Report No. FHWA-HI-EIS-88-02-F

Final
Environmental Impact Statement

Honoapiilani Highway (FAP Route 30) Puamana to Honokowai

Lahaina District, Maui County, Hawaii

Submitted Pursuant to 42 U.S.C. 4332 (2) (C) and 49 U.S.C. 303
by the
U.S. Department of Transportation
Federal Highway Administration
and
Hawaii Department of Transportation

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Puamana to Honokowai
Lahaina District, Maui County, Hawaii

Final
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Submitted Pursuant to 42 USC 4332(2)(c),
and
Chapter 343, Hawaii Revised Statutes (HRS)

U.S. Department of Transportation
Federal Highway Administration
and
State of Hawaii Department of Transportation
Highways Division

NOV 2 0 1990
Date of Approval

Dan Kodi
Edward Y. Hirata, Director
Department of Transportation

Nov 21, 1990
Date of Approval

John A. Baltes
Federal Highway Administration
Region Nine

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The subject corridor study for the project section between Puamana and Kaanapali consists of a bypass alignment east of the existing Honoapiilani Highway. This alignment will primarily pass through upland agricultural areas with a section passing through a residential area requiring increased rights-of-way. For this segment of the project, widening of the existing highway was not feasible. For the project section between Kaanapali and Honokowai, a widening alternative is proposed. The proposed alignment will impact the residential area due to the increased right-of-way requirements and the increased noise environment. These impacts will be mitigated through relocation assistance for taken property and noise mitigation for properties adjacent to the new right-of-way. The no-action alternative is not considered a viable solution.

July 1668

EXECUTIVE CHAMBERS

HONOLULU

JOHN WAIHEE
GOVERNOR

February 11, 1991

The Honorable Edward Y. Hirata, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

I am pleased to accept the Final Environmental Impact Statement for the Honoapiilani Highway (FAP Route 30) Puamana to Honokowai, Island of Maui, 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 if the action described therein should 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 consider if 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 useful analysis of the proposed action.

With kindest regards,

Sincerely,

JOHN WAIHEE

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HIGHWAYS DIVISION

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T	County of Maui, Department of Parks and Recreation Letter (May 30, 1990)

I. SUMMARY

FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS)

Action:	Agency
Proposing Agency:	State of Hawaii, Department of Transportation, Highways Division
Project Name:	Honoapiilani Highway, Puamana to Honokowai, Project Nos. 30AB-01-85 and 30AB-01-87
Project Description:	Honoapiilani Highway, FAP Route 30, is the only State highway serving this area, which consists of commercial, agricultural, resort, and residential land uses. The proposed project consist of the construction of a bypass corridor which will alleviate traffic congestion in the project area. The future corridor is designed as a 2-lane rural arterial highway between Puamana and Lahainaluna Road and as a 4-lane urban arterial highway from Lahainaluna Road to Kaanapali Parkway. This section would connect to a widened, 4-lane divided portion of the Honoapiilani Highway to Honokowai. The project will pass through a residential area. The project is approximately 2 1/2 miles in length from Puamana to Lahainaluna Road, and 3 miles in length from Lahainaluna Road to Kaanapali Parkway, and 3 miles between Kaanapali and Honokowai. In seeking to improve the capacity to accommodate these traffic increases, a preferred highway improvement corridor has been selected. This corridor is to begin in Puamana, through existing sugarcane fields, into an easement through Ikena Avenue. This alignment would then cross more agricultural lands on to Kaanapali. The section from Kaanapali to Honokowai would utilize a widened section of the existing Honoapiilani Highway.

Project Location:	Puamana to Honokowai, Lahaina District, Maui, Hawaii
Present Use:	Existing Highway and Agricultural Lands (Sugar)
State Land Use Designation:	Urban and Agriculture
Community Development Plan Designation:	Alternative sites designated for: Agriculture, Single Family Residential, and Open Space.

Summary:

The proposed corridor alignment is being developed to address present and future needs for favorable traffic service in the Lahaina District.

The preferred mauka (easterly direction) realignment alternatives will permanently remove land from agricultural use. Alternative B, mauka tier variation, which is the preferred Ikena Avenue alternative, will adversely affect homes along the street and will require condemnation of some homes. Noise impacts will increase under this alternative, however, these impacts will be mitigated.

Two other variations on this alignment were considered. The first variation would involve a tunnel through the Ikena Avenue section with decreased shoulder widths. The second variation involved a depressed corridor with retaining walls along the alignment through Ikena Avenue.

Two additional alignment alternatives considered included: Alternative A, the Pioneer Mill alternative which would impact mill operations and would require extensive changes and relocation of the physical plant; and Alternative C, an alternative through the Lahainaluna schools, which would impact the expansion plans of Lahainaluna High School, Lahaina Intermediate School, and Princess Nahienaena Elementary School. Alternative A was dropped for the following reasons: high costs, adverse impacts to Pioneer Mill operations, close proximity to the existing highway forming poor spatial

relationships, and impacts within the Lahaina Historic District. Alternative C was dropped from consideration due to: impacts on the Lahainaluna schools facilities and operations, impacts on nearby historic properties, and the alignment's distant location and added length which would discourage highway use.

Between Puamana to Kaanapali, the preferred alternative is Alternative B. Other alternatives considered for this section were Alternatives A and C. Between Kaanapali and Honokowai the preferred alternative is the Widening Alternative and the other alternative considered is the Extension Alternative. The Widening Alternative consists of adding two lanes on the mauka (easterly) side of the existing highway from Kaanapali to Honokowai. The right-of-way take and major impacts consists of some business property and cane fields. Also, the realignment of a parallel cane haul road and the Lahaina-Kaanapali Railroad would be necessary.

Adverse environmental impacts are primarily alignment related as discussed above. The proposed alignment will utilize agricultural lands which are presently in active use and noise impacts. Short-term construction related impacts will be mitigated as per State and County regulations. Long-term noise impacts will be mitigated by alignment design. No other significant impacts are expected on the physical environment. Beneficial impacts include improved traffic management and improved air quality.

The major actions by other governmental agencies in the area are:

1) Kahoma Stream Flood Control by the Corps of Engineers and the County of Maui.
2) Construction of Lahaina Recreation Park Complex at Shaw Street and Honoapiilani Highway.
3) Expansion of the schools at Lahainaluna Road.

4) Soil Conservation Service flood control projects in Lahaina and in Honokowai.
5) State of Hawaii's affordable housing program.
6) Lahaina Historic, Cultural, Scenic District (Maui County).

The major area of controversy raised by agencies and the public on project related impacts is on the displacement of residences and properties that will be affected by the proposed alignment. Noise impacts were also mentioned

Compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended) is a required Federal action that has been initiated during the course of the subject EIS.

The proposed project is generally consistent with all land use plans and policies; however, State Land Use Designations for agricultural lands will require boundary changes.

II. PURPOSE AND NEED

The purpose of the proposed improvements is to design and construct highway improvements between Puamana and Honokowai. A realignment with a new highway between Puamana and Kaanapali would consist of a new highway of 2-lanes from Puamana to Lahainaluna Road, a length of of about 2-1/2 miles and to realign with a new highway of 4-lanes from Lahaina at Lahainaluna Road to Kaanapali at Kaanapali Parkway, a length of about 3 miles. Between Kaanapali and Honokowai, the existing highway would be widened from 2-lanes to a 4-lane divided highway, for a length of about 3 miles.

The existing highway, without improvements, will experience congestion as the future traffic is estimated to double within the project design period. Refer to Figure 1, and 2 and Table 1.

A short-term improvement, recently completed; consisted of the widening of the portion of the existing highway route from Lahainaluna Road to the Kaanapali Parkway, a distance of about 3 miles. The existing section originally had two southbound lanes and one northbound lane, with left-turn sacs in both directions. The project added a northbound lane and improved some turning sacs. However, this short-term improvement will only temporarily improve the situation since the critical controlling intersections will be exceeded in capacity in the near future.

A. Existing Safety

At the present time safety is not a significant problem because of the low speeds along the existing highway (posted speed limits of 35 mph, 45, mph) due to the congestion on the highway.

B. Circulation

The existing Honoapiilani Highway has numerous intersections in Lahaina Town, where in some key intersections about half of the total traffic movements are turning movements. Almost all of the town on the westerly side is within a developed historical district. The roads are narrow, with short distances between intersections, and would be exceedingly difficult to widen for additional capacity because of the environmental impacts and effects to the businesses. Although there are some parallel streets to Honoapiilani Highway on the westerly side, the town and the area between Lahaina and Kaanapali lacks the necessary depth for any substantial roadway network. On the easterly side of the highway in Lahaina there are no parallel streets of significant capacity for through traffic. The highway itself also serves driveway accesses to a number of business and other land uses.

Generally the businesses, waterfront, residences, beach parks, hotels, and some schools, churches, and schools are on the westerly side, while the residences, major schools, sugar mill and cane fields are on the easterly side. The region's civic center is located on the easterly side of the highway and the existing highway provides its only access to serve the area. The highway itself also serves much of the time as a collector road to some of the abutting land uses. All of these uses contributes much local traffic interference to the through traffic.

C. Traffic

As previously stated traffic in the area is expected to double within the project design period and cause heavy congestion. Traffic assignments, which have been provided in Appendix J, clearly indicate the pressing need for major improvements.

D. Geometric/Roadway Deficiencies

The existing highway section within the project area has a posted speed limit at 35 mph and at 45 mph. The lane width is either 11 feet or 12 feet. There are no significant geometric deficiencies, except for the lack of standard shoulders or shoulder widths, and at some intersections, adequate turning lanes. The intersections are closely spaced.

E. Without Improvements

The existing Honoapiilani Highway has been evaluated for existing and future levels of service as defined by the Highway Capacity Manual, Special Report 209, (Appendix L). Six levels of service are defined for the facility for which analysis procedures are available. They are give letter designations, from A to F, with level-of-service A representing the best operating conditions and level-of-service F the worst. The following levels of service were determined for Honoapiilani Highway:

- Existing Level of Service: B to E
- Future Level of Service: F
- Existing Problem Areas: Some congestion
- Future Problem Areas: Extreme congestion, gridlock in Lahaina to Kaanapali.

F. Traffic Discussion

The traffic assignments for the existing condition are shown in Appendix J.

Although the traffic volumes will increase on the through lanes of Honoapiilani Highway, the more critical problem occurs at its intersections which control the capacity of the highway. Although the new northbound lane between Lahainaluna Road and the Kaanapali Parkway has allowed through traffic to flow better, traffic will continue to increase beyond the capacity of the key intersections. Tables 2, 3, 4, and 5 illustrate the problem.

The Tables show the sum of the critical volumes for the key intersections of the existing Honoapiilani Highway for the AM and the PM peak hours in 1987 and the year 2007. The critical volumes are certain key intersections movements which control the capacity of the intersection. The critical volumes are measures in vehicles per hour, abbreviated to vph on the Tables. In Table 3 a critical volume level of 1400 vph, indicates the volume level of the intersection at capacity. If the sum of the critical volumes is less than 1400 vph, the intersection is under capacity conditions. If the sum of the critical volumes is more than 1400 vph, the intersection exceeds capacity conditions.

The data shown in Tables 4 and 5 are based on the recent completion of the second northbound lane between Lahaina and Kaanapali. By the Year 2007, the capacity of all the intersections shown in Tables 4 and 5 will be exceeded during the afternoon peak hour.

Although the intersections control the capacity, improvements to only these intersections alone will not solve the future congestion problems. The roadway itself would have to be improved. The shoulders would have to be widened and paved. Some sections of the roadway would need additional lanes in order to obtain the required capacity. Retaining walls and driveway adjustments need to be made. Additionally, widening of the local cross-streets would be necessary. The street and roadway network in the town is characterized by narrow width and closely spaced intersections. See Figures 3a, 3b, and 3c which show the schematics of the laneage on the existing highway and the existing cross-streets.

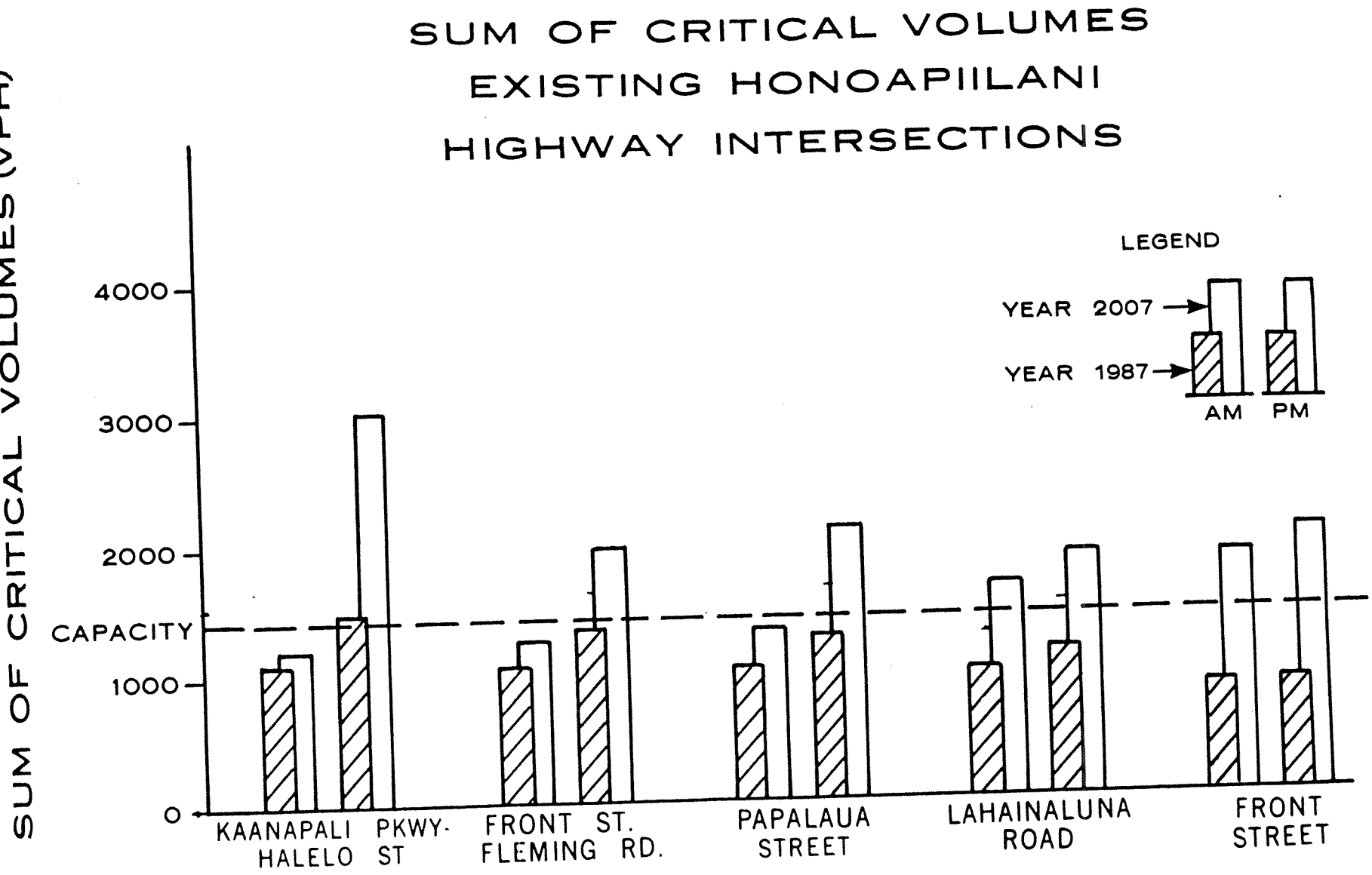

SUM OF CRITICAL VOLUMES
EXISTING HONOAPIILANI
HIGHWAY INTERSECTIONS
SUM OF CRITICAL VOLUMES (VPH)
4000
3000
2000
CAPACITY
1000
0
LEGEND
YEAR 2007
YEAR 1987
AM
PM
KAANAPALI PKWY-
HALELO ST
FRONT ST.
FLEMING RD.
PAPALAUA
STREET
LAHAINALUNA
ROAD
FRONT
STREET

