RESOURCES

July 21, 1975

Mr. Ralph T. Segawa
Division Engineer
U. S. Department of Transportation
Federal Highway Administration
Region Nine
Suite 613, 677 Ala Moana Boulevard
Honolulu, Hawaii 96813

Dear Mr. Segawa:

Subject: Hawaii Project F-011-1(8), Hawaii Belt Road
Holualoa to Papa: Determination of Effect
on Archaeological and Historic Sites

Your determination of adverse effect upon the Kona Field System, a site eligible for inclusion on the National Register of Historic Places by the above project has been reviewed by this office in accordance with the criteria of 36 CFR, Part 800.9, and meets with our concurrence.

Your determination of no effect on other known sites in the vicinity of the above project is also concurred with.

This office will be pleased to assist in the preparation of a memorandum of agreement to mitigate the adverse effects to the Kona Field System, and agrees with the decision to carry out a detailed archaeological survey of the corridor selected.

Your interest and cooperation is greatly appreciated.

Sincerely yours,

Jane L. Silverman
Historic Preservation Officer
State of Hawaii

CC:jsm

347

indicates that its transportation needs would be met best by alternative A.

Those businesses along the present highway between Keauhou and Captain Cook that are primarily tourist oriented would be hurt by the adoption of either alternative A or B. The majority of businesses in that area, though, are resident oriented and should not be detrimentally affected, considering the projected dramatic increase in the resident population.

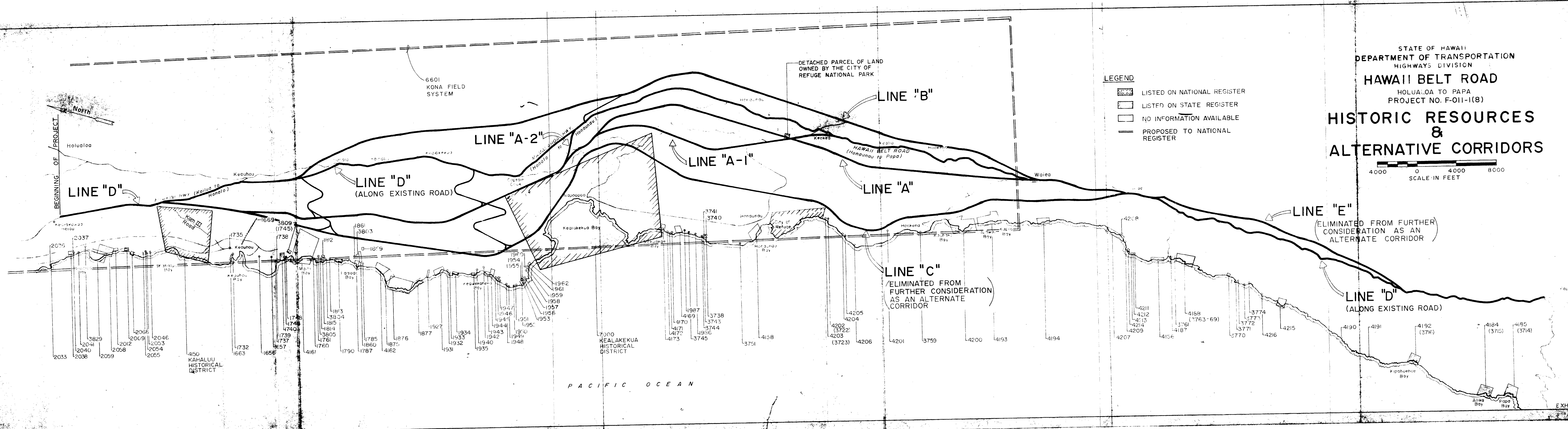
ARCHAEOLOGICAL AND HISTORICAL SITES

The following is a summary of the historical resource study prepared for this project (Technical Report 5).

The locations of the known archaeological and historical sites in the project area are shown in Figure I-12. Almost all of the specific sites are along the shoreline and, consequently, are not directly influenced by either of the principal alternative alignments.

Both alternatives, however, pass through the Kona Field System. In order to avoid damaging any presently unknown sites, it will be necessary to make a careful ground survey of the chosen route during the design phase of the project. At that time the historical and archaeological significance of the great wall of Kuakini and the abandoned railroad bed will be evaluated insofar as they are affected by the chosen alignment. (See letters of coordination and correspondence between FHWA and the State Historic Preservation Office in Appendix C.)

98-013

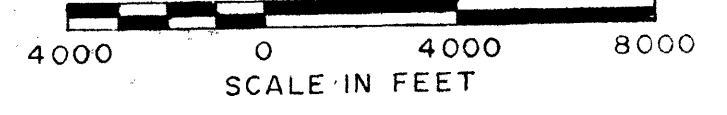


STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

HAWAII BELT ROAD

HOLUALOA TO PAPA
 PROJECT NO. F-011-1(8)

**HISTORIC RESOURCES
 &
 ALTERNATIVE CORRIDORS**



LEGEND

- LISTED ON NATIONAL REGISTER
- LISTED ON STATE REGISTER
- NO INFORMATION AVAILABLE
- PROPOSED TO NATIONAL REGISTER

LINE "E"
 (ELIMINATED FROM FURTHER
 CONSIDERATION AS AN
 ALTERNATE CORRIDOR)

LINE "C"
 (ELIMINATED FROM
 FURTHER CONSIDERATION
 AS AN ALTERNATE
 CORRIDOR)

LINE "D"
 (ALONG EXISTING ROAD)

DETACHED PARCEL OF LAND
 OWNED BY THE CITY OF
 REFUGE NATIONAL PARK

6601
 KONA FIELD
 SYSTEM

7000
 KEALAKEKUA
 HISTORICAL
 DISTRICT

4150
 KAHALUU
 HISTORICAL
 DISTRICT

PACIFIC OCEAN

EFFECT ON ARCHAEOLOGICAL AND HISTORICAL RESOURCES

The routes of alternatives A and B were chosen partly to avoid interfering with any of the known archaeological and historical sites along the coastline. A major problem with both alternatives, however, is that it will be impossible to avoid the Kona Field System (see Figure 1-12), which has been nominated to the National Register of Historic Places, and still provide for the transportation needs of North and South Kona. Adoption of either alternative may adversely affect this archaeologically important system whose various sites may be located in the right-of-way along the routes.

The procedure outlined in Section 106 of the National Historic Preservation Act have been followed by the exchange of letters between the Federal Highway Administration and the State Historic Preservation Officer (see Appendix C). A memorandum of agreement will be executed by the two agencies to assure mitigation of the adverse effects to the Kona Field System. This memorandum will be incorporated in the Final EIS. In addition, a detailed archaeological survey will be conducted of the System and any other archaeologically important sites found prior to the final design.

Should any archaeological or historical findings be encountered during construction, operations will be temporarily suspended to allow proper authorities to evaluate the findings and determine the necessary course of action.

be minimized by designing the drainage system on the basis of an estimated 50-year recurrence interval storm and by providing a sufficient number of culverts that will be carefully spaced to spread the flow and thus prevent excessive erosion. In addition, the drainage facilities will be evaluated based on a 100-year storm.

The alignment of alternative B would have the advantage of serving the transportation needs of the agricultural interests east of the present highway but would have the disadvantage of not serving the project residential areas west of the existing highway. The coastally oriented visitor industry would not be as well served by alternative B as by alternative A.

The archaeologically important Kona Field System, through which both alternatives A and B pass, may be adversely affected by construction. A conscientious attempt will be made during the design phase to minimize this adverse impact by conducting an archaeological survey of the chosen alternative route, aimed at locating and preserving significant sites.

PROBABLE ADVERSE EFFECTS OF ALTERNATIVE A

During construction, alternative A would cause an even smaller degree of inconvenience than alternative B because it splits off from the existing highway about three miles and one year sooner.

Alternative A would have adverse impacts similar to those described for alternative B regarding drainage and the Kona Field System.

The alignment of alternative A would better serve the tourist industry and the projected residential areas west of the existing highway. It would not, however, serve the transportation needs of the agricultural areas east of the existing highway.

The location of alternative A would have the aesthetic disadvantage of being clearly visible from the viewpoint above Kealakekua Bay.

CHAPTER VII
MITIGATION MEASURES

The adverse effects to the existing archaeological and historical sites will be mitigated by salvaging or revising the highway alignment to either preserve or bypass them. Significant sites will be determined in a detailed archaeological survey to be conducted prior to final design.

During construction of the highway, there will be inconvenience to the public and other short-term detrimental effects involving noise, dust, erosion, disposal of rubbish, and other nuisances. The construction process itself will be divided in usable lengths of five and six miles. Procedural and standard measures contained in the state's "Standard Specification for Road and Bridge Construction" will insure the minimizing of adverse effects during construction. Measures such as the following will be taken:

1. Dust will be kept down at all times by sprinkling water, using dust palliatives, limiting the area of construction activity, and curtailing construction during strong wind conditions.
2. All internal combustion engine-powered equipment will have mufflers to minimize noise.
3. Necessary signs, lights, flares, barricades, markers, and cones will be provided for the convenience and safety of public traffic.
4. All unusable debris and waste materials will be hauled away to approved disposal areas to minimize forest fire hazards and insect and rodent buildup. Burning of rubbish at the project site will be prohibited.

FIELD TRIP REPORT
(See instructions on reverse)

Sept. 11, 1975

Mr. H. Kusumoto
Asst. Division Administrator
Honolulu, Hawaii

FROM Glenn M. Yasui *gmy*
Area Engineer
Honolulu, Hawaii
BY: Leslie M. G. Pang

INCLUSIVE DATES

From August 27, 1975 To August 29, 1975

ITINERARY

From Honolulu to Island of Hawaii and return.

PURPOSE

To field review Section 106 properties.

PRINCIPAL CONTACTS

See attached.

ACCOMPLISHMENTS OR RESULTS

See attached.

SUBSEQUENT ACTIONS TAKEN

RECOMMENDATIONS

See attached.

OTHER PERTINENT ITEMS

~~ATTACHMENT D~~
ATTACHMENT D

FORM FD-12 (R 2-65) which is obsolete.

FIELD TRIP REPORT (FHWA-137)

I. Detailed ItineraryAugust 27

9:49 a.m. - Arrived in Kona

11:00 a.m. - Orientation Discussion

Location: Kona Lagoon Hotel

Participants:

DLNR - J. Silverman, G. Cummins, E. Walton
 ACHP - M. Bureman
 SHD - G. Kodani
 FHWA - M. Tanner, H. Kusumoto, G. Yasui, L. Pang

General discussion was aimed at familiarizing the participants with the areas to be investigated. Silverman and Walton gave an archaeological and historical overview of the area. They were most concerned with the Kona Field System which would be affected by the realignment alternatives proposed in projects F-011-1(8) and F-011-1(). Various surveying techniques were discussed to determine the most feasible method to map the Field System. It was suggested that a trained archaeologist accompany the survey party.

1:00 p.m. - Field Review

Projects: (1) F-011-1(8), Holualoa to Papa, Kona Field System
 (2) S-0160(5), Honaunau to Napoopoo, City of Refuge, Kcalakekua Bay, Kahaluu Historical District.
 (3) F-011-1(), Kuakini Realignment, Kona Field System.

Participants: Same as above.

Investigated the Kona Field System in the Kcalakekua Bay area. The condition of the Hawaiian walls were noted and its location in relation to one of the proposed roadway alignments were checked. Hilikau Heiau and the City of Refuge were also visited.

-MORE-

D TRIP REPORT (FHWA-137)

August 28

9:00 a.m. - Discussion on the Kona Field System.

Location and Participants: Same as the meeting of the previous morning.

Discussed the proposed Kuakini Realignment (F-011-1()) and its effects on the Kona Field System, Silverman asked about the potential future development that will occur after the completion of the roadway. She felt that the number of access points along the alignment would determine the degree of adverse effect on the field system. Kusumoto pointed out that it is the decision of the local policymakers and not the highway officials which determines the extent of any development along the realignment. It was also mentioned that, with the new alignment, growth will be parallel to the coastline instead of the now-existing mauka-makai direction.

It was felt by those in the DLNR that the yet unrecovered data which exists within the massive Kona Field System would justify its eligibility to the National Register of Historic Places.

11:00 a.m. - Field Review

- Projects: (1) F-011-1(), Kuakini Realignment, Kona Field System
- (2) S-0270(4), Puukohola Heiau @ Kawaihae

Participants: Same as above.

Investigated the Great Wall of Kuakini near Kailua. Also, John Young's house, a historical site near Kawaihae, was visited and studied in terms of its location relative to the proposed alignment. It was determined that the alignment would not encroach on the historical area.

1:00 p.m. - Left Kona.

4:00 p.m. - Arrived in Hilo.

-MORE-

LD TRIP REPORT (FHWA-137)

August 29

9:00 a.m. - Field Review

Location: (1) Wailoa River Bridge and Richardson
Memorial Clock, Hilo Bayfront Highway
(2) Chain of Craters Road, Hawaii
Volcanoes National Park

Participants: M. Tanner, M. Bureman, G. Yasui, L. Pang

Investigated bridge and clock. While in the
National Park, the reconstruction site on Route 11
was examined.

4:00 p.m. - Left Hilo

H. ALVEY WRIGHT
DIRECTOR OF TRANSPORTATION

15: 21 10 40 AM '75
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

15: 22 9 17 AM 1975
EDGAR A. HAYASHI
CHAIRMAN
DIVISIONS
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

May 14, 1975

REF: HWY-PA
2.21414

Honorable E. Alvey Wright, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Admiral Wright:

SUBJECT: Hawaii Belt Road, Holualoa to Papa,
Project No. F-011-1(8)
Historic Properties Report

On the basis of this report, I concur that Alignment C presents the greatest likelihood of major historic preservation problems. Alignments A and B also present historic preservation problems and will, as the report states, require an archaeological survey to identify currently unknown values. Alignment D is of concern, not so much for its possible archaeological value, but because of its historic buildings, which have been only preliminarily identified and which have not yet been evaluated by Hawaii's Historic Places Review Board.

If Alignment A or B is selected, I recommend that a preliminary archaeological reconnaissance survey be done because of the length of the Right-of-Way. Such a preliminary survey should minimally consist of:

1. An on-foot visual survey of the proposed corridor of such intensity that the number and kind of archaeological sites can reliably be estimated (±10%).
2. A map of the proposed corridor showing the estimated location of sites and site concentrations and relating such locations to terrain features.

ATTACHMENT E

Honorable E. Alvey Wright

- 2 -

May 14, 1975

3. Certification of areas where no archaeological sites exist.
4. Description of each site or concentration of sites sufficient to document the need for further archaeological survey or excavation.
5. Recommendations for further work, if necessary.