FIGURE 1

AVERAGE DAILY TRAFFIC ON EXISTING HONOAPIILANI HIGHWAY

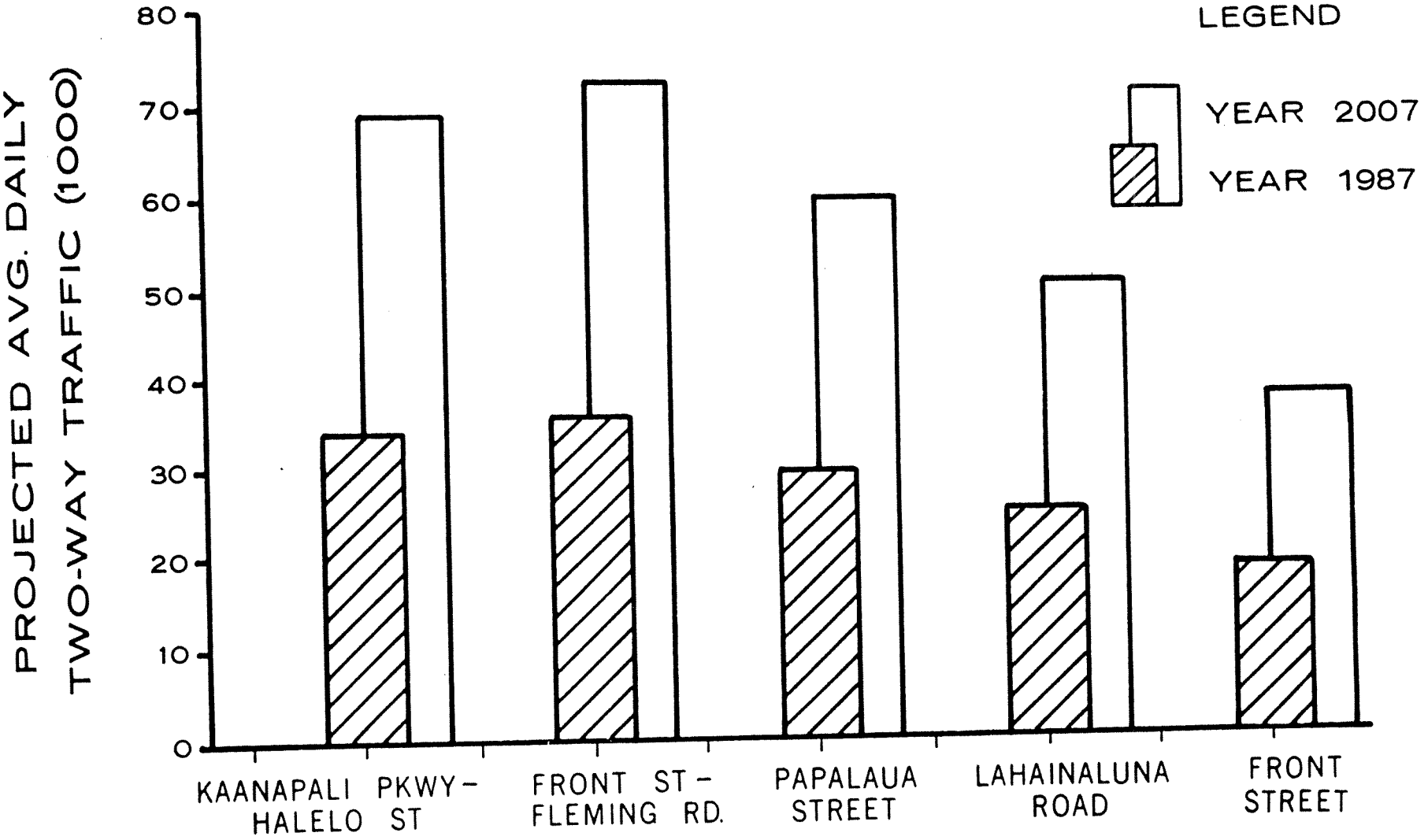


FIGURE 2

TABLE I

PROJECTED TRAFFIC VOLUMES

LOCATION		TWO-WAY ADT (1000)		
INTERSECTION	MILE POINT	1987	1997	2007
Honokowai Stream	26.10			
		22.2	33.7	45.1
Kaanapali Parkway -Halelo Street	23.92			
		34.1	51.6	69.2
Civic Center Road	23.02			
		35.6	54.0	72.3
Kaniau Street	22.63			
		35.7	54.2	72.7
Fleming Road	22.21			
		28.9	43.7	58.5
Kapunakea Street	21.78			
		29.0	44.0	58.1
Kenui Street	21.41			
		29.5	44.8	60.0
Papalaua Street	21.02			
		25.1	37.9	50.8
Lahainaluna Road	20.96			
		20.4	30.9	41.6
Dickenson Street	20.81			
		20.0	30.3	40.6
Prison Street	20.53			
		18.3	27.7	37.1
Shaw Street	20.28			
		17.3	26.3	35.1
Aholo Street	19.89			
		17.6	26.7	35.7
Front Street	19.72			
		18.6	28.2	37.8
Puamana Park	19.21			
		18.6	28.2	37.8

TABLE 2

MAXIMUM SUM OF CRITICAL VOLUMES (VPH) FOR 1987
EXISTING HONOAPIILANI HIGHWAY INTERSECTIONS

INTERSECTION	AM	PM
Front Street	831	886
Shaw Street	786	825
Lahainaluna Road	1,005	1,149
Papalaua Street	1,056	1,269
Kapunakea Street	962	1,188
Front Street-Fleming Road	1,028	1,338
Kaniau Road	1,020	1,438
Civic Center Road	990	1,306
Kaanapali Parkway-Halelo Street	1,075	1,488

TABLE 3

MAXIMUM SUM OF CRITICAL VOLUMES (VPH) FOR 1990
EXISTING HONOAPIILANI HIGHWAY INTERSECTIONS

INTERSECTION	AM	PM
Front Street	960	1080
Shaw Street	944	892
Lahainaluna Road	963	1099
Papalaua Street	754	821
Kapunakea Street	680	865
Front Street-Fleming Road	689	1119
Kaniau Road	1185	868
Civic Center Road	606	912
Kaanapali Parkway-Halelo Street	690	1005

TABLE 4

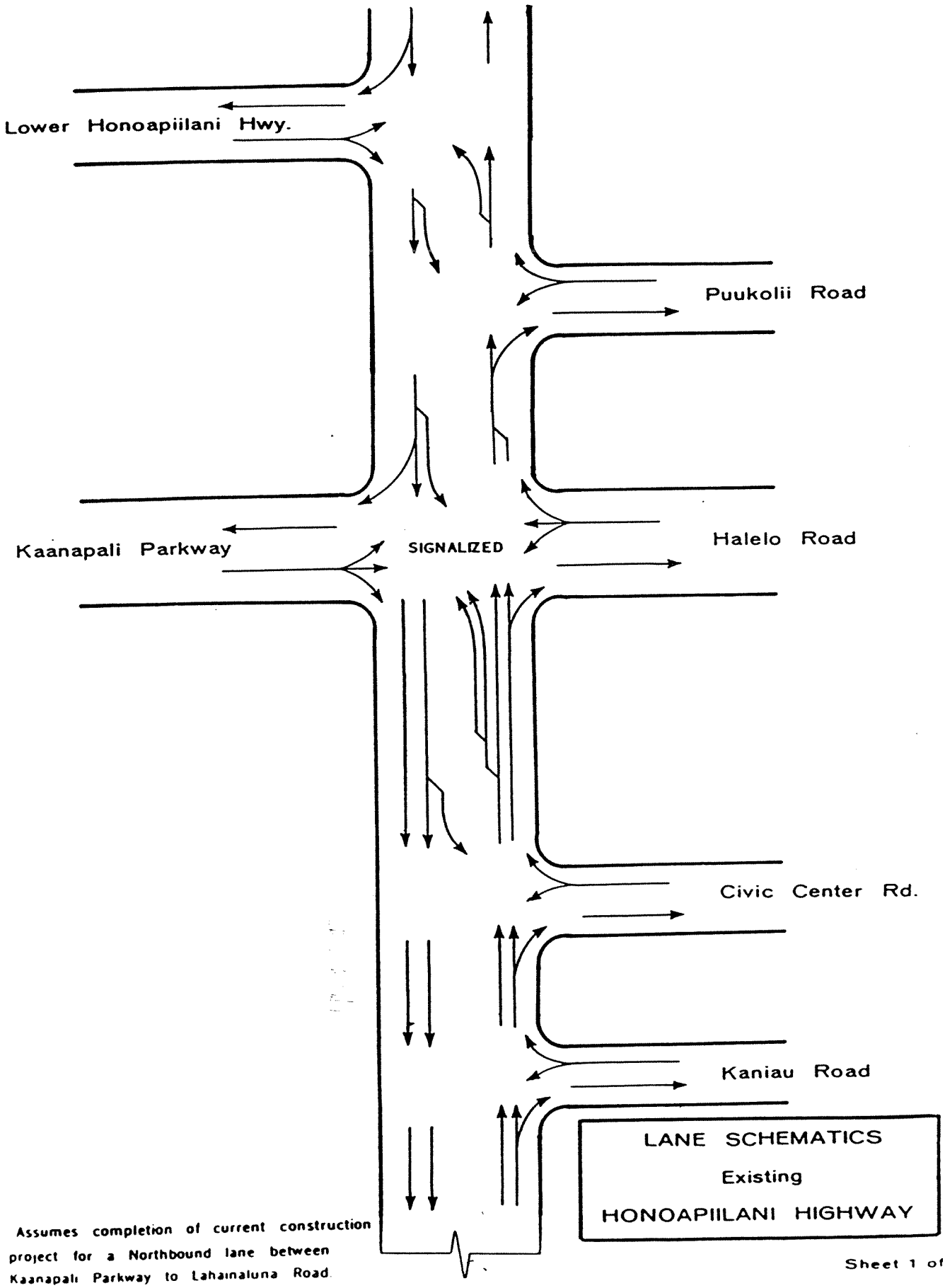
MAXIMUM SUM OF CRITICAL VOLUMES (VPH) FOR 1997
PROPOSED HONOAPIILANI HIGHWAY INTERSECTIONS

INTERSECTION	AM	PM
Front Street	1,392	1,531
Shaw Street	1,281	1,222
Lahainaluna Road	1,264	1,441
Papalaua Street	988	1,562
Kapunakea Street	873	1,030
Front Street-Fleming Road	902	1,469
Kaniau Road	820	1,105
Civic Center Road	846	1,225
Kaanapali Parkway-Halelo Street	902	2,254

TABLE 5

MAXIMUM SUM OF CRITICAL VOLUMES (VPH) FOR 2007
PROPOSED HONOAPIILANI HIGHWAY INTERSECTIONS

INTERSECTION	AM	PM
Front Street	1,688	1,641
Shaw Street	1,656	1,584
Lahainaluna Road	1,588	1,933
Papalaua Street	1,314	2,095
Kapunakea Street	1,017	1,523
Front Street-Fleming Road	1,210	1,946
Kaniau Road	1,069	1,325
Civic Center Road	1,132	1,640
Kaanapali Parkway-Halelo Street	1,643	2,475

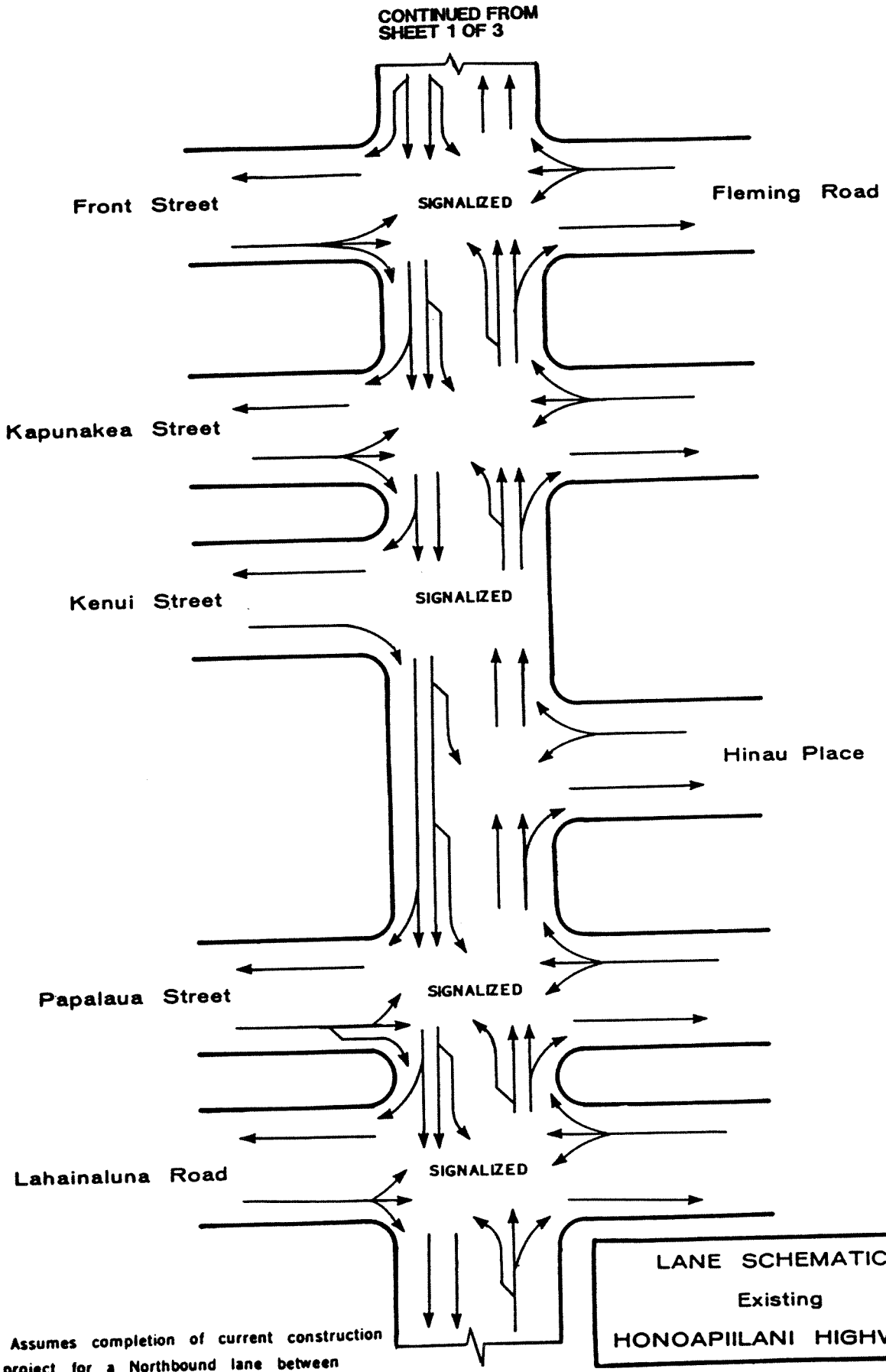


Assumes completion of current construction project for a Northbound lane between Kaanapali Parkway to Lahainaluna Road.

Sheet 1 of 3

CONTINUED ON SHEET 2 OF 3

FIGURE 3a



LANE SCHEMATICS

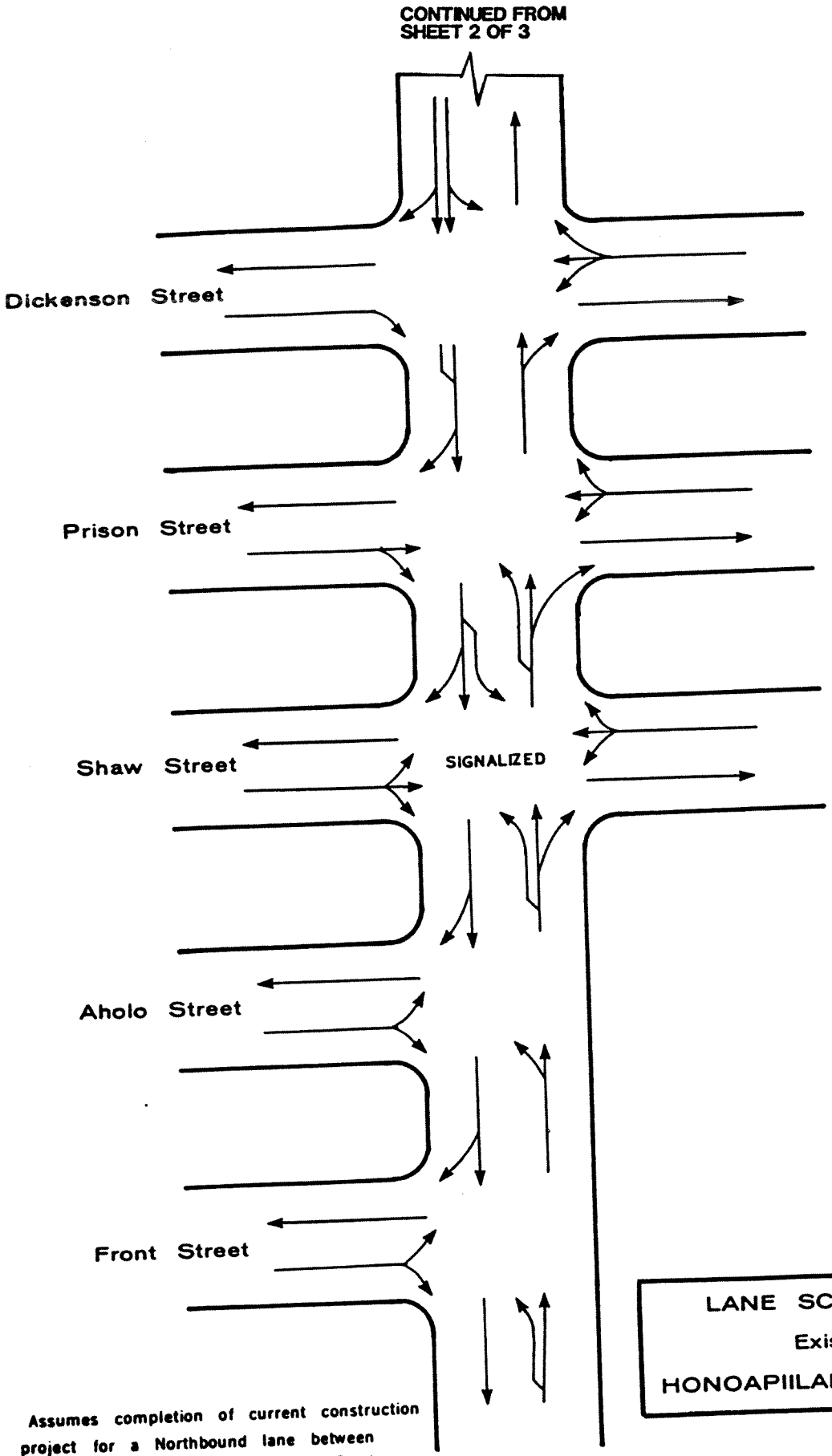
Existing

HONOAPIILANI HIGHWAY

Assumes completion of current construction project for a Northbound lane between Kaanapali Parkway to Lahainaluna Road.

Sheet 2 of 3

FIGURE 3b



LANE SCHEMATICS

Existing

HONOAPIILANI HIGHWAY

Assumes completion of current construction project for a Northbound lane between Kaanapali Parkway to Lahainaluna Road.

Sheet 3 of 3

FIGURE 3c

back page

III. PROJECT DESCRIPTION

A. Project Location

The project is located in the Lahaina District of the island of Maui. The project extends from the vicinity of Puamana Beach Park to the Kaanapali Parkway. The distance along the existing Honoapiilani Highway between these project limits is approximately 5.4 miles (Figures 4 and 5). Widening of the existing highway from Kaanapali to Honokowai would extend the proposed action approximately 3 miles for a total project length of approximately 8.4 miles.