My staff can assist in establishing a scope of services for their work. Please contact them at 548-6408.

A list of persons doing archaeological contract work is attached.

Your interest in historic preservation is appreciated.

Very truly yours,

for *Christopher Cobb*
CHRISTOPHER COBB
Historic Preservation Officer
State of Hawaii

Attach.

ARCHAEOLOGISTS PRESENTLY ENGAGING IN CONTRACT WORK IN THE STATE OF HAWAII*

ARCHAEOLOGICAL RESEARCH ENTER, HAWAII
P. O. BOX 285
LAWAI, KAUAI, HAWAII 96765
TELEPHONE: 332-8521
DIRECTOR: MR. FRANCIS CHING, JR.

DEPARTMENT OF ANTHROPOLOGY,
BERNICE P. BISHOP MUSEUM
P. O. BOX 6037
HONOLULU, HAWAII 96818
TELEPHONE: 847-3511
DIRECTOR: DR. YOSHIKO SINOTO

CHINIAGO ENTERPRISES
47-395 HI IWA, SUITE 2
KANEHOE, HAWAII 96744
TELEPHONE: 239-7895
DIRECTOR: MR. WILLIAM BARRERA

The organizations or individuals listed in this index are not directly associated with the State Historic Preservation Officer, nor is listing herein to be construed as any guarantee of the quality of work. All of the above organizations have on their staffs persons with training and experience in archaeological survey and excavation, and all of the above have indicated to the State Historic Preservation Officer that they are engaged in contract archaeological work.

Advisory Council on
Historic Preservation
1522 K Street N.W.
Washington, D.C. 20005

September 29, 1977

SECRET				
INDEXED				
SERIALIZED	W			
FILED				
NOV 1 1977				
FBI - WASH DC				
1	2	3	4	5
6	7	8	9	0

Mr. R. G. S. Young, Director
Office of Environment and Design
Federal Highway Administration
Two Embarcadero Center, Suite 530
San Francisco, California 94111

Dear Mr. Young:

Thank you for your letter of September 8, 1977, requesting the comments of the Council pursuant to Section 106 of the National Historic Preservation Act on the Hawaii Belt Road, Honolulu to Papa, Hawaii Project RF-011-1(8), Hawaii County, Hawaii, which will have an adverse effect upon the Kona Field System, a property determined by the Secretary of the Interior to be eligible for inclusion in the National Register of Historic Places.

The Executive Director has initiated the consultation process and you should contact Michael H. Bureman regarding completion of the steps set forth in Section 800.5(b)-(g) of the Council's "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800).

In order to expedite the consultation process, please furnish the following additional information to supplement the preliminary case report submitted with your letter:

An updated report indicating the support or opposition of units of government, as well as public and private agencies and organizations, including copies of the official records of any and all public hearings and/or meetings conducted by the Federal Highway Administration and/or the State of Hawaii Department of Transportation, Highways Division, on the proposed undertaking.

This additional information should be completed and forwarded to the Council at your earliest convenience.

In addition, a review of our files indicates that previously the Council had been requested to comment on another segment of the Hawaii Belt Road (project RF-011-1(14)). However, the Council has withheld its comments on that undertaking until FHWA forwards the Secretary of the

The Council is an independent unit of the Executive Branch of the Federal Government charged by the Act of October 15, 1966 to advise the President and Congress in the field of Historic Preservation.

NOTE:

THE MEMORANDUM OF AGREEMENT OF FEBRUARY 8, 1978 REFERS TO THE REALIGNMENT OF "KUAKINI HIGHWAY."

ALL REFERENCES TO "KUAKINI HIGHWAY" SHOULD HAVE READ "HAWAII BELT ROAD, HOLUALOA TO PAPA." THIS MATTER IS BEING CLARIFIED WITH THE EXECUTING AGENCIES.

Advisory Council on
Historic Preservation
1522 K Street N.W.
Washington, D.C. 20005

MEMORANDUM OF AGREEMENT

WHEREAS, the Federal Highway Administration proposes to assist the State of Hawaii Department of Transportation, Highway Division, with the realignment of the Kuakini Highway, Hawaii Project RF-011-1(8), Hawaii County, Hawaii; and,

WHEREAS, the Federal Highway Administration, in consultation with the Hawaii State Historic Preservation Officer, has determined that this undertaking as proposed would have an adverse effect upon Kona Field System, a property determined by the Secretary of the Interior to be eligible for inclusion in the National Register of Historic Places; and,

WHEREAS, pursuant to Section 1(3) of Executive Order 11593, and Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f, as amended, 90 Stat. 1320), the Federal Highway Administration has requested the comments of the Advisory Council on Historic Preservation; and,

WHEREAS, pursuant to the procedures of the Advisory Council on Historic Preservation (36 C.F.R. Part 800), representatives of the Advisory Council on Historic Preservation, the Federal Highway Administration, and the Hawaii State Historic Preservation Officer have consulted and reviewed the undertaking to consider feasible and prudent alternatives to avoid or satisfactorily mitigate the adverse effect; now,

THEREFORE:

It is mutually agreed that implementation of the undertaking, in accordance with the following stipulations and the attached letter of September 8, 1977, from R. G. S. Young, Director, Office of Environment and Design, Federal Highway Administration, Region Nine, with its enclosure entitled "Hawaii Project RF-011-1(8), Kuakini Highway, North Kona, Hawaii: A Report Prepared Pursuant to Section 106 of the National Historic Preservation Act of 1966", will satisfactorily mitigate any adverse effect on the above-mentioned property.

STIPULATIONS

1. Should an archeological recovery program requiring excavation become necessary it will be based on a detailed and systematic research design, meeting standard levels of professional acceptability including provisions for curation of the artifacts

The Council is an independent unit of the Executive Branch of the Federal Government charged by the Act of

and other materials recovered and the publication of a report of the findings of the research project, which must be reviewed and approved by the Hawaii State Historic Preservation Officer prior to excavation; and,

2. Should the Secretary of Transportation determine, after review of the report prepared by the Federal Highway Administration pursuant to Section 4(f) of the Department of Transportation Act of 1966, that the project must be changed from that which has been described to the Executive Director, the Federal Highway Administration will so advise the Council and again request comments in accordance with the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) as appropriate prior to proceeding with the proposed undertaking.

Robert M. Utley 12/14/77 (date)
Robert M. Utley
Deputy Executive Director
Advisory Council on Historic Preservation

[Signature] 12-19-77 (date)
Federal Highway Administration
Department of Transportation

Jane L. Silberman 1/11/78 (date)
Hawaii State Historic Preservation
Officer

[Signature] (date) 1/23/78
Chairman
Advisory Council on Historic Preservation

U.S. DEPARTMENT OF INTERIOR



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

In Reply Refer To:
L7619-MQ
(ER-76/734)

SEP 23 1976

Dear Mr. Segawa:

The Department of the Interior has reviewed the draft environmental impact statement for Hawaii Belt Road, Holoaloe to Papa, Island of Hawaii.

GENERAL COMMENTS

Alternative Lines A and B will create a physical and esthetic impact upon the immediate project area and adjacent lands. The impact upon native flora and fauna would be less should Alternative A be chosen. However, with this alternative, there may be a greater impact upon City of Refuge National Historical Park. The final statement should further evaluate the effects of these two alternatives. We are concerned by the close proximity of the project to this park and the lack of consideration of the park in the draft statement.