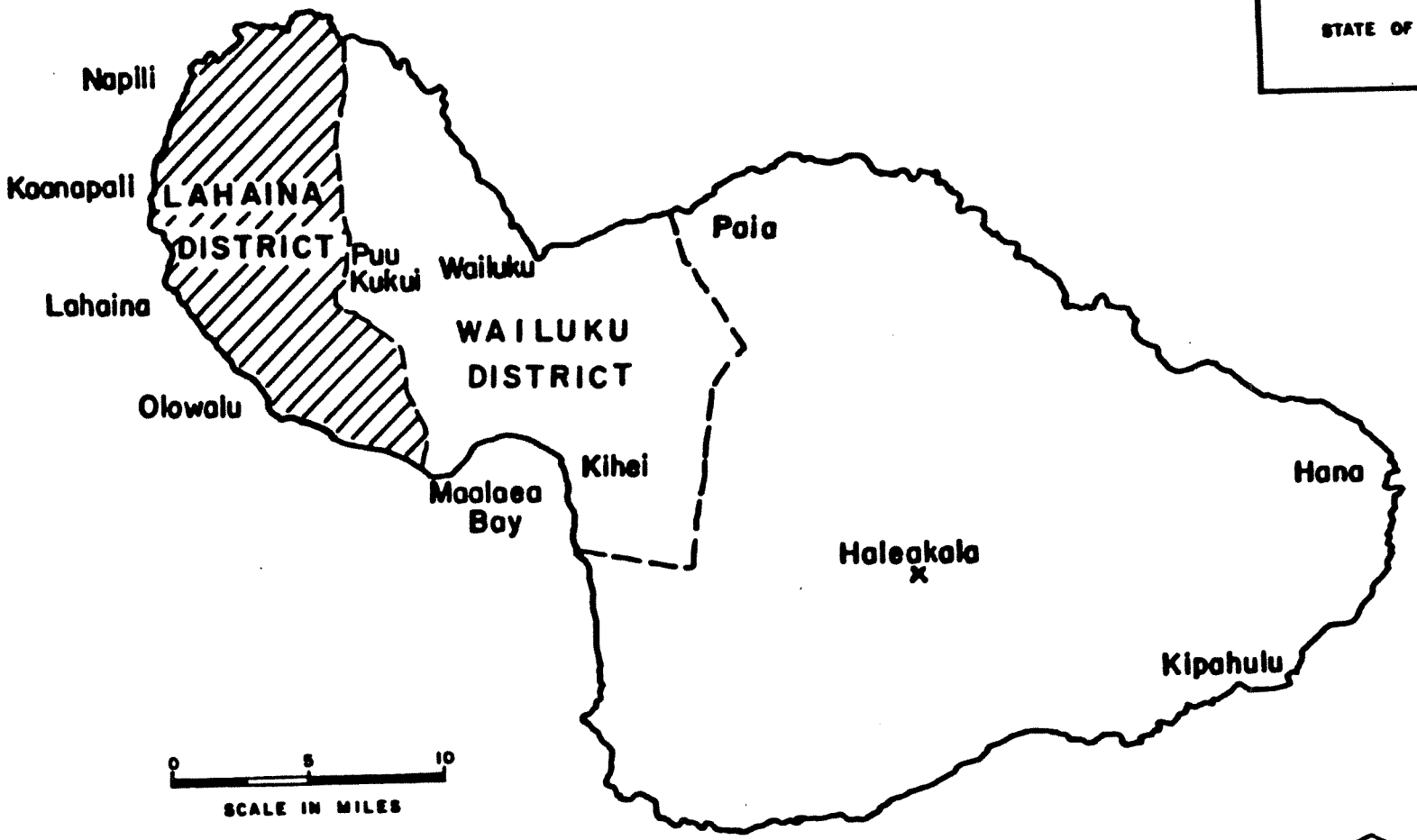
B. Statement of Objectives

Honoapiilani Highway, FAP Route 30, is the only State highway serving this area, and is surrounded by commercial, agriculture, resort, and residential land uses. The rapid growth of the resort areas, together with increased commercial and residential development and other activities in West Maui, have resulted in a significant increase of vehicular traffic using the existing highway. The planned future developments of designated residential, commercial, and resort areas will add more traffic volume to the existing highway. The volume of traffic on Honoapiilani Highway is heaviest between Lahainaluna Road and the Kaanapali Parkway.

More specifically, future land uses in the West Maui area will cause traffic volumes in the project corridor to increase by more than double the existing traffic volume. For example, the southbound through capacity of Honoapiilani Highway at Lahainaluna Road during the PM peak hour is currently about 1,400 vehicles per hour (vph). The estimated current PM peak hour volume is 1,016 vph southbound. The projected PM peak hour volume in the year 2007 will be 2,062 vph which will exceed the capacity of the existing highway. Similar increases in traffic volume will also occur at other locations on the highway.

In light of these future increases, an alternative between Puamana to Kaanapali and another alternative between Kaanapali to Honokowai for accommodating these volume increases are presented for study.

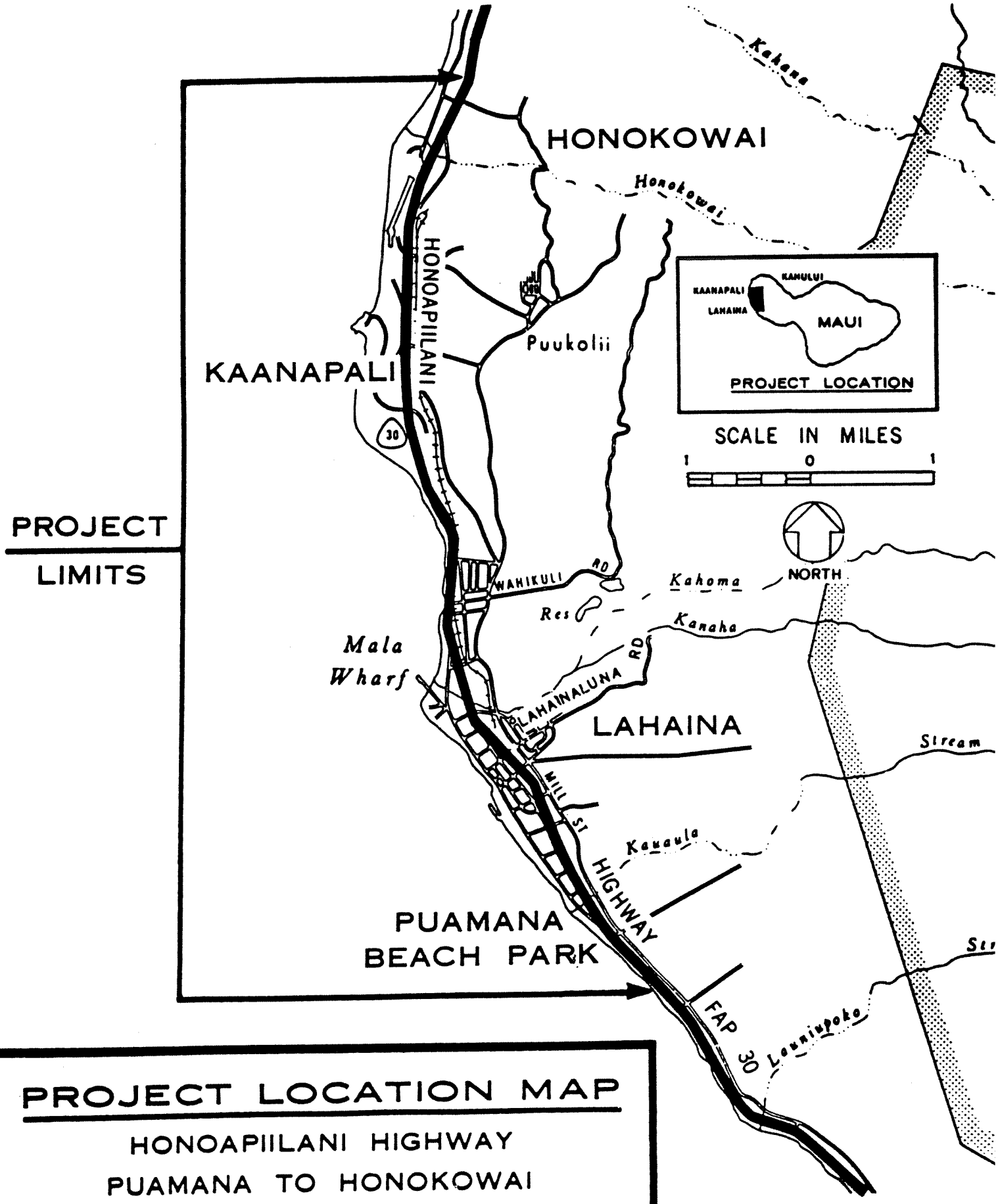
The subject project consists of a two-part corridor alignment study which evaluates alignment alternatives from Puamana Beach Park to Honokowai. The first portion of the study consists of a preferred alternative from Puamana to Kaanapali. The second portion of the study evaluates possible extension alternatives from Kaanapali to Honokowai, a distance of approximately 3 miles. The distance along the existing Honoapiilani



Island of Maui

LOCATION MAP

FIGURE 4



PROJECT LOCATION MAP

HONOAPIILANI HIGHWAY
PUAMANA TO HONOKOWAI

FIGURE 5

Highway between the project limits from Puamana to Honokowai is approximately 8 miles.

C. Description of Proposed Corridor

To improve the highway capacity between Puamana to Honokowai, a highway improvement corridor has been developed (Figure 6). For the purposes of this study, the proposed service area was defined into two corridor areas: the first from Puamana Beach Park to Kaanapali at Kaanapali Parkway, a distance of approximately 5-1/2 miles; and the second, from Kaanapali to Honokowai, a distance of approximately 3 miles. The design level of service of the proposed corridor alternatives is Level C.

Access to Lahaina will be provided at Puamana, Lahainaluna Road, and at Kaanapali. These access points are illustrated in Figure 10.

The sum of critical volumes (in vehicles per hour) show that the intersection of Lahainaluna Road with the existing highway and with the proposed alignment are adequate for the design year. A tabulation of the data is presented below in Table 6:

Table 6

SUM OF CRITICAL VOLUMES

Intersection	1987		2007	
	AM	PM	AM	PM
Proposed Alternative and Lahainaluna Road	631	629	1281	1276
Existing Honoapiilani Hwy. and Lahainaluna Road	568	683	1146	1386

Further information on future traffic assignments for each of the proposed alternatives can be found in Appendix J.

D. Corridor Alternative from Puamana to Kaanapali

The proposed realignment alternative will provide a new alignment mauka (easterly or inland) of the existing Honoapiilani Highway consisting of two lanes for approximately 2-1/2 miles from Puamana to Lahaina at Lahainaluna Road, and four lanes for approximately 3 miles from Lahaina to Kaanapali.

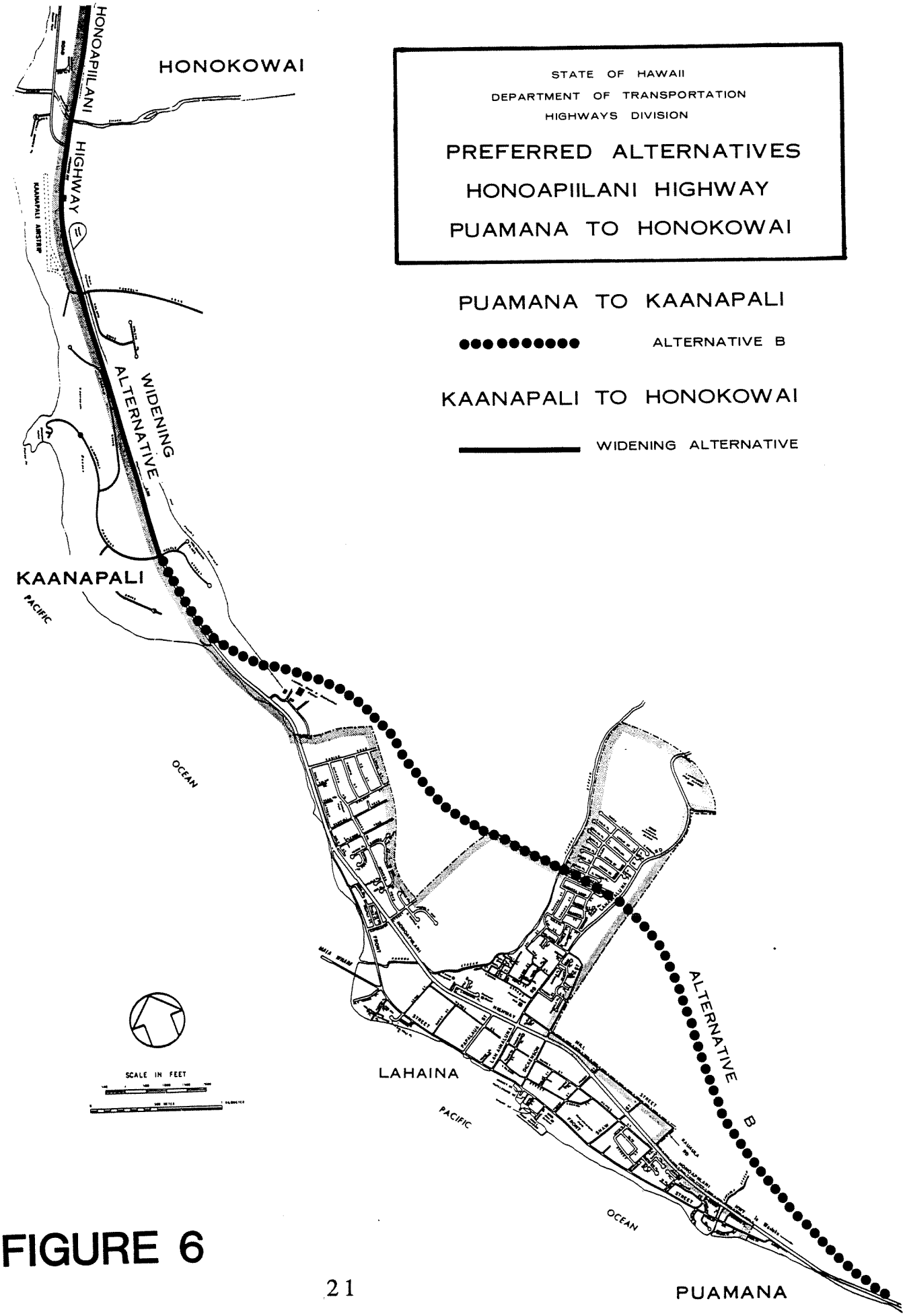

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PREFERRED ALTERNATIVES
HONOAPIILANI HIGHWAY
PUAMANA TO HONOKOWAI
PUAMANA TO KAANAPALI
ALTERNATIVE B
KAANAPALI TO HONOKOWAI
WIDENING ALTERNATIVE
HONOKOWAI
HONOAPIILANI HIGHWAY
WIDENING ALTERNATIVE
KAANAPALI
PACIFIC
OCEAN
LAHAINA
ALTERNATIVE B
PACIFIC
OCEAN
PUAMANA
SCALE IN FEET

FIGURE 6

The proposed improvement would start at the existing highway near Puamana Beach Park, continue just mauka (easterly) of the new County Recreational Center and Mill Street, and then cross Lahainaluna Road through Ikena Avenue. A connection will be provided to Lahainaluna Road. The proposed alignment would span the Kahoma Stream, proceed generally along the mauka (easterly) side of the existing Cane Haul Road and would gradually turn makai (westerly or seaward) to pass on the northerly side of the Civic Center. It would then cross the Lahaina-Kaanapali Railroad, and run along the existing Honoapiilani Highway at the Golf Course and end at the Kaanapali Parkway.

Phase I of the proposed alternative consists of constructing two lanes from Puamana to Kaanapali (Figures 7,8,9). Phase II consists of adding two lanes to the section between Lahainaluna Road to Kaanapali Parkway. This corridor will require an expanded right-of-way width through Ikena Avenue. The proposed corridor is approximately 5-1/2 miles long (Figure 11).

The proposed design concept variation is a full right-of-way section of 150 feet minimum requiring the acquisition of 18 residential parcels with 18 dwelling structures. For the proposed design, eight-foot wide shoulders are planned for the segment at Ikena Avenue (Figures 11,12,13 and 14).

E. Corridor Alternative from Kaanapali to Honokowai

A corridor alternative has been developed for the Kaanapali to Honokowai segment of the proposed project. This alternative has been designed to augment the selected Puamana to Kaanapali corridor.

The Kaanapali to Honokowai alternative consist of widening the existing Honoapiilani Highway from the Kaanapali termini of the selected mauka alignment to Honokowai (Figure 10). This alternative would add two lanes on the mauka (easterly) side of the existing highway. The right-of-way take and major impacts consists of some business property and canefields. Also, the realignment of a parallel cane haul road will be necessary. This extension would be approximately 3 miles in length.

F. Funding and Phasing

The schedule and phasing of the project is contingent on the availability of Federal and State funds (Table 7).

The tentative schedule for this project are as follows:

1. Design Phase

The design phase is scheduled to begin in October 1990.

2. Construction Phase

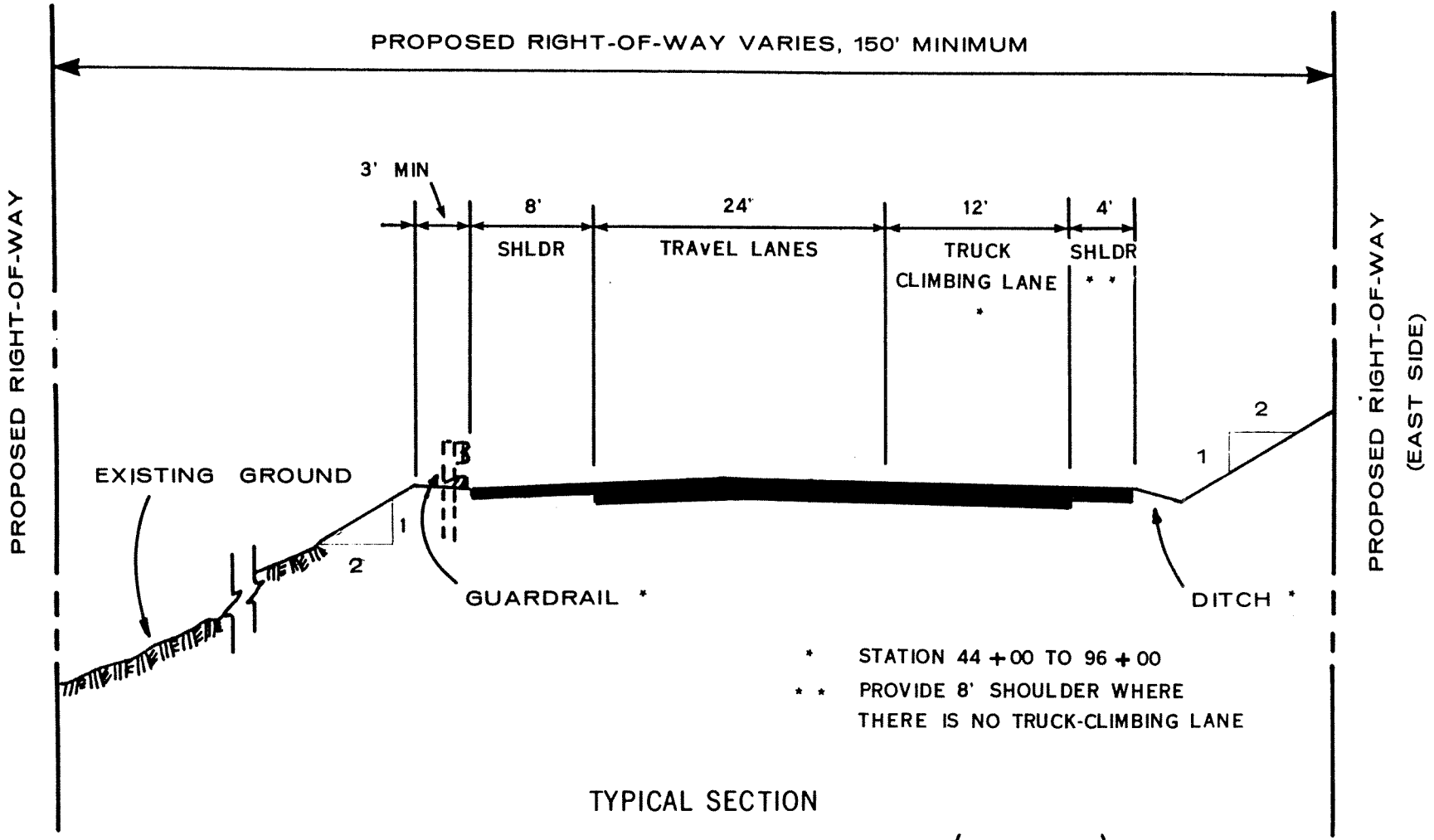
Construction is scheduled to begin in June 1992.

G. Historical Perspective

The proposed project also lies within a mile of the shoreline. The Lahaina coastline has a rich and renown heritage which is often associated with Hawaii's early whaling industry. The Lahaina Historical District has been placed on the National Register of Historical places.

Lahaina Town is itself a major destination and employment center due to a number of clothing and food stores, fast-food outlets, curio shops, restaurants and etc.

In Lahaina, residential and resort developments have gradually displaced agricultural land uses. From 1970 to 1980, the residential population in the project vicinity has increased by approximately 60 percent.



TYPICAL SECTION

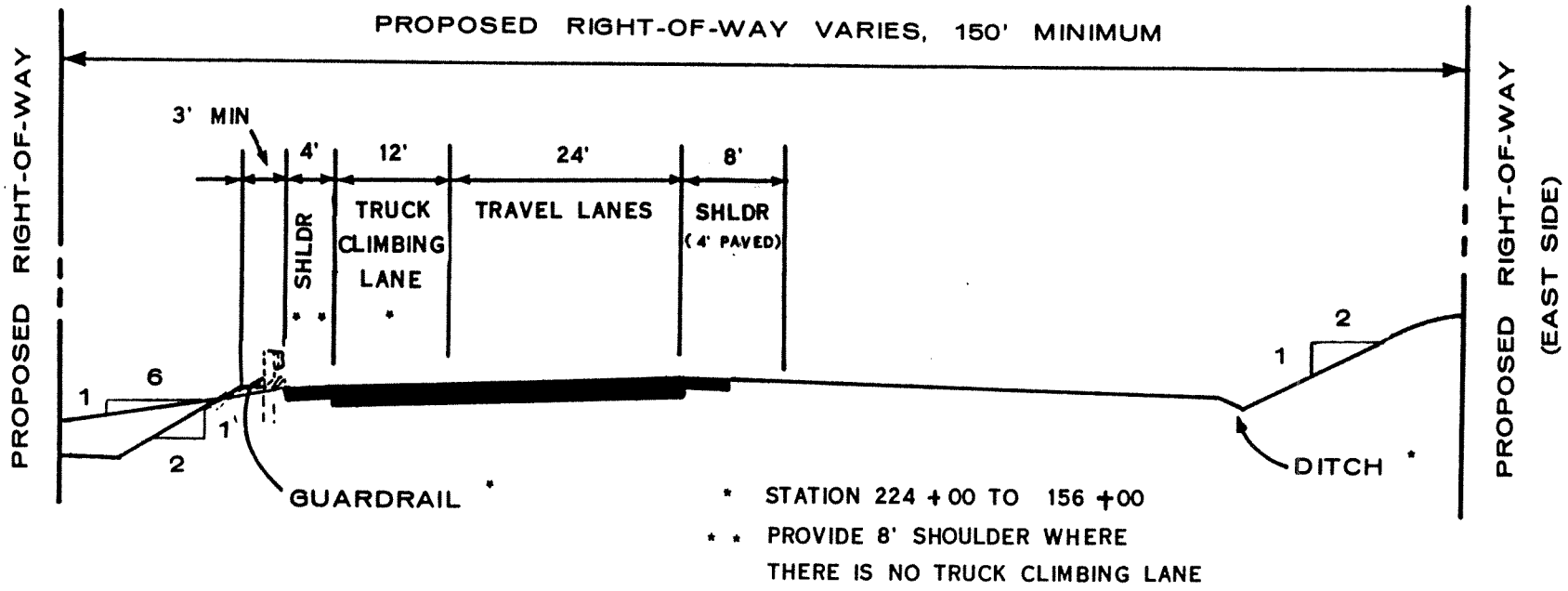
PROPOSED HONOAPIILANI HIGHWAY (FAP 30)

ALTERNATIVE B

PUAMANA TO LAHAINALUNA ROAD

(NOT TO SCALE)

FIGURE 7



TYPICAL SECTION

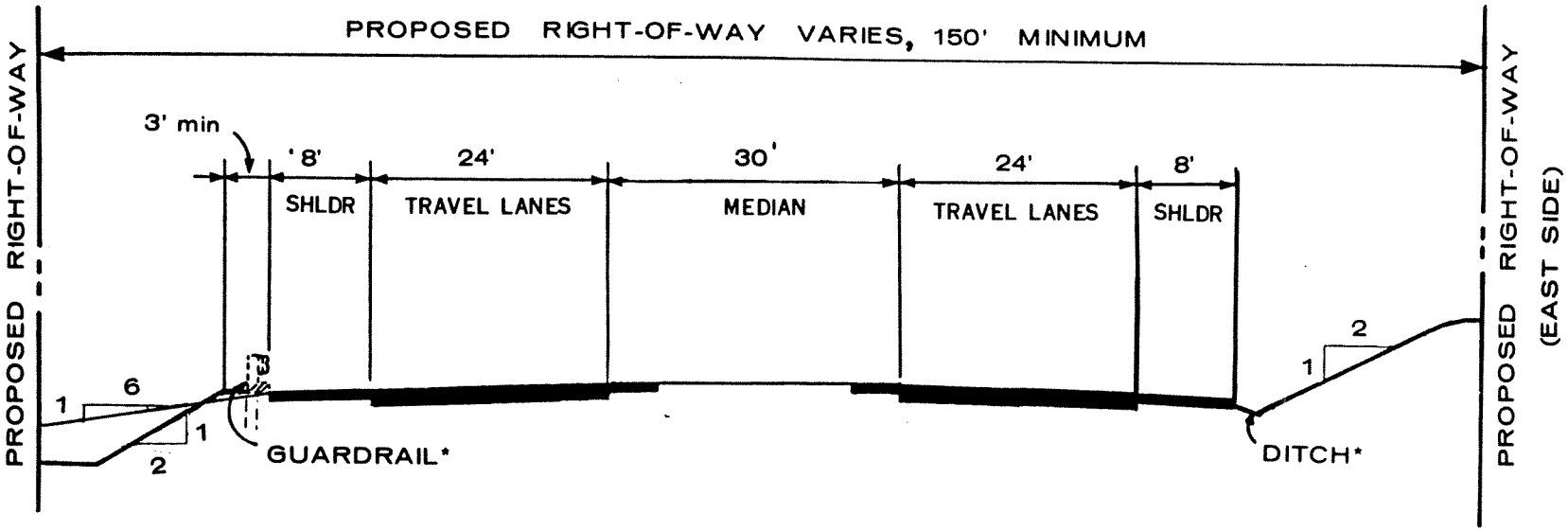
PROPOSED HONOAPIILANI HIGHWAY (FAP 30)

ALTERNATIVE B - INTERIM PHASE

LAHAINALUNA ROAD TO KAANAPALI PARKWAY

(NOT TO SCALE)

FIGURE 8



* PROVIDE WHERE REQUIRED

TYPICAL SECTION

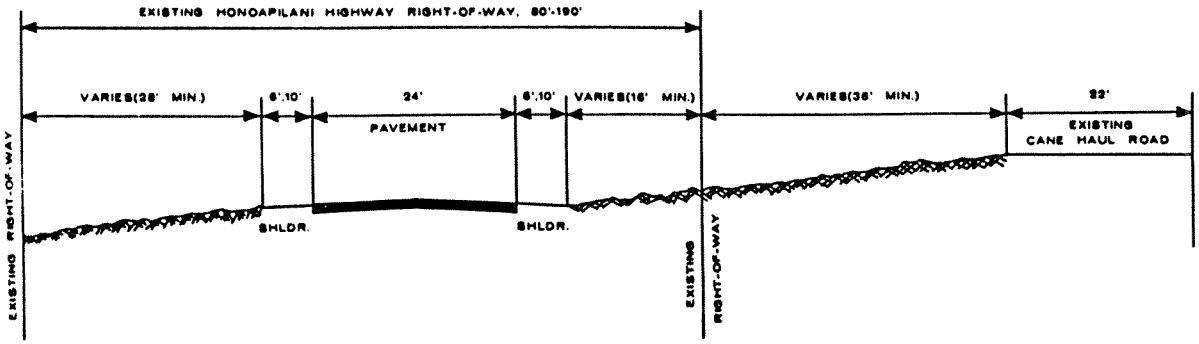
PROPOSED HONOAPIILANI HIGHWAY (FAP 30)

ALTERNATIVE B - ULTIMATE PHASE

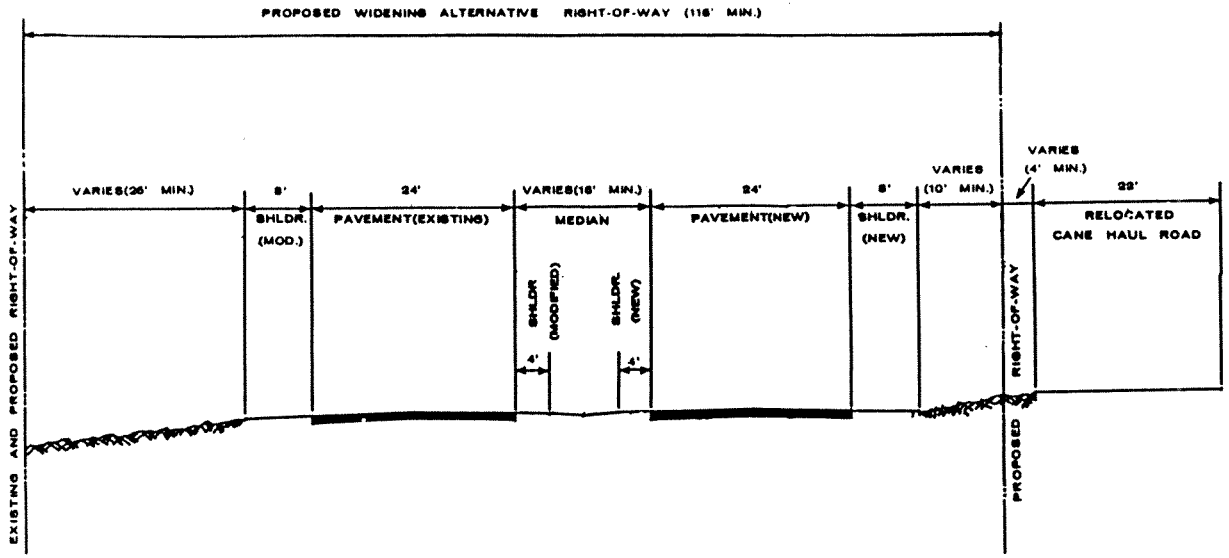
LAHAINALUNA ROAD TO KAANAPALI PARKWAY

(NOT TO SCALE)

FIGURE 9



TYPICAL SECTION
EXISTING HONOAPIILANI HIGHWAY
KAANAPALI PARKWAY TO HONOKOWAI



TYPICAL SECTION
WIDENING ALTERNATIVE
KAANAPALI PARKWAY TO HONOKOWAI

FIGURE 10

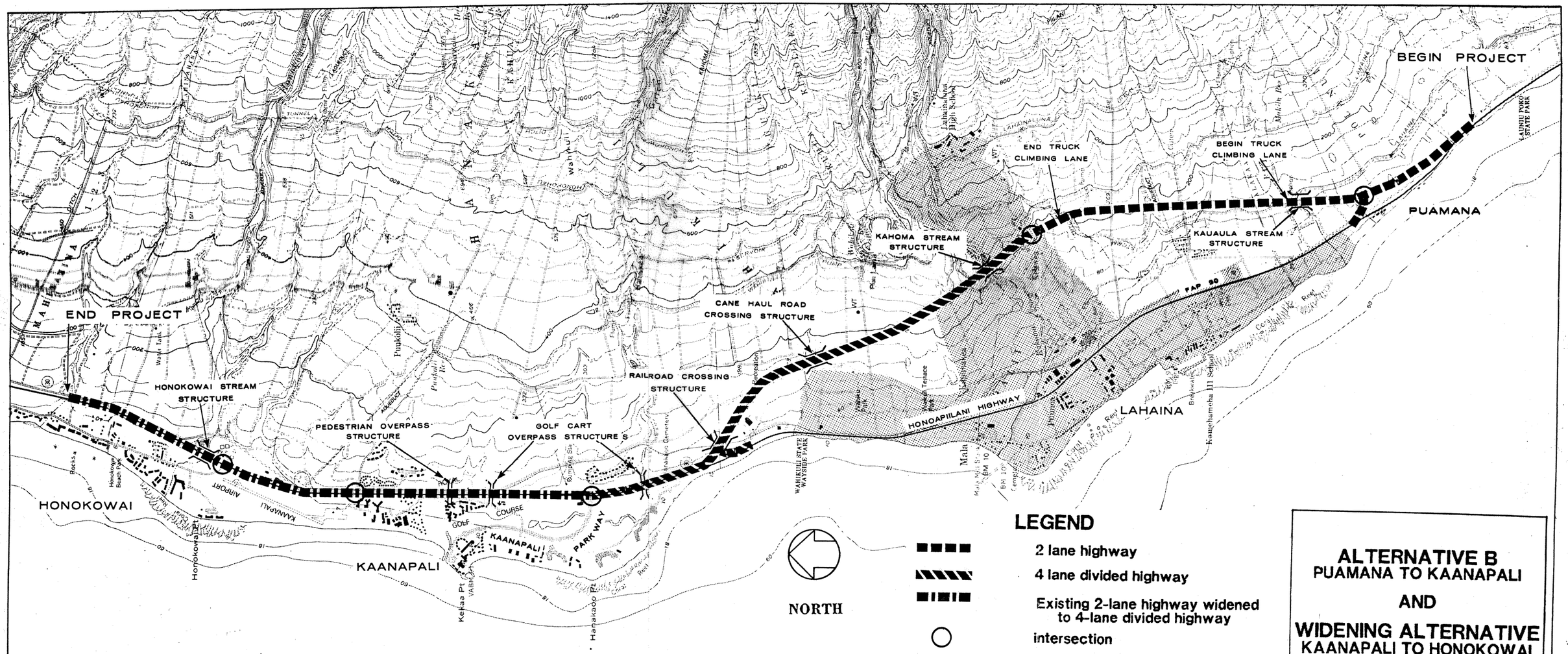
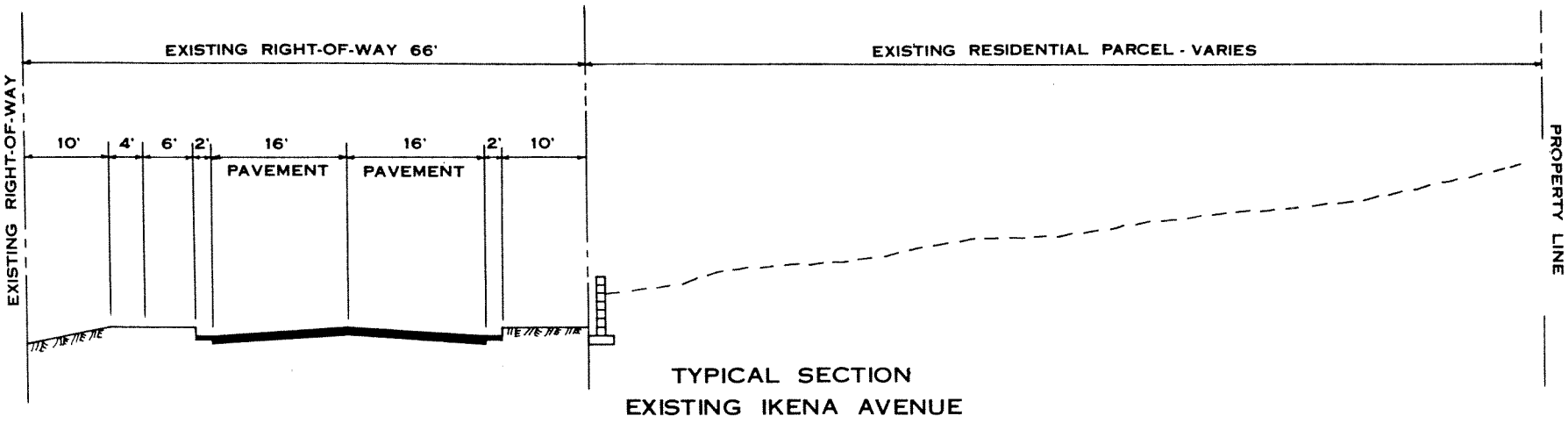
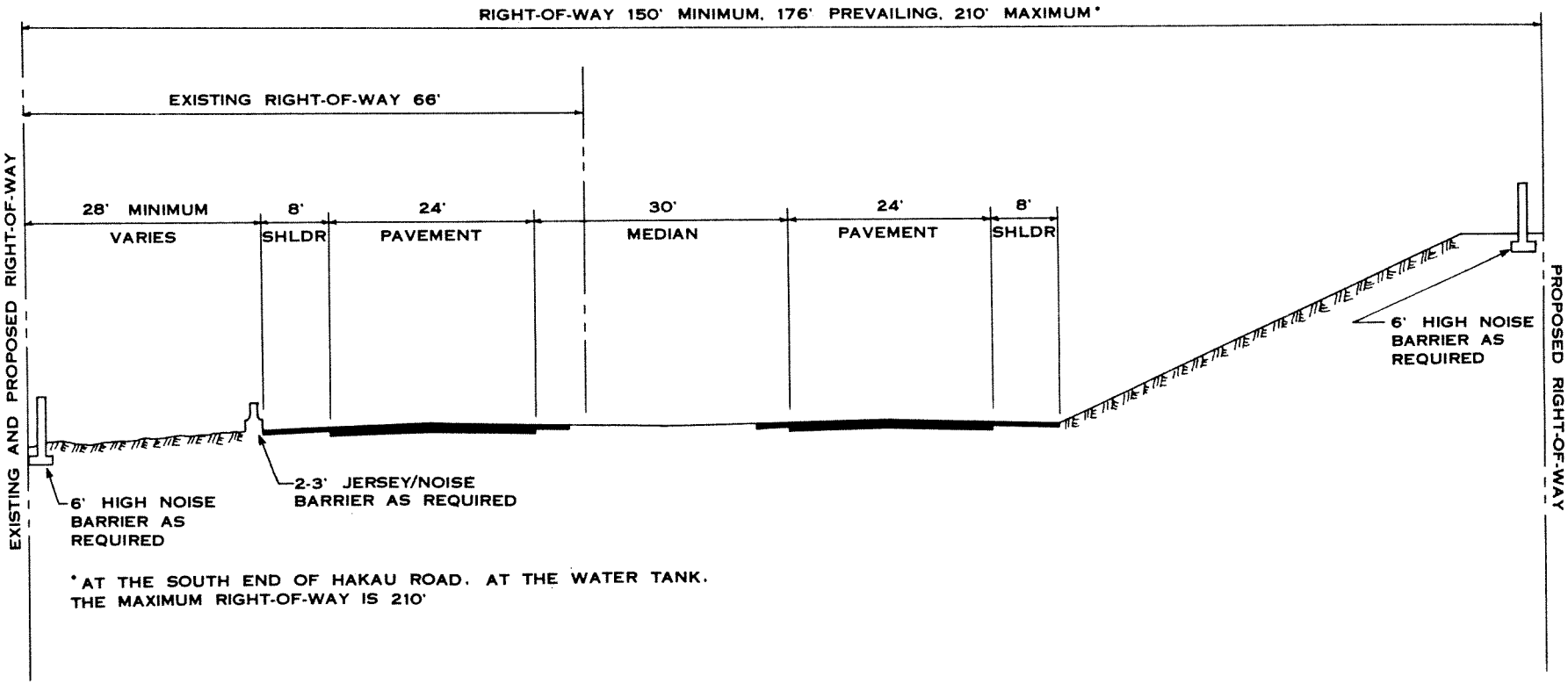