Although it is difficult to determine from the figures in the statement, it appears that Alternative Line A would impact a detached parcel of the City of Refuge National Historical Park, including a 3.7-acre upland garden area and native plant nursery. If impacts upon the park by Line A should be the case, we strongly recommend that the alignment be rerouted to physically avoid the park and to preserve the park's intrinsic esthetic qualities. Use of this park land for a highway would be inconsistent with the legislative purpose of the park. We recommend also that information regarding the project's impact upon City of Refuge National Historical Park be included in the final statement. Also, refer to the Section 4(f) comments in a later section of this letter.

SPECIFIC COMMENTS

Pages I-14, I-16, and I-17: Typical cross sections of the road are indicated. It is stated that the shoulder grades are slopes of 1:1 to 1-1/2:1 maximum. We suggest the steep slopes of these shoulders be discussed in relation to potential erosion hazard, specifically in loam soil areas.



Page I-35: The proper time to become sufficiently aware of impacts to all cultural resources (both presently known and presently unknown) is prior to selection of an alternative. Obviously, unawareness of such resources and impacts on them can often lead to delays, decision reversal, and very possibly the infliction of unnecessary damage to cultural resources. Sufficient information about impacts to unrecorded cultural resources must be available to enable informed decisionmaking. While we agree with the concept that more detailed data about cultural resources is necessary to make design and location decisions, sufficient data must also be available during the strategic alternative selection stage.

We recommend that surveys mentioned on this page and the evaluations of all identified sites for their National Register potential should be made as early as possible during the planning of the project. The results of the evaluation, and thus, the potential impact of the various alternatives upon significant cultural resources can then be incorporated into the decisionmaking process for selecting the best alternative and, eventually, in developing final design plans for the project.

We recommend that the final statement contain the survey and evaluation results, including the precise areas covered and the relation of those areas to areas of potential project impact, methodology of the study, and the archeologist's recommendations to enable informed public and professional review. If cultural resources are identified, they should be described and evaluated for their significance, including their National Register eligibility, in consultation with the State Historic Preservation Officer.

Page II-11: We are pleased to note that the provisions of roadside viewing areas have been incorporated into the project's planning.

The statement should indicate in this section that both Alternatives A and B will introduce a visual element incongruous with the natural landscape that will be noticeable to visitors of City of Refuge National Historical Park when looking toward Mauna Loa. Any glaring impact would certainly take away from the park experience of the visitor.

Page II-19: If during the conduct of archeological surveys other properties eligible for inclusion in the National Register are found, appropriate mitigation measures should be determined in consultation with the State Historic Preservation Officer and the Advisory Council and discussed in the final statement.

Please see our comments for page I-19 concerning the rescheduling of archeological surveys.

We also recommend that a professional archeologist, familiar with the situation in the project area, be consulted in regard to whether or not monitoring of any excavations, borings, or trenches would be appropriate.

Chapters II and III

Discussions on drainage indicate that more than 170 culverts would be included in the project. It is suggested that the drainage pattern for alternate B may result in more erosion from concentrating runoff flows. We recommend that the narrative be expanded to indicate that potential erosion resulting from concentrating runoff from culvert sites would be minimized by the construction of depressions or sumps within the drainage system.

The runoff culverts mentioned on page III-2 should be situated so as to minimize erosive impacts on cultural resources.

SECTION 4(F) COMMENTS

We note on the cover sheet that the EIS has been submitted pursuant, in part, to Section 4(f) of the DOT Act (49 U.S.C. 1653(f)). However, we find no 4(f) determination in the EIS. It is apparent that Section 4(f) will apply to use of land from the Kona Field System, from any other "historic sites" of national, State or local significance located during archeological surveys, and, if used, a detached portion of City of Refuge National Historical Park. Accordingly, we must disagree with the assertion on page II-10 that "Neither alternative (A or B) will detrimentally affect ... any properties identified under Section 4(f) of the Department of Transportation Act."

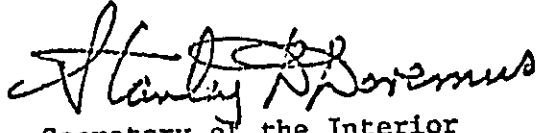
A statement on page II-19 indicates that it is impossible to avoid the Kona Field System and still meet project objectives. The Section 4(f) statement prepared for this project should offer sufficient data to support this conclusion.

The fact that sufficient archeological investigation to locate significant resources within the project area has not yet been accomplished leaves the issue of Section 4(f) involvement for such resources an open question. Any such properties must be located, a search for alternatives to avoid them made, and measures to minimize harm to them developed before our consultation on this matter can be completed and final project decisions can be reached.

We are pleased to note the level of concern for preservation of cultural resources expended thus far during the planning for this project. We

are confident that, if archeological surveys are completed promptly and the concern for preservation of cultural resources continues, a highway plan to meet project needs can be developed that will produce the lowest possible adverse impact to cultural resources. We would be pleased to provide technical assistance in the preparation of the required Section 4(f) documentation if so requested. In this regard, please contact the Western Regional Office, National Park Service, 450 Golden Gate Avenue, Box 36036, San Francisco, California 94102.

Sincerely yours,



Deputy Assistant

Secretary of the Interior

Mr. Ralph T. Segawa
Division Administrator
Federal Highway Administration
677 Ala Moana Boulevard, Suite 613
Honolulu, Hawaii 96813

cc: Mr. Tetsuo Harano
Hawaii DOT



1588

DETERMINATION OF ELIGIBILITY NOTIFICATION
NATIONAL REGISTER OF HISTORIC PLACES
OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION
NATIONAL PARK SERVICE

Request submitted by: H. Kusumoto, Federal Highway Administration
Date request received: December 21, 1976
Name of property: Kona Field System State: Hawaii
Location: Hawaii Island

Opinion of the State Historic Preservation Officer:

Eligible Not eligible No response

Comments: "'Without equal in Hawaii,' and...the complexity of the system show(s) the excellent practical engineering and environmental knowledge of the ancient Hawaiians.'"

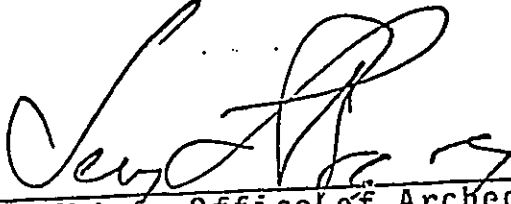
The Secretary of the Interior has determined that this property is:

Eligible Applicable criteria: (A), (C), (D)

Comments: The Kona Field System contains the extensive remains of a system of walled fields used by the ancient Hawaiians until historic times. The system, which can best be viewed from the air, employed a sophisticated cultivation system using appropriate crops in several distinct ecological sub zones. We would appreciate receiving a better map (preferably a USGS map) indicating site boundaries in order to complete our records.

Comments:

Documentation insufficient (see accompanying sheet explaining additional materials required)


Acting Chief, Office of Archeology and
Historic Preservation

Date: 1/28/77

WASO # 185
9/7

U.S. DEPARTMENT OF HOUSING AND
URBAN DEVELOPMENT (HUD)



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
AREA OFFICE
1000 BISHOP STREET, P.O. BOX 3377
HONOLULU, HAWAII 96813

REGION IX
450 Golden Gate Avenue
P.O. Box 36003
San Francisco, California 94102

August 31, 1976

IN REPLY REFER TO:

9.7F (Johnson/
546-5554)

U. S. Department of Transportation
Federal Highways Administration
Attention: Mr. H. Kusumoto
677 Ala Moana Blvd., Suite 613
Honolulu, Hawaii 96813

Gentlemen:

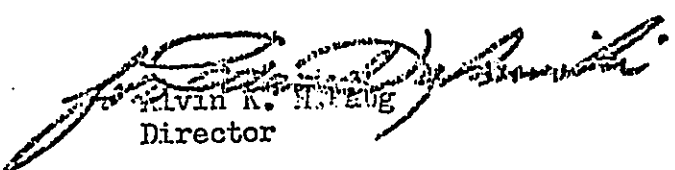
Subject: Hawaii F-011-1(8) Draft Environmental Impact Statement,
FHWA-HI-EIS-76-02-D, Hawaii Belt Road, Hualaloa to Papa

The two alternative highway alignments having approximately 31 miles
between Hualaloa and Papa in North and South Kona have been reviewed
by this office for HUD concerns.

Alternative A appears to cause less disruption to the community and
provides a more advantageous alignment for serving the settlements
along the coastline.

We appreciate the opportunity to comment on the Draft Statement and
look forward to receiving the Final Statement.

Sincerely,


Melvin K. H. Feag
Director

cc:
Council on Environmental Quality

U.S. DEPARTMENT OF AGRICULTURE

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

630 Sansome Street
San Francisco, California 94111

8420 (3500)
August 26, 1976



Mr. Ralph T. Segawa
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
Suite 613, 677 Ala Moana Blvd.
Honolulu, Hawaii 96813

Dear Mr. Segawa:

Thank you for the opportunity to review the Hawaii F-011-1 (8) Draft Environmental Statement, FHWA-HI-EIS-76-02-D, Hawaii Belt Road, Holoaloa to Papa.

We still have reservations regarding two of the items which we discussed when we commented on the EIS preparation notice.

First, we feel that the incidence of wildfire in the corridor area and the changes in fire danger that might result from the project should be assessed. Fire is a serious problem in the forest and range lands of Hawaii and a higher incidence of fire usually follows improved access, unless mitigating measures are taken.

Second, we recommend that a specific plan for disposal of slash and grubbed material be devised. Such material should not be allowed to remain exposed in or near the forest because forest destroying insects tend to breed in it. This can cause a buildup in insects, particularly the bark feeding species, that could spread to nearby forests and trigger an epidemic. Road building, because it opens up the forest, causes stresses to the remaining vegetation due to changes in exposure, water tables, and perhaps other factors. Trees and other vegetation under new stresses are particularly vulnerable to insect attack.

The Island of Hawaii is presently experiencing one forest epidemic which is resulting in the decline of ohia forests. This epidemic is caused in part by bark feeding insects. The Kona side of Hawaii is currently unaffected by ohia decline but there are signs of past insect epidemics on the ohia which border older forest roads above Honaunau and Kipahoehoe. These and other observations on Hawaii strongly indicate that past methods of slash disposal along roads led to local epidemics and significant tree mortality.

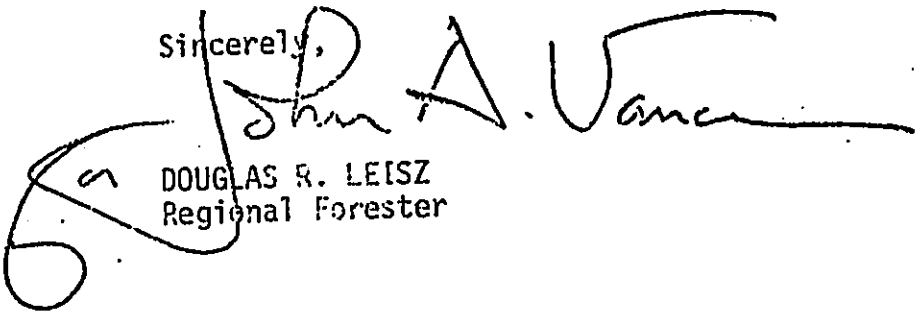
The only effective methods of slash treatment known to us are burning, burying, chipping, or debarking. There are no registered pesticides

for use in this situation. Whatever treatment is used, it should be completed within two months after cutting, since some of these bark infesting insects are capable of completing their life cycle in slash in three months or so.

Mr. Robert E. Nelson of our Institute of Pacific Island Forestry in Honolulu will be glad to assist you with the design of measures to mitigate or eliminate these problems. Help is also available from the Hawaii Department of Natural Resources and the Division of Forestry.

Thank you again.

Sincerely,


DOUGLAS R. LEISZ
Regional Forester

Thank you for the opportunity to review this document.

Sincerely,

Wm H Mann
Francis C. H. Lum Acting
State Conservationist

Copies to:
General Counsel
Council on Environmental Quality
722 Jackson Place, N.W.
Washington, D.C. 20006

A P P E N D I X H

List of Required Approvals

LIST OF REQUIRED APPROVALS

1. Subdivision Approval

Planning Department, County of Hawaii
(After Corridor Phase)

2. Hawaii County Special Management Area Use Permit

Planning Department, County of Hawaii
(After Corridor Phase)

3. Conservation District Use Application

State Department of Land and Natural Resources
(After Corridor Phase)

4. Department of Army Permits for Activities in Waterways

U.S. Department of the Army, Corps of Engineers
(After Corridor Phase)

A P P E N D I X I

Responses and Replies to Final EIS

TO: Office of Environmental Quality Control
550 Halekauwila St., Hono. 96813
Subject: EIS on proposed highway to Papa, So. Kona.

(L)

4/1/79

A1 FRIENDS OF THE EARTH is dissapointed in this incomplete E.I.S., which among other things has failed to include the newspaper articles which we sent as enclosures to DOT in October of 1976 showing the public (Dept. of Trans.) opposition to this additional Belt Road being proposed by DOT/down through South Kona to Papa.

Nor has the EIS brought^{out} the strong feelings of Kona's residents against this highway proposal as expressed in the petitions of over 10% of the population that were presented to the DOT at their Jan. 12, 1977 public hearing in Kona.

For these and the many reasons listed below, such as bias by DOT and obsolescent data, we consider this EIS misleading and lacking in essential content. A truly unacceptable document.

A2 BIAS BY DOT: The National Environmental Policy Act was enacted partly because of the tendency of agencies which do their own EIS's (such as our DOT) to be "self serving", so as to create more jobs to perpetuate their own bureaucracy, etc. Let's look at a few of the more biased areas of this EIS: Instead of presenting the findings of Technical Report #1 OBJECTIVELY, by showing the hardships that would be faced by the South Kona storekeepers bypassed by the proposed new highway, they distort and misrepresent the findings of the report regarding the cost benefit ratio, indicating that businesses would not suffer, etc. (see in EIS "Evaluation Friends of the Earth, item 15L and 15 o.)

A3 "Making it hard for the Reviewer" is another way to bias an EIS - so that anyone trying to make heads or tails out of it, or respond to it gets frustrated. In their draft EIS, the DOT did NOT number most of their pages. /Notice that DOT did that again this time (after we requested last time that they NOT do this again (see page 12 of our Oct 5, 1976 Comments). Thus, if you had problems finding the(above) storekeeper reference its about 2/3 of the way through.

E.I.S. BIAS BY D.O.T. - (continued)

A4

Another way to bias an EIS is to underplay or misrepresent the feelings of the local population toward your project. "Preserve Kona's Rural Atmosphere" has long been the cry of the vast majority of Kona's and is emphasized over and over again in her three most recent planning documents - the Kona Plan, the Kona Development Plan, and the General Plan. Yet, how does the DOT deal with plunking a highway through this rural atmosphere? The DOT writes in the EIS, p. 44, "Some residents of Kona value the rural environment here than they would a more urban one. Others value the more urban environment more." .. Implying that there is no majority consensus. Misrepresentation? Definitely!