BEGIN PROJECT
END PROJECT
PUAMANA
LAHAINA
KAANAPALI
HONOKOWAI
END TRUCK CLIMBING LANE
BEGIN TRUCK CLIMBING LANE
KAHOMA STREAM STRUCTURE
KAUAULA STREAM STRUCTURE
CANE HAUL ROAD CROSSING STRUCTURE
RAILROAD CROSSING STRUCTURE
HONOKOWAI STREAM STRUCTURE
PEDESTRIAN OVERPASS STRUCTURE
GOLF CART OVERPASS STRUCTURE S
HONOAPIILANI HIGHWAY
KAANAPALI PARKWAY
NORTH
LEGEND
2 lane highway
4 lane divided highway
Existing 2-lane highway widened to 4-lane divided highway
intersection
ALTERNATIVE B
PUAMANA TO KAANAPALI
AND
WIDENING ALTERNATIVE
KAANAPALI TO HONOKOWAI

FIGURE 11

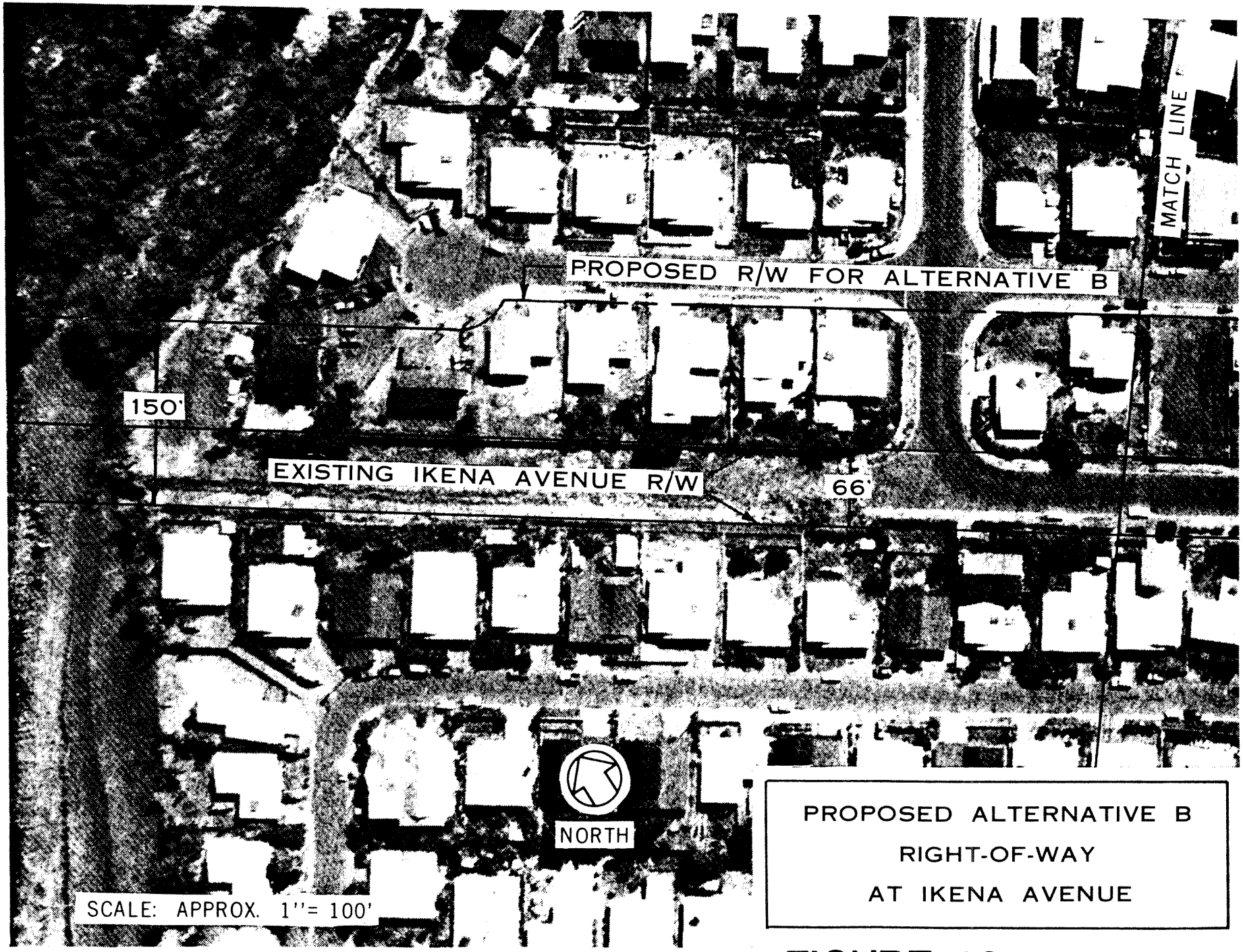


TYPICAL SECTION
EXISTING IKENA AVENUE



TYPICAL SECTION
ALTERNATIVE B
AT IKENA AVENUE

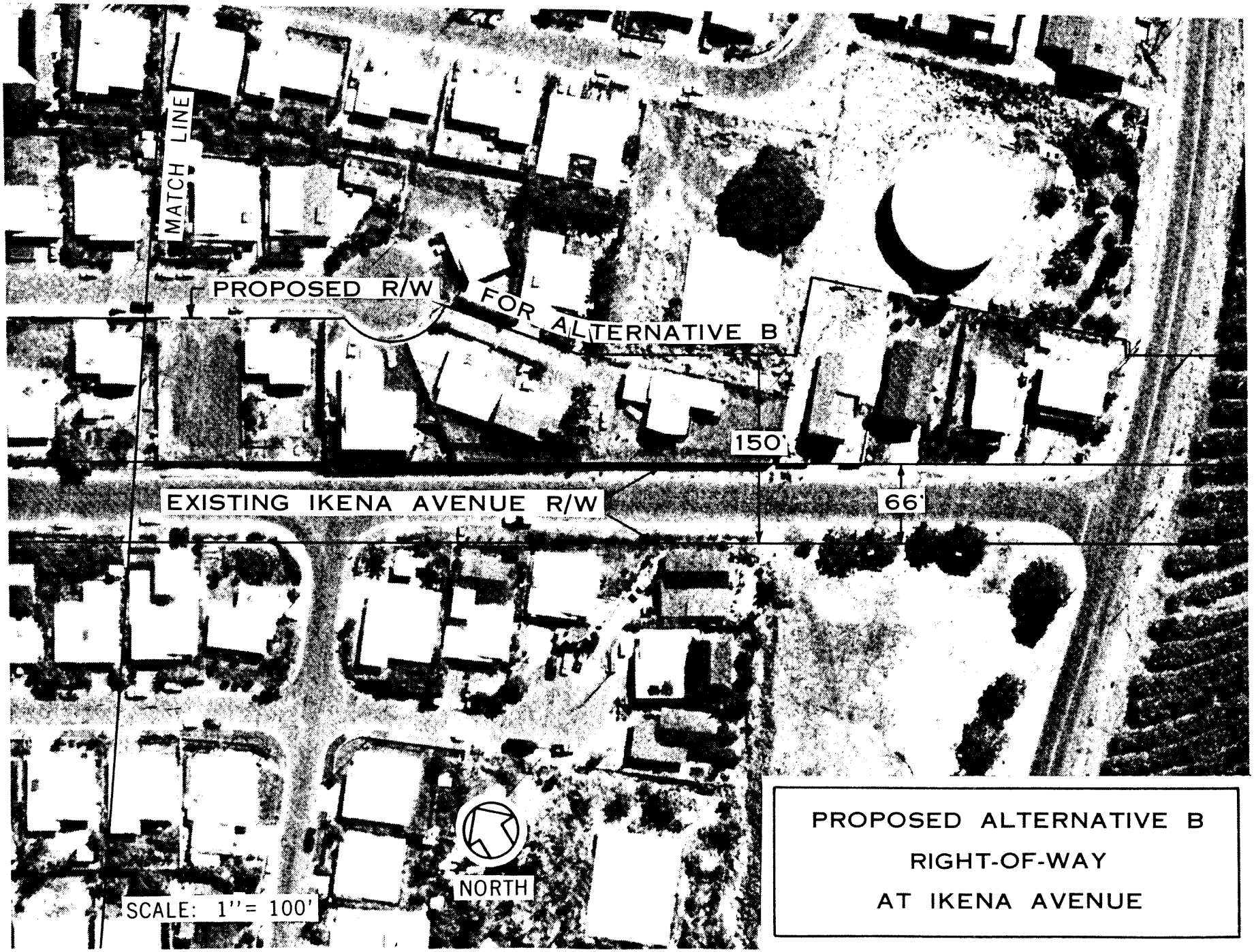
FIGURE 12



PROPOSED ALTERNATIVE B
RIGHT-OF-WAY
AT IKENA AVENUE

FIGURE 13

Sheet 1 of 2



PROPOSED ALTERNATIVE B
RIGHT-OF-WAY
AT IKENA AVENUE

FIGURE 14 Sheet 2 of 2

TABLE 7

ESTIMATED COST OF PREFERRED ALTERNATIVES
HONOAPIILANI HIGHWAY, PUAMANA TO HONOKOWAI

DESCRIPTION					
ALTERNATIVE	LENGTH (MILES)	DESIGN	CONSTRUCTION	RIGHT-OF-WAY	TOTAL
Kaanapali to Puamana					
REALIGNMENT					
B (mauka tier)	5-1/2	$1,930,000	$19,680,000	$9,310,000	$30,920,000
Honokowai to Kaanapali					
WIDENING	3	$500,000	$5,900,000	$2,100,000	$8,500,000
TOTAL	8-1/2	$2,430,000	$25,580,000	$11,410,000	$39,420,000

IV. ALTERNATIVES CONSIDERED

Three corridor alignment alternatives, named A,B, and C, were considered for the Puamana to Kaanapali Parkway segment of the proposed project in the Draft Environmental Impact Statement. Of these three alternatives, B was selected as a preferred alternative and is the alignment subject of this Final Environmental Impact Statement.

A. Corridor Alternatives From Puamana to Kaanapali

The corridor alternatives between Puamana and Kaanapali consist essentially of building a new highway on a new mauka alignment. These alternatives are named Alternatives A, B and C. Alternatives A and C are shown in Figure 15 and Table 8. Alternative B is shown in Figure 6 and Table 8.

1. Alternative B, Mauka Tier Variation

Alternative B, mauka tier variation is the result of final evaluation of the proposed realignment alternatives for the corridor between Puamana to Kaanapali. This variation consist of a mauka realignment with termini at Puamana, a connection at Lahainaluna Road, easement through Ikena Avenue, and termination at Kaanapali Parkway. The primary reasons Alternative B was selected over Alternatives A and C were; costs and cost benefit ratios, lack of significant impacts on the Pioneer Mill, the Lahaina Historic District, and the Lahainaluna Schools, and optimal spatial relationship with the existing highway. This alternative is the subject of this Final Environmental Impact Statement and can be found described in more detail in other sections of this document.

2. Other Alternatives Developed

Alternatives A and C were both planned as 2-lane rural arterial highways between Puamana to Lahaina at Lahainaluna Road and a 4-lane urban arterial highway from Lahaina at Lahainaluna Road to Kaanapali at Kaanapali Parkway.

a. Realignment Alternative A

Alternative A would provide a new alignment mauka, (easterly or seaward as opposed to makai which is westerly or inland) of the existing Honoapiilani Highway consisting of two lanes from Puamana to Lahaina, and four lanes from Lahaina to Kaanapali.

The proposed improvement would start at the existing highway near Puamana Beach Park, continue just mauka (easterly) of the new County Recreational Center and Mill Street, and then cross over Lahainaluna Road

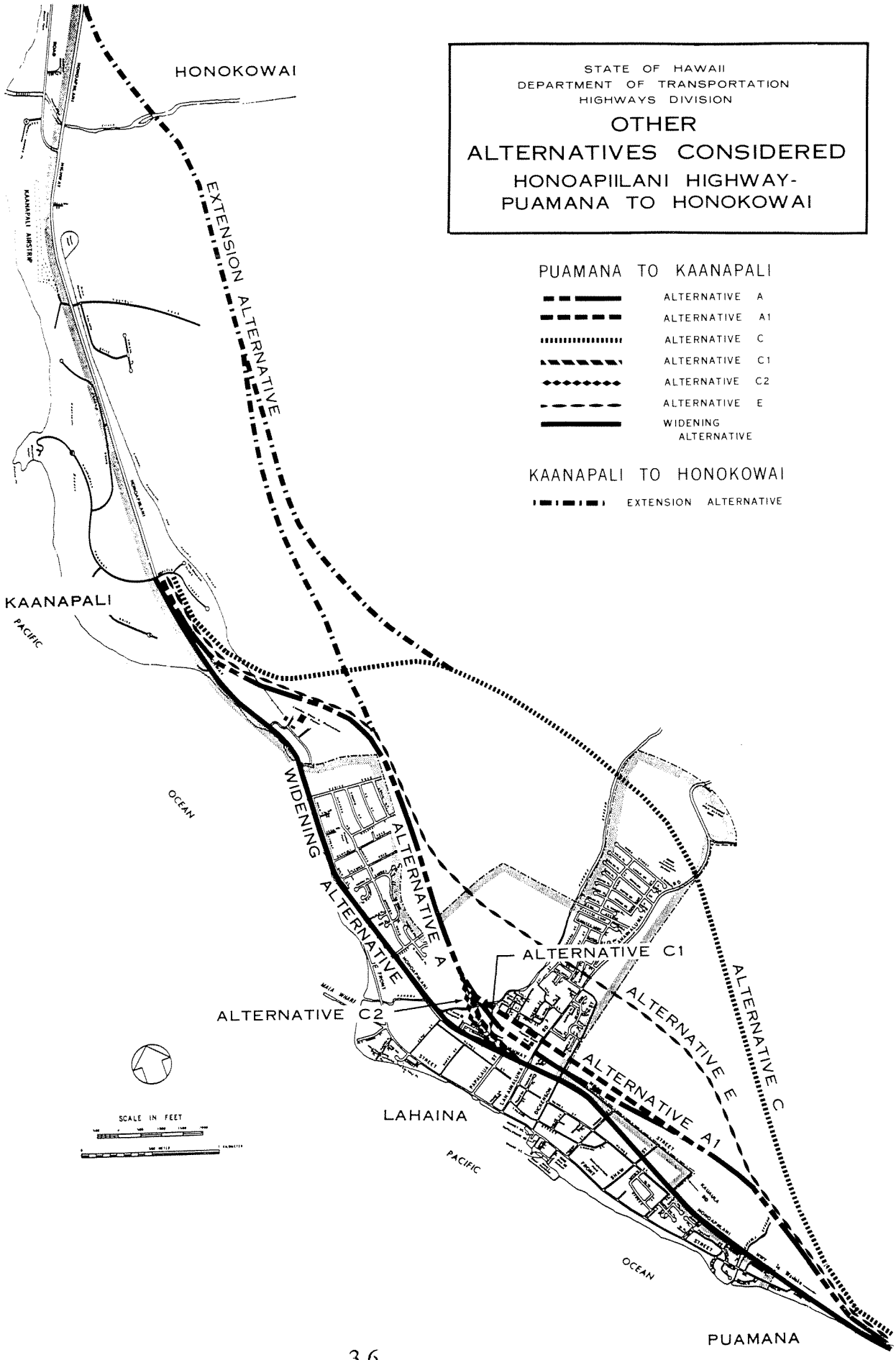

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
OTHER
ALTERNATIVES CONSIDERED
HONOAPIILANI HIGHWAY-
PUAMANA TO HONOKOWAI
PUAMANA TO KAANAPALI
ALTERNATIVE A
ALTERNATIVE A1
ALTERNATIVE C
ALTERNATIVE C1
ALTERNATIVE C2
ALTERNATIVE E
WIDENING ALTERNATIVE
KAANAPALI TO HONOKOWAI
EXTENSION ALTERNATIVE
HONOKOWAI
EXTENSION ALTERNATIVE
KAANAPALI
PACIFIC
OCEAN
WIDENING ALTERNATIVE
ALTERNATIVE A
ALTERNATIVE C1
ALTERNATIVE C2
ALTERNATIVE E
ALTERNATIVE A1
ALTERNATIVE C
LAHAINA
PACIFIC
OCEAN
PUAMANA
SCALE IN FEET

FIGURE 15

TABLE 8

TABULATION OF DATA

SECTION	ALTERNATIVE	TYPE IMPROVEMENT	NO. LANES *	LENGTH (Miles)	MAJOR STRUCTURES
PUAMANA TO LAHAINALUNA	A	REALIGNMENT	2	2.1	KAUAULA STREAM STRUCTURE
	B	REALIGNMENT	2	2.6	KAUAULA STREAM STRUCTURE
	C	REALIGNMENT	2	2.7	KAUAULA STREAM STRUCTURE
LAHAINALUNA TO KAANAPALI	A	REALIGNMENT	4	3.0	a) VIADUCT (2,100 FEET) b) KAHOMA STREAM STRUCTURE c) RAILROAD STRUCTURE d) CANE HAUL ROAD STRUCTURE
	B	REALIGNMENT	4	2.9	a) TUNNEL/RETAINING WALLS/ WALLS (NOISE BARRIERS) b) KAHOMA STREAM STRUCTURE c) RAILROAD STRUCTURE d) CANE HAUL ROAD STRUCTURE
	C	REALIGNMENT	4	3.2	a) RETAINING WALLS b) KAHOMA STREAM STRUCTURE c) RAILROAD STRUCTURE d) CANE HAUL ROAD STRUCTURE
KAANAPALI TO HONOKOWAI	W	WIDENING	2	2.9	HONOKOWAI STREAM STRUCTURE
	EXTENSION	REALIGNMENT	2	4.0	HONOKOWAI STREAM STRUCTURE

* ALL ALTERNATIVES FOR 2 LANES HAVE RIGHT-OF-WAY FOR ULTIMATE 4 LANES

and the Pioneer Mill Yard. The proposed alignment would span the Kahoma Stream, proceed generally along the mauka (easterly) side of the existing Cane Haul Road and would gradually turn makai (westerly) to pass on the northerly side of the Civic Center. It would then cross the Lahaina-Kaanapali Railroad, and run along the existing Honoapiilani Highway at the Golf Course and end at the Kaanapali Parkway.