OBSOLETE DATA USED: EIS IS OUT-OF- DATE

The DOT first starting coming to Kona regarding this highway proposal way back in June 6, 1974. FRIENDS OF THE EARTH and others told them at the time to widen and straighten the existing Belt Road instead, from where the Kealakekua Ranch Center now is, on South. And we have been telling them that over and over again for five years. However, being a self-serving agency, and spurred on by a few business organizations and private landowners who stood to make a profit, the DOT has persevered, ignoring the fact that times and trends change. Thus, much of their early data is now obsolete and is in sorry need of updating throughout the entire EIS. One example is with their population projections: Part of their population figures are from the July, 1975 County of Hawaii Data Book (see EIS response 15 M to Friends of the Earth, etc.)

A5

However, population projections for Hawaii have changed since then, "UP TO 20% LESS" according to Deputy Planning Director N. Wiederhold from Oahu, in an article of the Honolulu Advertiser, April 12, 1979. Since the mid-70's when the DOT was pattering around with this highway proposal, there have been "dramatic economic and social changes", according to Wiederhold - thus, the DOT may find in updating their EIS that even they cannot justify a second Belt Road for South Kona.

SECONDARY EFFECTS NOT MENTIONED -- ANOTHER TRY AT THE KEEI-GOLF-COURSE-RESORT ?

E.I.S. regulations require FULL DISCLOSURE of secondary effects of a proposed project; however, this has NOT been complied with by DOT.

A6 The Line "A 1" choice of DOT for construction of the new highway will be the opening wedge for the Kamehameha Development Corporation's plans to cram a projected 8,834 new residents into a resort in the Keel-Honaunau area; their plans had also included a County subsidized golf course, according to their development plan entitled "A New Honaunau Resort Community" by Oberlander, Bush and Cave.

(KDC)
A line marked with "Y"s has been superimposed upon their map from page 18, showing where the DOT'S Line "A 1" would complement and open up the mauka sections of their resort - specifically the "Mauka Housing Area".

This is the third time in recent years that a large-scale attempt has been made by OUR OWN GOVERNMENT AGENCIES to covertly subsidize the opening up of this same resort along the shores where King Kamehameha fought and won his first battle, the Battle of Mokuohai - the area that links historic Kealakekua Bay with historic City of Refuge.

A7 The former two government-backed attempts concerned the Keel-Golf-Course-Resort issue, marked on the map with "G", and the Scenic-Highway Issue (marked in "S"s) which would furnish transportation through the Honaunau Resort Community and make nearby Puuhonua Road obsolete. These were both long-fought issues "against City Hall" in which Kona residents finally won out.

The Scenic Highway issue is very similar to this present one - and residents are again telling the DOT what they said before: "Make use of the EXISTING roads by improving and widening them, but do NOT put in more roads. We already have 3 north-south roads in the Keel-Honaunau area - Puuhonua, Painted Church Road, and the Belt Road - all of them are underused in these areas. Therefore we do not need a fourth one."

Thus, a fourth road will merely be to subsidize the private developer. Hence Friends of the Earth asks that O.E.Q.C. request disclosures from DOT as to any minutes of meetings, discussions or correspondences between DOT and KDC regarding the location of their present Line "A-1".

4

ACCIDENT RATES IN SOUTH KONA: One of the many reasons we do NOT need a second Belt Road in South Kona is because of our very low, low accident rates there. The DOT'S traffic volume figures show that for the 12-mile segment furthest South (nearest Papa) there is only 1.04 accidents per mile per year, and ONLY ONE CAR PASSES EVERY THREE MINUTES/ (see p. 6,7) Does this justify spending one-million-dollars-per-mile? Thus, we repeat, straighten and widen the existing roads South of the Kealakekua Shopping Center - but no additional Belt Road is needed. Does the FIS deal with this? No, DOT keeps insisting on an "all or nothing" route with Second Belt Road segments interspersed along the way from Hualaloa to almost Hookena. (NEPA)

N.E.P.A. ^{first four} The/goals of the National Environmental Policy Act/are spelled out in Section 101 (b) as being directly in opposition to this highway proposal. 101(b) 1 calls upon us as "trustee of the environment for future generations"; 101(b)-2 says that we should assure other Americans "esthetically and culturally pleasing surroundings"; 101(b)3 says that we should protect the environment from "undesirable and unintended consequences"; and 101(b)4 tells us to preserve the "important historic, cultural and natural aspects of our national heritage." What will the highway do??

A9 1) Disrupt and desecrate the historic Kona Field System, described as "without equal in Hawaii and probably in the nation.." by the Hawaii Historic Register. 2) Become the opening wedge for urbanization in South Kona - replacing the "rural atmosphere" with fast food stands, high crime rates and pollution, since roads are the unquestioned forerunners of urbanization.

IN CONCLUSION: We have shown this EIS, and this project to be unworthy of acceptance, as presently presented, by pointing out the bias of the DOT, the obsolete data upon which much of it is based, the low accident rate and low user rate at the southern portion, and that it is in opposition to the goals of the National Environmental Policy Act, and ^{finally} that it has neglected to present the opposition to the proposal by the majority of Konans, past & present.

Sincerely, *Alan Slim Tyler*
Alan "Slim" Tyler, for Friends of the Earth

EVALUATION

FRIENDS OF THE EARTH

- A1. The feelings of Kona residents were previously expressed in the Friends of the Earth's October 5, 1976 letter on the draft EIS. Comment 15NNN of the Final EIS summarizes the newspaper articles and responds to the comment.

The meeting of January 12 1977 was not a public hearing but one of three informal public discussions held in Kona. The official public hearing was held on September 15, 1976. The petition submitted at the January 12, 1977 meeting reads as follows:

"We the people who live in and visit South Kona favor improving the existing roads without disturbing homes or businesses. We want to save agricultural lands, rural businesses and historic sites from the "Big City" problems caused by highways. Therefore, we do not want any more highways in South Kona."

All the issues contained in the petition are adequately discussed throughout the Final EIS.

- A2. Technical Report #1, benefit-cost ratios and impacts to businesses are discussed in the Final EIS on pages 14-15, 40-46 and Comments and Evaluations 15L, 15O, 15R, 15S, 15V, 15W, 15X, 15Y, 15JJ, 15ZZ and 15PPP.
- A3. Page numbering is discussed in Comment and Evaluation 15LLL. In the Final EIS, the text is numbered consecutively, Appendices are listed alphabetically with colored separators and responses to the draft EIS are in numerical order by date. This method is similar to many of the EIS's prepared under the National Environmental Policy Act and State Regulations.
- A4. Preservation of Kona's rural lifestyle, the Kona Plan, the Kona Development Plan and the General Plan are discussed on pages 32-33, 59, 61, Appendix E, Appendix F2 (Response to Kona Conservation Group), Comments and Evaluations 15B, 15Z, 15GG, 15MM, 15QQ, 15RR, 15WW, 15JJJ and 15000.

All three planning documents propose a new highway in Kona but differ in alignments. The Department of Transportation considered these alignments and found each to have serious environmental or engineering deficiencies. Line A-1, the recommended alignment can serve Kona's needs with the least environmental consequences.