In Alternative A, a 2,100-foot long viaduct structure was proposed. The viaduct will come to an at-grade intersection at Dickenson Street. No ramps would be required. No streets would be required to become cul-de-sacs, except possibly some cane-haul field roads for which alternate routes would be provided.

This alternative utilized six-foot wide right-hand shoulders for short segments through the developed Lahaina Town area. Outside of this area, eight-foot wide shoulders were proposed.

Phase I of Alternative A consists of constructing two lanes from Puamana to Kaanapali. Phase II of Alternative A consists of adding two lanes to the section between Dickenson Street to Kaanapali Parkway.

Alternative A would run through the makai side of Pioneer Mill's main building and would affect the mill yard and a small portion of the mill's main building. A viaduct will be required along the mill site. A six-foot wide shoulder will be utilized for the 2,100-foot viaduct structure. The reduced shoulder width will help reduce viaduct costs and lessen impacts to Pioneer Mill. This alternative is approximately 5.1 miles in length.

b. Alternative B, Retaining Wall Variation

The Ikena Avenue retaining wall section variation of the proposed alignment is a residential street with an existing 66-foot wide right-of-way. The retaining wall variation would utilize an 80-foot wide right-of-way requiring taking of property on both sides of Ikena Avenue. This section would utilize a depressed roadway section with retaining walls which would reduce noise and visual impact along this section. This variation would also save houses along the right-of-way. This variation would have the offsetting impact of poor highway geometrics resulting from the implementation of substandard 6-foot shoulders and a narrow median with 4-foot shoulders.

c. Alternative B, Tunnel Variation

Alternative B's other design variation included a 1,210-foot long tunnel through Ikena Avenue. The tunnel variation was a proposal to save the houses along the alignment and reduce noise and visual impacts along the 66 foot wide Ikena Avenue. This variation, based on a reduced right-of-way

width of 80 feet, has the offsetting impacts of poor highway geometrics resulting from the implementation of substandard 6-foot shoulders and a narrow median with 4-foot shoulders, as well as high maintenance costs.

d. Realignment Alternative C

Alternative C would provide a new alignment mauka (easterly of the existing Honoapiilani Highway consisting of two lanes from Puamana to Lahaina, and four lanes from Lahaina to Kaanapali.

The proposed improvements would start at the existing highway near Puamana Beach Park, continue just mauka of the New County Recreational Center and then turn mauka to cross Lahainaluna Road between the Lahaina Intermediate School and Lahainaluna High School. This would require the taking of some Lahainaluna school property and would affect the Master Plan for schools. The alignment would continue between the two schools, cross over Kanaha Stream and Kahoma Stream, then continue through or between the complex of Crater Reservoir and Wahikuli Reservoir, and turn makai (westerly) to pass on the northerly side of the Civic Center. It would then cross the Lahaina-Kaanapali Railroad, and run along the existing Honoapiilani Highway at the Golf Course and end at the Kaanapali Parkway. This alternative will require crossing over Kanaha Stream and Kahoma Stream with long bridge structures. Some filling may be required in the reservoir area. The alignment will probably be required to go over the railroad because of the steepness of the alignment. Alternative C is approximately 5.9 miles long.

3. Other Alternatives Considered

The subject project was developed as a corridor study with several alternatives under consideration prior to the Draft Environmental Impact Statement. These alternatives, which are described in the DEIS are shown in Figure 15 and described below.

a. Alternative A-1

Alternative A-1 would run along the mauka boundary of the Pioneer Mill property and would severely affect Pioneer Mill and the Maui Electric Company's substation located along Lahainaluna Road. The main mill processing building would have to be replaced in its entirety based on estimates and discussion with the mill officials. Also, some of the other mill yard structures and a small portion of one of the residential properties along Kuhua Street would be affected.

b. Alternatives C-1 and C-2

Alternatives C-1 and C-2 would consist of a combination of Alternative W from Puamana to about Lahainaluna Road where it would essentially tie into and continue along the alignment of Alternative A toward Kaanapali. Alternative C-2 differs from Alternative C-1 in that the former would be located closer to the Lahainaluna Road- Honoapiilani Highway intersection. Both of these alternatives were dropped because acquisition of a number of businesses would be required and because of the problems of realignment of the connection at the existing Honoapiilani Highway. The Traffic Signal Management (TSM), minor , signalization, re-stripping is currently included in a fully State funded short-term improvement project scheduled for completion (in-service) by the end of 1988. While these improvements will do much to alleviate the congestion, the numerous and closely spaced intersections and the lack of space to provide left-turn sacs limit this alternative as a viable solution to provide the desired capacity. It should be noted that more than 50% of the total traffic movements at the key intersections are turning movements, and this constitutes a severe limitation on the existing corridor to serve as an arterial highway.

Buses/mass transit as realistic attainable project alternatives are not feasible because of the lack of public/private financing.

c. Alternative E

Alternative E would begin at the existing highway near Puamana Beach Park, continue easterly (mauka) of the new County Recreational Center, continue easterly (mauka) of Wainee Village, cross Lahainaluna Road in the vicinity of Kalena Street or Kelawea Street. Alternative E would then cross over the Kahoma Stream, curve northerly of the Lahaina Civic Center, then pass under the Lahaina-Kaanapali Railroad, then run along the existing Honoapiilani Highway at the Golf Course and end at the Kaanapali Parkway.

Alternative E would run through the Kelawea-Kalena subdivision and would require acquisition of at least 20 homes. Preliminary assessment and comments received at a public informational meeting indicate significant opposition by the residents to this alternative.

d. Alternative W

Alternative W, the widening alternative between Puamana and Kaanapali would consist of widening the existing Honoapiilani Highway and providing intersection improvements. The existing two-lane highway at the Puamana end of the corridor would be.improved to transition to a basic four-or six-lane configuration. The widening of some of the intersection approaches of the main cross streets were proposed to provide the needed storage and turning

lanes. These cross-streets are Lahainaluna Road, Papalaua Street, Front Street at Fleming Road, and the Kaanapali Parkway.

Alternative W was found to have too many intersections with local streets. The highway would not be able to function effectively as an arterial because of the proximity of the numerous intersections and the high volume of turning movements. Also, during construction, detouring of traffic would be a major problem and there would be right-of-way impacts to the businesses in the project area.

e. Do-Nothing Alternative

The "do-nothing" alternative appears to be unacceptable because of community transportation needs. If no action is taken, congestion and its attendant problems would undoubtedly occur. Further, the planned future development of the Lahaina-Kaanapali area may not be possible due to an inadequate highway system.

B. Corridor from Kaanapali to Honokowai

1. Widening Alternative

A corridor alternative has been developed for the Kaanapali to Honokowai segment of the proposed project. This alternative has been designed to augment the selected Puamana to Kaanapali corridor. This widening alternative was selected for it's lower cost than the extension alternatives and it's higher cost benefit ratio as well as the plan's improved traffic service in and out of Kaanapali.

The Kaanapali to Honokowai alternative consist of widening the existing Honoapiilani Highway from the Kaanapali termini of the selected mauka alignment to Honokowai. This alternative would add two lanes on the mauka (easterly) side of the existing highway. The right-of-way take and major impacts consists of some business property and canefields. Also, the realignment of a parallel cane haul road will be necessary. This extension would be approximately 3 miles in length.

2. Other Alternatives Developed

a. Extension Alternative, A or B on a Mauka Alignment

This alternative consisted of a mauka alignment which would augment the alternatives A or B by extending a Kaanapali to Honokowai segment in the vicinity of Wahikuli Road. This extension, which is approximately 4 miles long, would require another stream crossing structure for Honokowai Stream. This extension would primarily cross cane lands with 2 lanes.

b. Extension Alternative, C on a Mauka Alignment

An extension alignment of Alternative C was also considered along the inland sections of the project area. This extension would have connected with Alternative C mauka of the extension discussed for alternatives A or B. This alignment is approximately 4 miles in length. This alignment is located on existing cane lands at a prevailing distance of about 1/2 mile mauka (easterly) of the existing Honoapiilani Highway.

3. Amfac Alternative

This alternative proposed by Amfac consisted of a mauka extension alignment similar to the extension alternatives for A,B, and C. This alignment would utilize a higher elevation above Puukolii Reservoir with steeper grades. The alignment would terminate before Honokowai. This alternative was proposed by Amfac after a public hearing was held for the project. This alignment was not selected for the same reasons that the other extension alternatives were dropped from consideration, namely lower cost-benefit ratios.

V. THE AFFECTED ENVIRONMENT

A. Geographical Characteristics

1. Topography

The project areas consists of varying terrain from almost mean sea level to 450 feet above mean sea level. The existing highway is sited on relatively flat lands near or adjacent to the shoreline while Alternatives A, B, and C begin near sea level and gradually climb up the existing slopes above Lahaina.

2. Geology

The island of Maui consists of two major volcanoes; the older one, West Maui, is extinct. The volcanic rocks of Maui have been divided into three series. The oldest series is the Wailuku Volcanic Series, which is the basaltic flows that built the major shield. The Honolua Volcanic Series covered this series with thin, discontinuous andesitic and trachytic flows, domes and pyroclastic deposits. After a long period of erosion came the flows and cones of the Lahaina Volcanic Series.

The Wailuku Volcanic Series is predominantly thin pahoehoe and a'a lava flows of tholeiite, olivine tholeiite, and oceanite, with the uppermost part of these grading into alkalic olivine balsalt. This shield reached a height of about 7,000 feet above sea level before the top collapsed, forming a caldera about two miles in diameter.

Rift zones of West Maui are less pronounced than most other Hawaiian volcanoes. The tendency was for dikes to radiate in all directions from the summit, which is responsible for the nearly circular ground plan of the volcano. There is some concentration of dikes in two zones, one crossing the mountain in a north-south direction and the other trending northeast in the northeast part of the mountain.

Lavas of the Honolua Series are mostly mugearite, with less abundant trachyte and a little hawaiite. Some of the flows are pahoehoe but most are a'a, commonly transitional to block lava. Dikes of this series follow the general trends as the earlier dikes and the vent lie mostly on the same major rift zones. Mugearite dikes are generally thin, but trachyte dikes range up to 25 feet in thickness, some having been traced to two miles.

There was a long period of erosion after the last Honolua eruptions, and then came the rocks of the Lahaina Volcanic Series. The flow was picrite-basalt containing moderately abundant phenocrysts of brownish-green olivine. The largest of these eruptions occurred on the alluvial fan of Kahoma and Kanaha

Streams, 1.5 miles northeast of Lahaina, forming Puu Laina. It blocked the mouth of Kahoma Valley and displaced Kahoma Stream southward more than half a mile.

3. Soils

Soils in the project area were identified through soil classification maps from the Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii by the United States Department of Agriculture Soil Conservation Service, 1972 (Figure 16,17).

The soils in the project areas fall under the general classification of the Pulehu-Ewa-Jaucas Association, which consists of well-drained and excessively drained, medium-textured, moderately fine textured and course-textured soils on alluvial fans and in basins on the island of Maui, mainly Central Maui. These soils are nearly level to moderately sloping. They developed in alluvium weathered from basic igneous rock, coral, and seashells. The association makes up about 4 percent of the island.

The elevation ranges from near sea level to 600 feet. The annual rainfall is 10 to 30 inches. The mean annual soil temperature is about 75 degrees F. The natural vegetation is bermudagrass, bristly foxtailgrass, kiawe, and lantana.

Pulehu soils make up about 40 percent of the association, Ewa soils about 15 percent, and Jaucas soils 10 percent. Alae, Iao, Kealia, and Puuone soils make up the rest.

The specific soil types at the proposed site are Wainee Series, Wahikuli Series, Pulehu Series, and rock lands. The project alignment is largely comprised of Wainee and Wahikuli Series which are detailed below:

a. Wahikuli Series

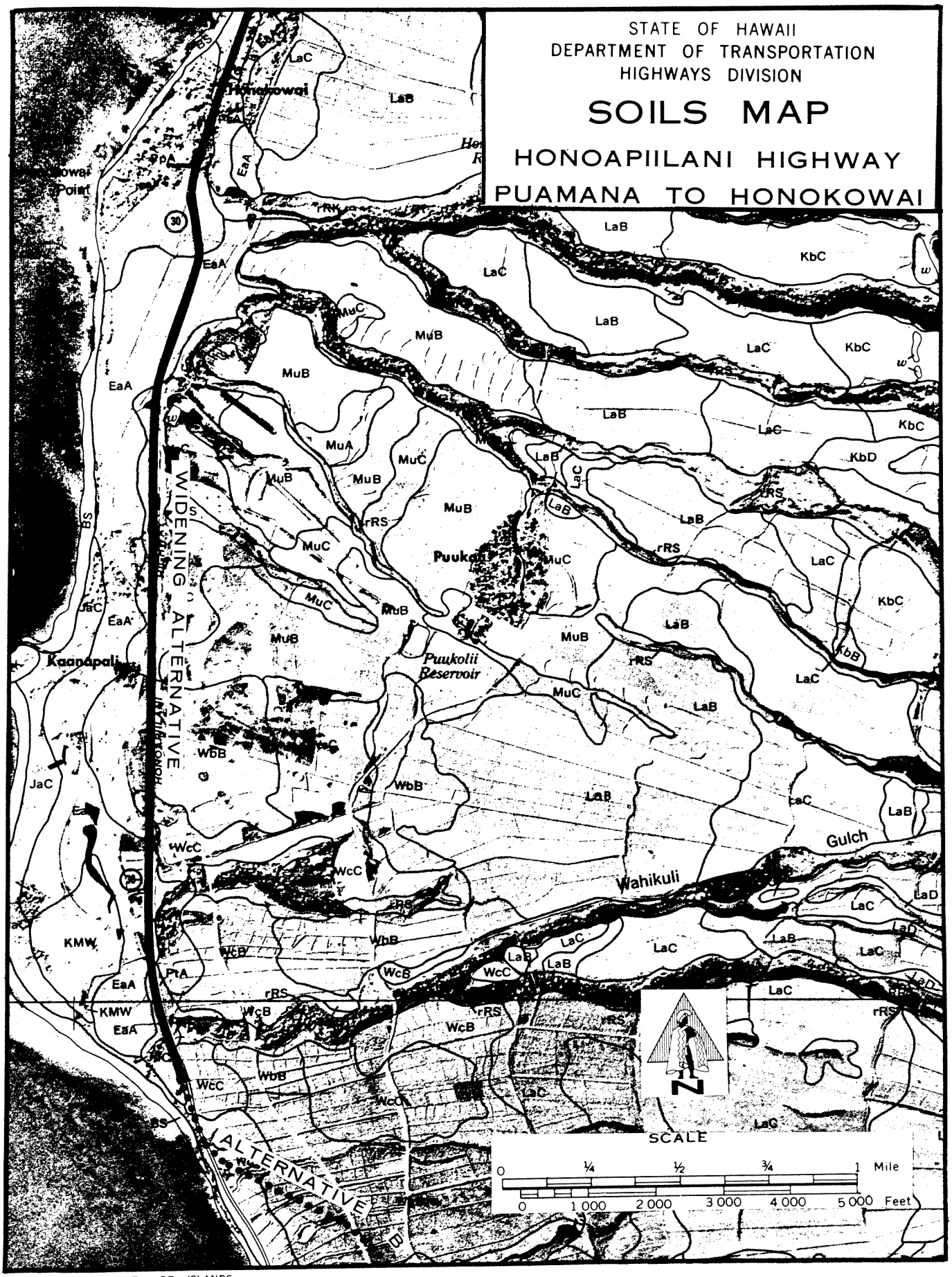
This series consists of well-drained soils on uplands on the island of Maui. These soils developed in material weathered from basic igneous rock. They have been influenced to some extent by volcanic ash from local cinder cones. They are gently to moderately sloping. Elevations range from nearly sea level to 600 feet. The annual rainfall amounts to 12 to 20 inches; most of it occurs in winter. The mean annual soil temperature is 74 degrees F. Wahikuli soils are geographically associated with Lahaina and Molokai soils.

These soils are used mostly for sugarcane. A small acreage is used for homesites. The natural vegetation consists of bermudagrass, feather fingergrass, kiawe, and uhaloa.



SOURCE - SOIL SURVEY OF ISLANDS
KAUAI, OAHU, MAUI, MOLOKAI, AND LANAI
STATE OF HAWAII
BY - UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
IN COOPERATION WITH THE UNIVERSITY OF HAWAII

FIGURE 16



SOURCE - SOIL SURVEY OF ISLANDS
KAUAI, OAHU, MAUI, MOLOKAI, AND LANAI
STATE OF HAWAII
BY - UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
IN COOPERATION WITH THE UNIVERSITY OF HAWAII
AGRICULTURAL EXPERIMENT STATION ISSUED AUGUST 1972

FIGURE 17

Wahikuli stony silty clay, 3 to 7 percent slopes (WcB). This soil is similar to Wahikuli silty clay, 3 to 7 percent slopes except there are enough stones on the surface to hinder cultivation.

Wahikuli stony silty clay, 7 to 15 percent slopes (WcC). Similar to Wahikuli silty clay. Runoff is slow to medium, and the erosion hazard is slight to moderate. Included with the study mapping were, small nonstony areas and some moderately steep areas.

Wahikuli very stony silty clay, 3 to 7 percent slopes (WdB). Similar to Wahikuli silty clay except that as much as 3 percent of the surface is covered by stones. Included in mapping were small areas where stones cover 3 to 15 percent of the surface.

b. Wainee Series

This series consists of well-drained soils on alluvial fans on the island of Maui. The soils developed in alluvium derived from weathered basic igneous rock. The are gently to moderately sloping. Elevations range from nearly sea level to 1,000 feet. Rainfall amounts to 10 to 20 inches annually; most of it occurs in winter. The mean annual soil temperature is 75 degrees F. Wainee soils are geographically associated with Pulehu and Wahikuli soils.

These soils are used mostly for sugarcane. A small acreage is used for pasture and homesites. The natural vegetation is fingergrass, kiawe, and uhaloa.

Wainee very stony silty clay, 3 to 7 percent slopes (WxB). On this soil, runoff is slow and the erosion hazard is slight. Stones cover as much as 3 percent of the surface. Included in mapping were small areas where bedrock is at a depth of about 36 inches.

Wainee very stony silty clay, 7 to 15 percent slopes (WxC). Stones cover as much as 3 percent of the surface of this soil. Included in mapping were small areas where bedrock is at a depth of about 36 inches. In a few places the slope is moderately steep.

4. Productivity Ratings

The proposed alignment is located on several land use types according to the Detailed Land Classification - Island of Maui, (Land Study Bureau, University of Hawaii, L.S.B. Bulletin No. 7, May 1967.) The project alignment contains the following land types; A 51i, B 52i, B 87i, C 54i, C 55i, E 73 and E 95. The project alignment does not include all of these classifications in any significant quantity except for B 52i and B 87i on which the alignment primarily lies.

a. B 52i

This land type has an overall productivity rating of B. These areas are moderately suited for machine tillability with stony surface areas that are over 30 inches deep. This ground type, which is found on lands with 0 to 10 percent slopes (predominantly 8%), contain fine, well drained soils. This land type, which has a mean annual rainfall of 15 to 25 inches, is found on elevations of 0 to 400 feet. The Molokai and Laina soil series of these areas are dark reddish brown in color. Major existing uses on this classification is sugar cane cultivation.

b. B 87i

This land type has an overall productivity rating of B. These areas are poorly suited for machine tillability with stony to very stony surface areas that are over 30 inches deep. This ground type, which is found on lands with 0 to 10 percent slopes including steeper slopes (predominantly 8%), contain fine, well drained soils. This land type, which has a mean annual rainfall of 10 to 20 inches, is found on elevations of 10 to 1,000 feet. The Wainee soil series of these areas are dark reddish brown in color. Major existing uses on this classification is sugar cane cultivation.

5. ALISH Ratings

According to the State of Hawaii Department of Agriculture Agricultural Lands of Importance to the State of Hawaii (ALISH) Maps, the project alignment will pass intermittently through zones rated "Prime Agricultural Land" and "Other Important Agricultural Land". Other portions of the alignment are not rated due to marginal status or urban uses.

6. Climate

The majority of Hawaii exhibits only two seasons: the summer, which occurs between May and October when the weather is warmer and drier and the tradewinds are most persistent; and the winter, which is between October and April when the weather is cooler and the tradewinds are more often interrupted by other winds and by intervals of widespread clouds and rain. Hawaii's general climate is reflected by four factors: latitude, the surrounding ocean, Hawaii's location relative to the storm tracts and the Pacific anticyclone, and terrain.

a. Rainfall

The heaviest rains in Hawaii are usually brought about by winter storms. Lowland lee areas and other dry areas obtain most of their rainfall by winter

storms, so the rainfall is strongly seasonal, with summers being arid. Leeward areas also tend to have rainfall maximums in later afternoon and evening from showers forming within sea breezes, which move onshore and upslope during the day. Drought may also occur when either winter storms or tradewinds fail, and usually dry, leeward areas are the hardest hit.

b. Temperature

Hawaii's equable temperatures result from the small seasonal variations of energy received from the sun and the tempering effect of the surrounding ocean. Throughout Hawaii the warmest and coolest months differ, on the average, by 9 degrees or less. The daily variation between day and night are greater than the variations between seasons. On the leeward coasts, as at the proposed site, the daily variation in temperature is higher than would be expected of windward coasts.

c. Wind

The northeasterly tradewind prevails throughout the year in Hawaii, and is more persistent in the summer (90%) than in the winter (50%) and tend to be stronger in the afternoon than at night. During the winter months, Hawaii may be under the influence of southerly winds from Kona storms or of southwesterly winds preceding the northeasterly winds that follow cold fronts.

B. Hydrological Characteristics

1. Drainage and Hydrology

The intake from Kanaha Stream is at the 1,140 foot elevation. Above this intake, Kanaha Stream drains an area of about 1.6 square miles, rainfall on this area being 7.5 MGD. Kanaha is the southernmost of the long narrow valleys of this district.

Records for 1916-1924 and 1926-1932 indicate that flow averaged 5.0 MGD, ranging from 1.1 to 206 MGD. Measurements during 1967 were 2.29 MGD discharge for Kahoma Stream at the diversion point and 2.29 MGD discharge for Kanaha Stream 100 feet upstream from the intake. The total yields of the two streams are not equal, because Kanaha Stream, unlike Kahoma Stream, is usually dry below its diversion point since it is near the boundary of the high-level water zone.

Further analysis of the data revealed that the median flow of the stream was 3.2 MGD. Diversion capacity is 3.0 MGD and actual diversion from the stream averaged 2.66 MGD. Actual capacity of the diversion, at 3.0 MGD, is attained 55 percent of the time and flow is greater than 2.0 MGD 95 percent of the time.

2. Flood Plain

The section of Honoapiilani Highway under study lies in 3 Flood Insurance Rate Map zones (Figures 18, 19). A portion of this section with velocity (wave action); with base flood elevations and flood hazard factors determined.

A very small portion also lies in Zone B which is an area between the limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths of less than one foot.

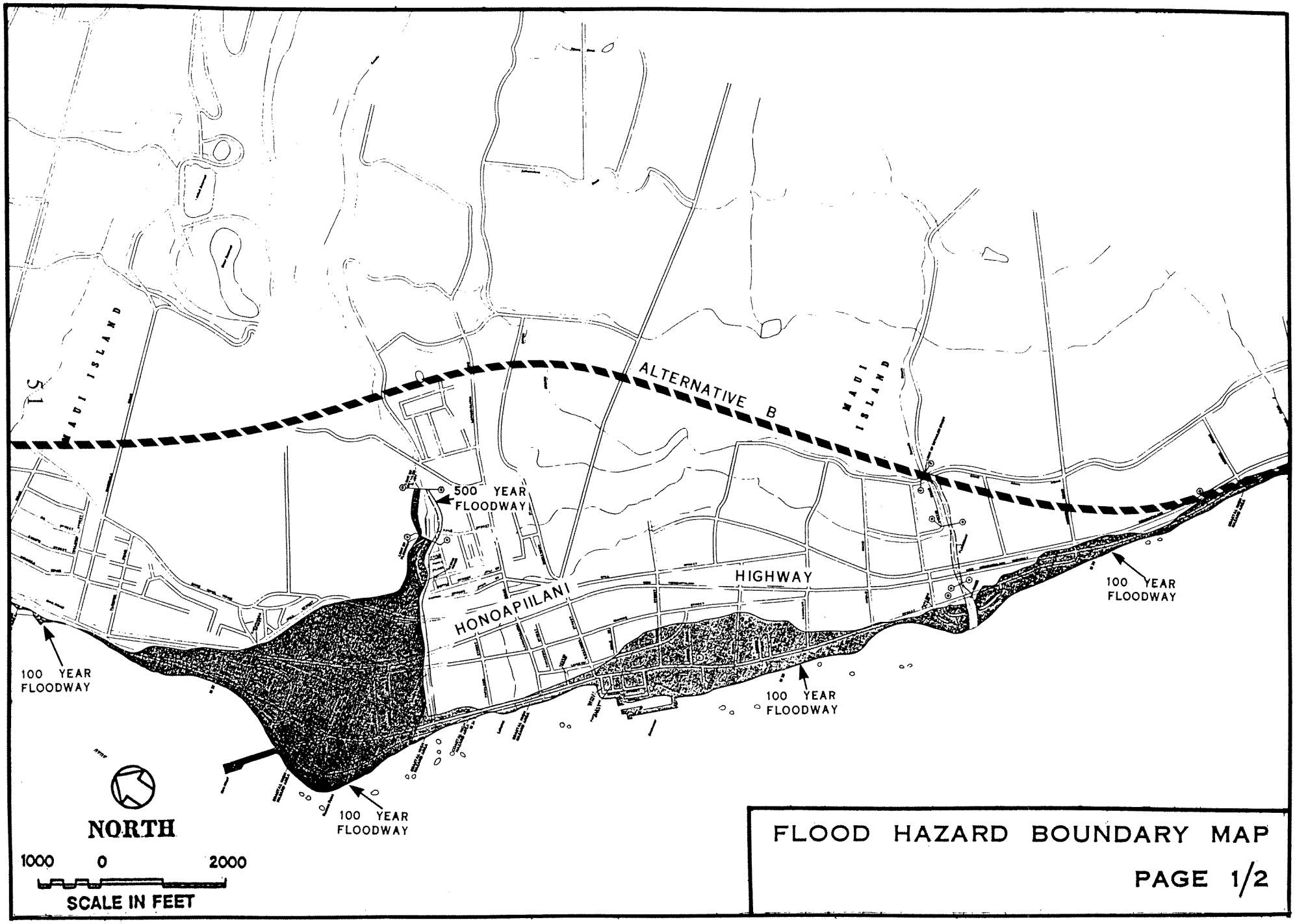
Most of the proposed alignment and the mauka extension alternatives are located in Zone C; areas of minimal flooding. Portions of the proposed alignment and the Honoapiilani Widening extension which are located over the existing streams are subject to light, occasional or 100- to 500-year floods. These areas are not expected to have any impact on the proposed project.

The project alignment will cross the following base flood plains and/or designated regulatory floodways:

Section/ Alternative	Base Flood Plain	Designated Regulatory Floodway
Puamana to Kaanapali:		
Proposed	Lahaina Shoreline	Kauaula Stream Kahoma Stream
Kaanapali to Honokowai:		
Widening	Kaanapali Shoreline	Honokowai Stream

No significant encroachment of the 100-year floodplain is anticipated. There is no anticipation of highway encroachment and any direct support of likely base floodplain development that would involve construction-or flood-related impacts of the following:

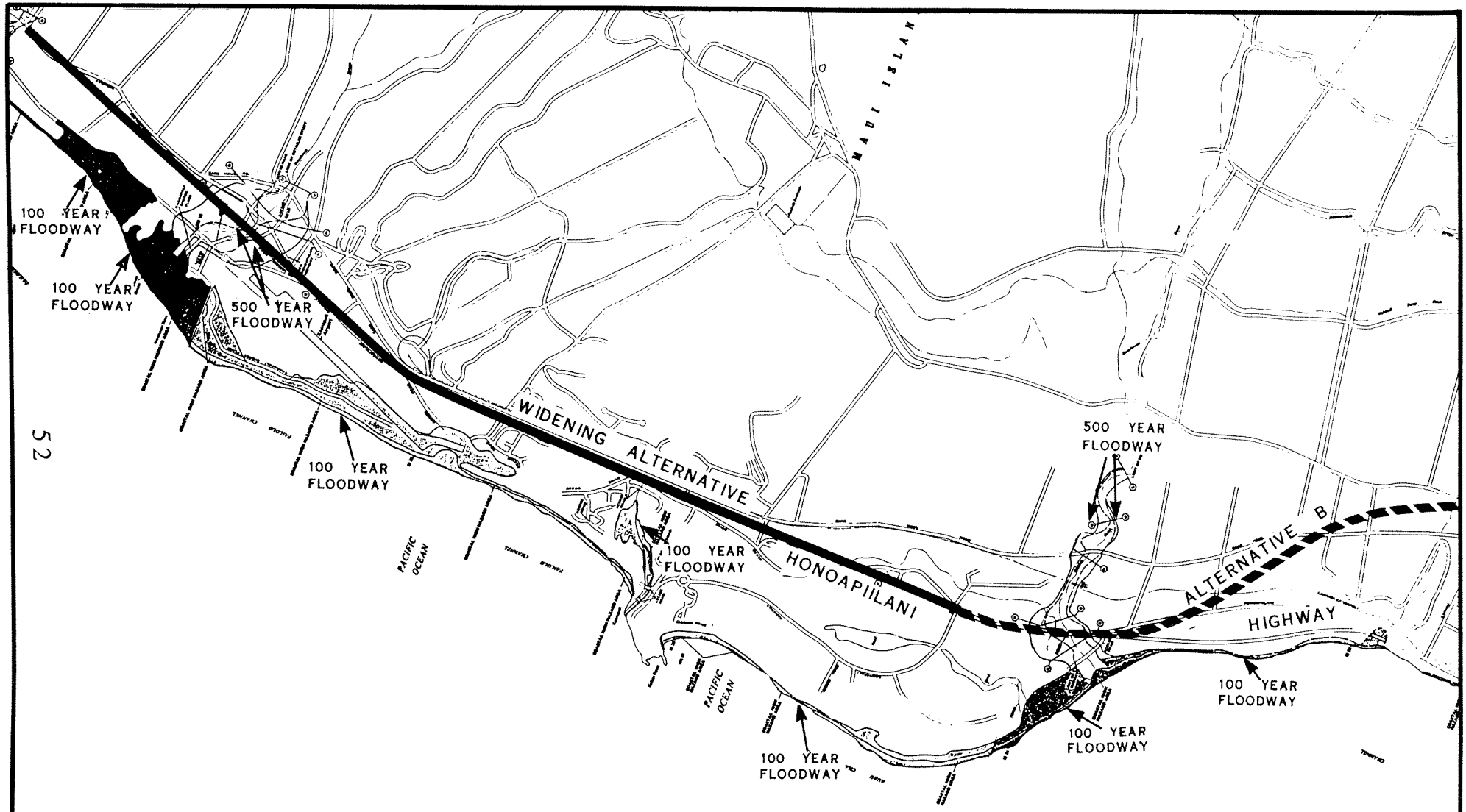
a) A significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route.
b) A significant risk, or
c) A significant adverse impact on natural and beneficial flood-plain values.



FLOOD HAZARD BOUNDARY MAP

PAGE 1/2

FIGURE 18



FLOOD HAZARD BOUNDARY MAP

PAGE 2/2

The proposed highway improvements are not anticipated to create ponding or increase the water levels to any significant degree.

The majority of the project area is basically cultivated cane fields on moderately sloping land. Several cane haul roads will need to be adjusted and realigned; and certain segments will need to be made into cul-de-sacs. There will be planned crossings with the realignment from the east and west sides of the cane fields. These crossings may or may not be grade separated.

No increase of the 100-year flood level is anticipated; however, coordination will be continued with the local floodway management agency during the design stage of the improvements in order to insure that appropriate modifications can be made to the designated floodway if necessary. Coordination with the State Department of Land and Natural Resources and the Corps of Engineers has been initiated (Section XII) and will be continued.

3. Water Quality

The project alignment crosses three streams; Kauaula Stream, Kahoma Stream, and Honokowai Stream. Kauaula and Kahoma are intermittent and Honokowai is perennial. Water quality data for these streams is not available however it is expected that their water quality will typically be the same as the storm runoff that is their primary source. For the proposed alignment, bridges will be provided where necessary however final designs may consider box culverts for Kauaula and Honokowai Streams. The project will comply with EPA approved water quality standards.

C. Biological Characteristics

1. Flora

A botanical survey was conducted, for the project alignments subject of the DEIS, by Char and Associates and is included as Appendix A.

Vegetation along the alignment and the highway is described from two areas: 1) roadsides and canefields and 2) gulch areas. Species inventoried during the survey are presented in Appendix A of the botanical study.

a. Roadsides and Canefields

A weedy assortment of grasses and herbs as well as shrubs characterize the vegetation along the highway and paved and unpaved roads. In general, roadside vegetation is composed primarily of buffel grass, although, in places, various sized patches of swollen fingergrass, Bermuda grass, Guinea grass, and pitted beardgrass may be locally abundant. Among the weedy herbaceous

and smaller subshrub species are spiny amaranth, two species of pua-lele, beggar's tick, sowthistle, hi'aloa, false mallow, and 'ilima.

Most of these roadside areas are mowed or occasionally treated with herbicide to keep the vegetation low. In some areas, as along the parcel containing the old airstrip, a koa-haole scrub can be found. Where the scrub is open and the koa-haole plants widely spaced, buffel grass forms a dense ground cover; where the plants are closely spaced, the ground cover is a mixture of Guinea grass, lion's ear, and spiny amaranth. Vines of the wild bitter melon and hairy merremia often can be found climbing up and onto the shrubs.