The County of Hawaii, which is responsible for the General Plan and the Preliminary Draft of the Kona Community Development Plan, advised the Federal Highway Administration in their comments on the Draft EIS that:

"We are in basic agreement with the purpose of this project. The need for an improved highway system between Holualoa to Papa is unquestioned. It is also a project consistent with the goals and objectives outlined in the Hawaii County General Plan."

- A5. Mr. N. Wiederhold is a Deputy Planning Director for the County of Honolulu and we question whether his remarks were intended for the County of Hawaii.

Our analysis of the latest population projections for the County of Hawaii (The Population of Hawaii, 1978, Statistical Report 131, April 2, 1979) by the Hawaii State Department of Planning and Economic Development indicates that the population changes will not have a significant effect on our traffic projections.

Moreover, the justification for this project is not based solely on population or traffic projections. Other factors such as the inadequacy of the existing highway, the accident rates, improvement of route continuity and the County of Hawaii's land use policies were considered.

We also wish to emphasize that because of the lengthy construction time involved (12-15 years), we will be monitoring the traffic growth in Kona to substantiate the necessity for each increment prior to its construction. A decision now does not commit the State to a construction timetable, but rather, it provides the various governmental agencies and the County with a master planned route on which orderly development can be planned.

- A6. Line A-1 was not the original choice of the Department of Transportation. At the public hearing, the Department favored Line A (Final EIS, Page 58 and Figures II-4, III-1 and III-3); however, opposition to this alignment because of its impact upon agricultural lands resulted in shifting the alignment up to 4,000 feet towards the coastline. This new alignment became Line A-1. The sole purpose for its development was to minimize impacts upon agricultural lands.

- A7. The Scenic Highway mentioned in this comment was a coastal route proposed by the Kona Plan and the County General Plan (refer to comment A4).
- A8. The DOT recommends widening and straightening the last 12 miles of the project (nearest Papa). This is discussed in the Final EIS on pages 10-11 and Figure II-9. Other discussions on the accident rates and the proposal to straighten and widen the existing roads are discussed on pages 5-7, Appendix F2 (Response to Kona Conservation Group) and in Comments and Evaluations 15C, 15G, 15J, 15BBB and 15CCC.
- A9. The Kona Field System and the problems of urbanization are discussed on pages 35-38, 40-53 and in Comments and Evaluations 15A, 15P, 15Q, 15S, 15T, 15U, 15AA, 15BB, 15CC, 15DD, 15KK, 15LL, 15NN, 15OO, 15PP, 15SS, 15SSS, 15QQQ and in the attached Section 4(f) Statement.

The Section 4(f) Statement also contains a memorandum of agreement concerning the mitigation of adverse effects that has been jointly executed by the Advisory Council on Historic Preservation, the Federal Highway Administration and the State Historic Preservation Officer.

LAW CLINIC OF MEREDITH LENELL

ATTORNEY AT LAW
P.O. BOX 930
CAPT. COOK, HAWAII 96704
(808) 322-3481

April 17, 1979

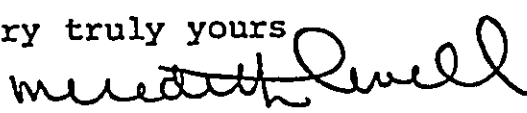
Office of Environmental
Quality Control
550 Halekauwila St., Room 301
Honolulu, Hawaii 96813

Dear Sir or Ms.,

I live in Honaunau, South Kona where, I understand, the United States Government and Hawaii State Government are planning to expand the present highway and/or build a new one. As a resident of South Kona, I strongly object to this expansion. I feel the present beautiful environment of this area will be irrevocably spoiled by an expanded highway. South Kona is mostly agricultural and its beauty stems in part from the quiet, rural community which has clean air and low noise level. I believe I also speak for many of my South Kona neighbors.

Bl. Please carefully consider the adverse effects on the environment in South Kona. I feel a lesson must be learned from the so called progress of such cities as Los Angeles and our own Honolulu. I ask you to help keep our air clean and the noise level low by requiring a strict Environmental Impact Statement and advising the Governor not to sign the report from the Department of Transportation.

Very truly yours


MEREDITH LENELL
ATTORNEY AT LAW

ML:kmd

cc: Governor Ariyoshi
Slim Tyler
Office of Env. Quality Control
Department of Transportation

RECEIVED

APR 19 1 26 PM '79

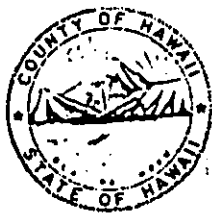
DEPT. OF TRANSPORTATION
LAND TRANSPORTATION
FACILITIES DIVISION

EVALUATION

MEREDITH LENELL

- B1. The final EIS addresses the adverse effects of the project on the environment and offers mitigation measures on those that are unavoidable.

WILLIAMS KAWAHARA
Councilman



COUNTY COUNCIL
COUNTY OF HAWAII
HAWAII COUNTY BUILDING
HILO, HAWAII 96720

757
RECEIVED
MAY 2 2 14 PM '79
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION
FACILITIES DIVISION

April 30, 1979

Department of Transportation
Land Transportation Facilities
Division
869 Punchbowl Street
Honolulu, Hawaii 96813

I have reviewed your final Environmental Impact Statement on the proposed Holualoa to Papa Highway beginning at Kealakowaa Heiau and ending at Papa, South Kona.

C1. I find that there is a basic change in the routing of the south section of the highway - the proposed highway closely follows the existing road for about 18 miles. This will probably remove some of the objections previously voiced against the highway by those concerned about open space and farmlands being usurped by roads.

C2. However, in my opinion, the needs of the people of this island will be served better by directing the highway from Kuakini Highway toward Hilo as a part of the proposed Hilo-Kona Highway. The expenditure of \$30 million should take this road about halfway across the island to somewhere in the Humuula area.

This Hilo-Kona Highway is one of the prime highway needs of this island. Your serious consideration is requested.

William S. Kawahara
COUNCILMAN

Enc.

cc: Mayor Herbert T. Matayoshi
Planning Director Sidney Fuke
Chief Engineer Edward Harada
Hawaii County Council

EVALUATION

COUNCILMAN WILLIAM S. KAWAHARA

- C1. The last 15 miles of the project will consist mainly of widening and straightening the existing road in order to minimize impacts upon the native forests.
- C2. The Hilo-Kona Highway is not justified now and is one of the lower priority improvements proposed for the island of Hawaii.

Dear Sirs,

D1. I think the road issue being presented is an outrage! There is tremendous need for immediate, great improvement on the existing road. And there is no need for the 10 miles of new road proposed between Captain Cook & the City of Refuge road. This new section is so clearly a real estate lobby attached to the needs of the people!

D2. How unfair that we should have to put up with their brand new road and the condominiums it will bring, in order for us who live here to get any new improvements on the existing road, that we risk our lives on daily because it is so dangerous. The existing belt road from Captain Cook to City of Refuge road, Honouliuli, is pretty safe & straight & wide & is the best section of the road and that is where you propose to build new road! Whereas the existing belt road from City of Refuge south to Paper Bay is terrible! In places you do not have a four inch shoulder and no guard railing! Please, the very 1st thing that needs doing is to put up guard railing along so many

dangerous portions of the road from Hookeana south! If you have ever met a tourist bus on this stretch of the road you would have clearly seen how dangerous it is!

D3. I would support a whole new belt highway south, something like what replaced the old road from Kailua to Waimea. There is a need & everyone could benefit from such a road. Improving the existing road only will only lead to urbanization and congestion (like S. Cal.) along the one route as the population continues to grow. If we had a new road, new growth could be strictly planned & controlled along the way and the rural country atmosphere along the old road could be preserved awhile longer.

I say first lets get the whole existing road up to standards of safety for everyone and then lets consider building the new road all the way around for everyone.

Sincerely,

Trev McGrath
Box 74

Honolulu, HI 96726

EVALUATION

TRER McGRATH

- D1. The need for the project is established by the physical inadequacy of the existing highway, its high accident rates, anticipated increase in traffic volumes and congestion, improvement of the continuous belt highway, and the County's land use policies. Utilizing the existing road between Captain Cook and the City of Refuge Road would require taking valuable frontage property from residents and businesses along the existing highway and would increase the roadside noise levels. A bypass road is the more environmentally acceptable alternative.
- D2. Planning and implementation of the new Holualoa to Papa highway do not exclude improvements to the existing road. Safety improvements have been and continue to be an on-going concern. Since 1965, approximately \$2,000,000 has been spent on improvements to the Kona Highway.
- D3. We concur.

A P P E N D I X J

U.S. Fish and Wildlife Biological Opinion



United States Department of the Interior

FISH AND WILDLIFE SERVICE

LLOYD 500 BUILDING, SUITE 1692
500 N.E. MULTNOMAH STREET
PORTLAND, OREGON 97232

April 8, 1980

In reply refer to:
AFA-SE, #1-2-80-F-34

Mr. Ralph Segawa
Division Administrator
Federal Highway Administration
P.O. Box 50206
Honolulu, Hawaii 96850

Dear Mr. Segawa:

This responds to your February 22, 1980, request for consultation under Section 7 of the Endangered Species Act of 1973, as amended, on your Project F-011-1(8), Hawaii Belt Road, Holualoa to Papa, a construction project. At issue are the possible impacts the project may have on the endangered I'o (Hawaiian hawk), Buteo solitarius, and 'ope'ape'a (Hawaiian bat), Lasiurus cinereus semotus. We are also informally analyzing the impacts of the project on the candidate plant, 'ohe makai, Reynoldsia huehuensis.

This represents a biological opinion of the U.S. Fish and Wildlife Service in accordance with Section 7 "Interagency Cooperation Regulations" (Federal Register Vol. 43, No. 2, January 4, 1970), on the selection of Corridor Line A-1 as the road alignment of your project. We reviewed the biological information provided by you along with other pertinent information in our files. The following individuals were contacted:

Dr. J. Michael Scott, U.S. Fish and Wildlife Service;
Mr. Charles Wakida, Hawaii District Forester;
Mr. Jon Giffin, Hawaii Division of Fish and Game;
Mr. Howard Sakai, U.S. Forest Service; and
Dr. P. Quentin Tomich, Hawaii Department of Health.

Copies of pertinent documents and documentation of personal communications are contained in an administrative record maintained by the Pacific Islands Area Office of Endangered Species.

The I'o (Buteus solitarius) is restricted to the Island of Hawaii, occurring from the coasts to the upland forests in excess of 8,500 feet elevation in some instances. Historically, it was widely

April 8, 1980
Page Two

dispersed and common in some localities (Munro, 1960). It is still widely dispersed, but is not common in any portion of its current range. More recent observations of its feeding habits are in concert with earlier observations, indicating a preference for rodents, insects, and small birds.

The road alignment project is not likely to impact this species. Based on existing baseline data, there are no known nest sites occurring on the corridor alignment which would be destroyed during the course of construction. However, to insure that there is no adverse impact on nesting I'o, it is recommended that the route alignment be thoroughly surveyed to preclude this possibility.

The 'ope'ape'a (Lasiurus cinereus semotus) was apparently as rarely encountered historically as at the present time. Tomich (1969) quotes a Mr. W. H. Pease (in Gray, 1862) as stating that "It is a curiosity to our natives, very few of them having seen one." Tomich (1969) continues with the statement that the rarity of the bat is a myth which stems from the lack of understanding by the casual observer of how a nonsocial and scattered population should appear. The 'ope'ape'a is not abundant, but sometimes occurs in concentrations on offshore feeding grounds. This species is highly unselective in the kind of tree that it chooses for roosting, with Tomich (pers. comm.) reporting that its use of macadamia nut orchards (Macadamia ternifolia var. integrifolia) as roosting sites is increasing. Tomich (pers. comm.) reported a conversation with Lisa Croft, who counted 108 'ope'ape'a from a camp between 2,500-3,000 feet elevation in the ahupua'a of Manuka. The bats seemed to be flying from the forests at Honomalino toward the seacoast.

The road realignment project is not likely to have any impact on this species. The removal of vegetation to construct the road realignment would not effectively reduce roosting sites for this species, nor would it affect its feeding grounds.

The 'ohe makai' (Reynoldsia huehuensis) is a candidate species, having been on the 1976 list of proposed endangered plants. It is mentioned as occurring in scrub, native, and secondary forests within the project area. This species is scattered in the area and not very common. The proposed highway will directly affect the species only if one or more of them is in its path. However, we believe that the possible loss of plants would not be of a magnitude as to affect the entire population of this species.

April 8, 1980 .
Page Three

In summary, it is the biological opinion of the U.S. Fish and Wildlife Service that construction of Hawaii Belt Road realignment (Corridor Line A-1) between Holualoa and Papa, is not likely to jeopardize the continued existence of the listed species discussed in this biological opinion. We also informally believe that the candidate plant will not be adversely affected by the project.

The Federal Highway Administration is reminded of its continuing responsibility to review its activities and programs in light of Section 7 and to reinitiate this consultation if new information becomes available which identifies that the Hawaii Belt Road realignment between Holualoa and Papa may affect listed species, the action as described here is modified, or a new species or new critical habitat area is listed that may be affected by the proposed action.

Sincerely yours,


William H. Meyer

Acting Regional Director

REFERENCES

- Federal Highway Administration (no date). Hawaii Belt Road Interagency Cooperation, Endangered Species Act. (Project Description for F-011-1(8)).
- Giffin, Jon. March 24, 1980. Telcon regarding impacts of road realignment between Holualoa and Papa on I'o.
- Hawaii Audubon Society. 1975. Hawaii's Birds. Hawaii Audubon Society, Honolulu, Hawaii.
- Lamoreux, Charles H. (no date). Biological Study. Hawaii Belt Road, Holualoa to Papa, Project F-011-1(8).
- Munro, George C. 1960 (reprint of 1944 book). Birds of Hawaii. Charles E. Tuttle Company, Inc. Rutland, Vermont & Tokyo, Japan.
- Neal, Marie C. 1965. In Gardens of Hawaii. Bernice P. Bishop Museum Special Publication 50, Bishop Museum Press, Honolulu, Hawaii.
- Scott, J. Michael. March 24, 1980. Telcon regarding impacts of road realignment between Holualoa and Papa on Hawaii Forest Birds.
- Tomich, P. Quentin. March 24, 1980. Telcon regarding impacts of road realignment between Holualoa and Papa on 'ope'ape'a.
- Tomich, P. Quentin. 1969. Mammals in Hawaii, A Synopsis and Notational Bibliography. Bernice P. Bishop Museum Special Publication 57, Bishop Museum Press, Honolulu, Hawaii.
- Wakida, Charles. March 24, 1980. Telcon regarding impacts of road realignment between Holualoa and Papa on native plants.