The canefields and their associated network of irrigation ditches and canehaul roads, reservoirs, and rock piles cover the largest area along the proposed alignments. The fields occur on deep and well-drained soils of the Pulehu-'Ewa-Jaucus association near the highway and the Waiakoa-Keahua-Molokai association on the low uplands (Foote et al. 1972). Sugar cane forms monodominant stands which grow rapidly and quickly shade out many of the weedy species below. Usually only nutgrass is found in the heart of the canefields. Other weedy species survive on the margins of the fields where there is more available light and include most of the species found associated with the roadsides.

Scattered throughout the fields are piles of boulders and rocks which were placed there when the fields were first cultivated. On such places, a koa-haole scrub often develops. Occasionally small trees may be found. Larger trees, some as tall as 45 ft., of the same species as well as silk oak, monkeypod, mango, Chinese banyan, and Siris tree can be found as small, scattered stands near reservoirs, on hillside areas, and the site of a former plantation village.

b. Gulch Areas

The proposed alignment crosses over the Kahoma gulch. The vegetation in this gulch system has been described in detail in the earlier report (Char 1986) for Realignment alternatives A and B. Kahoma Gulch is densely vegetated especially on the gulch floor due to the water from Kahoma Stream. The gulch bottom supports large stands of trees such as mango, Java plum, tamarind, kiawe, and kukui. Generally, the slopes of Kahoma Gulch are steep and rocky outcroppings predominate.

The realignment alternatives between Ka'anapali and Honokowai cross over Hahakea, Wahikuli, and Honokowai gulches as well as a few, smaller, unnamed gulches. Again, rock outcroppings and rough broken and stony lands (Foote et al. 1972) define the substrate. The Honokowai Stream, a perennial stream, meanders along the floor of Honokowai Gulch. Drainage construction work on the stream channel is currently in progress.

Vegetation in these gulch areas is similar to that found in the neighboring Kahoma and Kaua'ula gulches. Rocky outcroppings predominate on the steeper slopes, while koa-haole scrub occurs on the more gentle slopes. Buffel grass and two species of Panicum are abundant. Along the bottom of Honokowai Gulch, a rather dense Java plum forest, 30 to 45 ft. tall, lines the stream. Scattered trees of 'opiuma and monkeypod are occasionally observed. There is little ground cover along the stream as the shade from the canopy above is dense. Bare soil, water-worn boulders and rocks, and litter and branches typify the stream side. In a few areas where the canopy is less dense, many seedlings of Java plum can be found.

2. Fauna

a. Terrestrial Fauna

The site and vegetated areas between the existing highway and the grounds of Lahainaluna High School do not represent critical wildlife habitats.

The location of the proposed alignment has been previously disturbed. Much of the area is under cultivation.

Fauna observed in the area are predominantly birds. All the birds seen are common throughout the island and the State. The only endemic bird that might be observed near the project area is the Hawaiian owl, or pueo (Asio flammeus sandwichensis).

A letter from the United States Department of the Interior, Fish and Wildlife Service (Appendix K), has indicated that there are no endangered or threatened plants or animals expected to be found in the project vicinity.

b. Aquatic Fauna

According to a previous study, Kahoma/Kanaha Streams are of a biological class rated of "low natural quality (degraded severely), native species absent or present in low diversity and abundance." Kanaha Stream is one of the West Maui streams tapped for domestic use and for agricultural purposes by the Pioneer Mill Company Ltd. The intake is deep in the valley and efficiently diverts stream flow into irrigation ditches, leaving stretches of dry stream beds between the intake and the coastline.

A survey of streams in Hawaii during 1962-1963 included Kanaha, Kahoma and Kapuloa Streams along West Maui. As a whole, aquatic fauna in these streams were meager. The damselfly nymph was dominant, followed by styid shrimps and chironomid larvae. A few gobies were the only fish encountered in Kanaha Stream.

Although the survey report did not specify exactly which species of gobies were present, they could have represented one or more of the following species:

Chonophorus stamineus, C. genivittatus, Sicydium stimpsoni, or Lentipe concolor. Kanaha Stream was surveyed on April 29, 1963. Damselflies and diptera larvae were abundant and only a few gobies were observed. Kahoma Stream, surveyed on May 1963, had a moderate amount of atyids (Atya bisculata or Ortmannia henshawi) and damselflies.

A letter report prepared by the U.S. Fish and Wildlife Service for the U.S. Army Corps of Engineers provides some additional and updated information. At the lower diversion structure located behind Lahainaluna High School, the only vertebrates collected by electroshocking were guppies and the only invertebrates collected were chironomids, densities of which were 15-20/square inch in some locations. Some caddisfly and mosquito larvae, waterstriders, waterboatmen, dragonflies and damselflies was also sampled with an electroshocker. Only insects represented the aquatic macrofaunal community. No diadromous species were collected in either the Kahoma or Kanaha Streams' upper reaches.

D. Socioeconomic Characteristics

A social impact assessment (Appendix B) was conducted by Earthplan for the proposed project. A summary of the project community's social characteristics are presented below.

1. Description of Lahaina Community

The Lahaina CDP population has been increasing at a rate higher than the State and Maui County. With a 34 percent population increase between 1980 and 1986, the community had 13,700 people. Based on that estimate, the Lahaina CDP now comprises almost 16 percent of Maui County's population.

Census information shows that Lahaina has smaller households than Maui County and the State. There was a higher degree of stability with a high proportion of Lahaina's population having lived in the same house five years previous. Both Lahaina and Maui County tended to have proportionally more Filipinos, Hawaiians and part-Hawaiians, and less Japanese and Chinese people than State averages.

Lahaina tended to have less people in families, and the family median income was slightly lower than that of Maui County and the State. Lahaina's unemployment rate was low at almost half that of Maui County and the State.

In 1980, Maui County had a high housing vacancy of 31 percent, compared to 17 percent in Lahaina and 11 percent throughout the State. The County also had proportionally more rental vacancies (12 percent) than Lahaina (6 percent) and the State (5 percent).

Further, housing costs in both Lahaina CDP and the overall County were higher than the State, as reflected in the median cash rents, the median values of owner-occupied units and the proportion of rental and mortgage payments of a median family income.

2. Profile of Existing Ikena Avenue Residents

Thirty-six residential lots are located along Ikena Avenue. The 18 single-family lots located below, or makai, of Ikena Avenue are part of Kelawea Mauka Subdivision, Phase II. Many of the "makai" residents are or were employees of the Pioneer Sugar Mill or other Amfac companies. In the early 1970s, these lots were offered to employees and people began moving in around 1972 and 1973. Many of the original residents, who are now mostly retired, still live there.

Mauka of Ikena Avenue are another 18 homes. These are part of Phase III of the Kelawea Mauka Subdivision. Many of these residents are also Amfac employees, though they tend to work in resort-related jobs. Most began moving in around 1982.

Four of the mauka 18 lots are unique in two ways, they were sold within the last three and four years, and their accesses are located directly on Ikena Avenue.

The makai lots are approximately a 1,000 square feet smaller than those mauka of Ikena Avenue. Many of the houses are relatively large, with recent and ongoing improvements. Based on interviews with representatives of 18 households, it is estimated that there are an average of 4.2 bedrooms per unit. The estimated large households (6.9 persons) are consistent with the large units.

It is therefore possible that over 240 people (based on 6.9 persons per household) live in the 36 houses along Ikena Avenue.

Overall, Ikena Avenue residents tended to be older than the Lahaina community because of a high proportion of senior citizens. Mauka residents tended to be younger than the makai residents.

Almost all of the houses along Ikena Avenue are owner-occupied. Although there are occasional family and social ties, the mauka and makai families reportedly do not identify much.

E. Archaeological Characteristics

An archaeological report (Appendix C) was previously conducted with the results of a literature search and archaeological reconnaissance for the project area of the proposed Honoapiilani Highway realignment between Lahaina and Kaanapali, Maui.

1. Literature Search

The literature search revealed that the proposed alignment passes adjacent to but not through the southeast corner of the Lahaina Historical District (Figures 20, 21).

2. Field Inspection

The field reconnaissance did not locate any significant archaeological finds. Although the alignment does pass through Site 1775, the Kahoma Stream Terrace System Complex, the State Historic Preservation Officer has indicated that a recent field inspection found the site totally destroyed and that no previously mapped features were found (Appendix C).

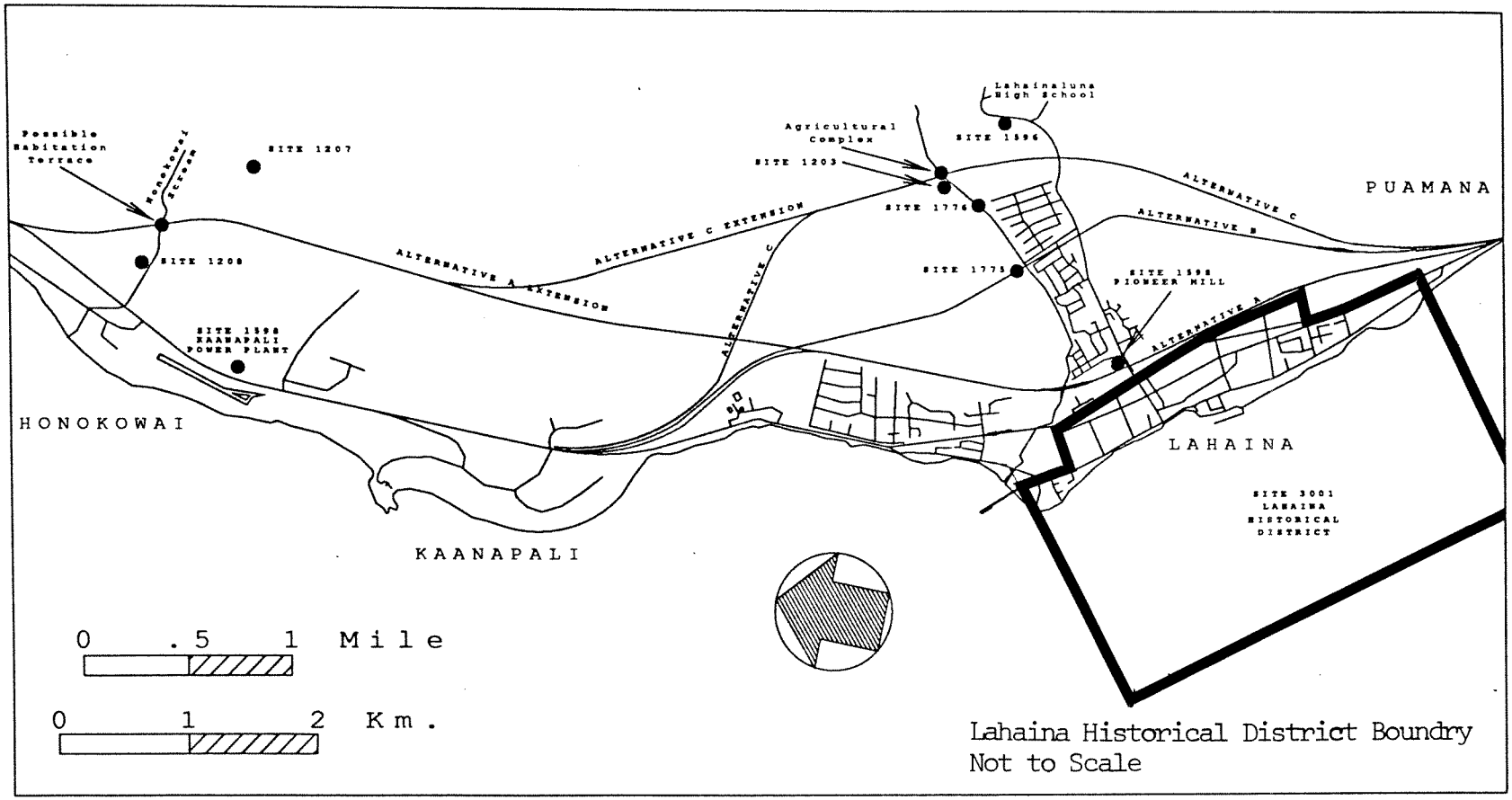
F. Ambient Air Quality

An air quality study (Appendix D) conducted by Barry D. Root for the proposed project was summarized for the proposed project.

There are no long-term ambient air quality monitoring stations within the immediate project area. Local Maui sources of airborne pollutants including emissions from sugar mill stacks (including one in Lahaina), smoke (mostly particulates with some carbon monoxide) from cane field burning, fugitive dust from construction and field cultivation, and emissions from transportation sources such as motor vehicles, ships, and the local Lahaina and Kaanapali Railroad.

Natural sources of air pollutants which could affect Lahaina include the ocean (sea spray with possible disease or allergenic micro-organisms), plants (allergenic spores and pollens), windblown dust, and perhaps a volcanic eruption on the neighbor island of Hawaii. Concentrations of pollutants from these natural sources vary from place to place in patterns that are not highly correlated to human activities.

Until mid-1985 when all sampling stations on Maui were shut down in conformance with State of Hawaii Department of Health budget constraints, concentrations of particulates and sulfur dioxide at Kahului on the other side of the island where among the highest in the State, with particulate readings exceeding allowable State of Hawaii AAQS once or twice a year. Particulate



1. Map of Project Area

FIGURE 20

measurements from Kihei, about 16 miles southeast of the project area were similarly high. These high readings were generally attributed to dust from field cultivation.

Unfortunately there are no nearby long-term measurements of carbon monoxide, ozone, or lead on Maui, so current levels of vehicular pollutants are difficult to estimate using anything other than a modeling approach. Measurements of lead from sites in urban Honolulu indicate that most recent levels are barely above the threshold of detection for current measuring techniques. Airborne lead is thus not considered to be a problem anywhere in Hawaii.

On the other hand, carbon monoxide and ozone readings from urban Honolulu indicate that allowable State of Hawaii standards for these vehicle-related pollutants are being violated at a rate of up to three times a year. Ozone is an indicator of the formation of photochemical smog, a condition which tends to develop if the local air mass is fairly stable with light southerly winds prevailing for a period of two or more days. Concentrations of carbon monoxide are more directly related to local vehicular emission rates and thus serve as the best indicator of vehicle-related air pollution problems. Because of the extremely stringent State of Hawaii one-hour limit for this pollutant, it is also the one most likely to cause problems in meeting allowable AAQS when roadway projects such as this one are evaluated under worst case traffic and meteorological dispersion conditions.

G. Ambient Noise Environment

A traffic noise study was conducted by Y. Ebisu and Associates (Appendix G, H) and summarized below.

For the purposes of the noise study, 1987 was used as the Base Year for computing changes in traffic noise levels among the various Build Alternatives. Differences between existing traffic noise levels measured on March, 1986 and computed Base Year (1987) traffic noise along Honoapiilani Highway from Puamana Park to Kaanapali Parkway are not considered significant. The Base Year noise environment along the highway was described by computing the noise contours of Hourly Equivalent Sound Level (Leq(h)) for the 1987 time period. These sound level contours, expressed in decibels, represent the average level of traffic noise for a given hour of the day. The PM peak hour, which occurs between 3:30 to 4:30 PM, was used as the hour with the highest traffic noise levels.

Table 9 presents the traffic volume, speed, and mix assumptions used to generate the Base Year noise contours along the various segments of the existing highway. Also shown in Table 9 are the calculated Peak Hour Leq(h)'s at a reference distance of 50 Ft. from the centerline of the various roadway

TABLE 9

HONOAPIILANI HWY.; BASE YEAR 1987; PM PEAK HR. SETBACK DISTANCES

SEGMENT	SPEED	MIX	VPH	LEQ(50') IN DB	DISTANCE (FT) FROM CENTERLINE					
					55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	1,569	66.6	295	137	64	30	14	47
(b)	40 MPH	95/2.6/2.4	1,391	66.1	273	127	59	27	13	43
(c)	40 MPH	95/2.6/2.4	1,391	66.1	273	127	59	27	13	43
(d)	40 MPH	95/2.6/2.4	1,369	66.0	270	125	58	27	13	43
(e)&(f)	40 MPH	95/2.6/2.4	1,369	66.0	270	125	58	27	13	43
(g)	37 MPH	95/2.6/2.4	1,911	66.4	286	133	62	29	13	45
(h)	35 MPH	95/2.6/2.4	2,164	66.2	278	129	60	28	13	44
(i)	37 MPH	95/2.6/2.4	2,164	66.9	311	144	67	31	14	49
(j)	37 MPH	95.3/3/1.7	2,148	66.3	285	132	61	28	13	45
(k)	37 MPH	95.3/3/1.7	2,703	67.3	332	154	72	33	15	53
(1)	37 MPH	95.3/3/1.7	2,684	67.3	330	153	71	33	15	52
(m2)	37 MPH	95.3/3/1.7	2,549	67.1	319	148	69	32	15	51

SEGMENT	BOUNDING INTERSECTIONS
(a1)	South of Front Street or New Bypass
(a2)	Front Street & New Bypass
(b)	Front Street & Aholo Road
(c)	Aholo Road & Shaw Street
(d)	Shaw Street & Prison Street
(e)	Prison Street & Dickenson Street
(f)	Dickenson Street & Lahainaluna Road
(g)	Lahainaluna Road & Papalaua Street
(h)	Papalaua Street & Kenui Street
(i)	Kenui Street & Kapunakea Street
(j)	Kapunakea Street & Front Street
(k)	Front Street & Kaniau Road
(l)	Kaniau Road & Road to Civic Center
(m1)	Road to Civic Center & New Bypass
(m2)	Road to Civic Center (or New Bypass) & Kaanapali Parkway

segments, and the calculated distances to the various noise contour lines (from 55 to 75 Leq) under unobstructed, line-of-sight conditions. The actual distances to the 60 and 55 Leq contour lines will generally be less than indicated in Table 9 when intervening structures or walls exist between the highway and receptor. This reduction (or shrinkage) of the traffic noise contour distances from the highway centerline are the result of noise shielding (or attenuation) affects caused by the intervening structures or walls.

By using the traffic assumptions of Table 9, and aerial photomaps of the existing improvements on both sides of Honoapiilani Highway, existing traffic noise contours were developed along the existing highway. These Base Year contours are depicted in the set of figures numbered from BY-1 thru BY-12, where the "BY" designation refers to the depiction of the Base Year condition. Updated aerial photomaps of all segments of the highway were not available, and these segments were not included in the figures. Also, only low resolution line drawings were available along the north end of the highway, so the noise contour lines for these figures do not include shielding effects from intervening structures.

Along Honoapiilani Highway, the areas at which existing noise levels currently exceed FHWA noise abatement criteria are listed in Table 10. These include the shoreline parks which are adjacent to the highway between the Kaanapali Golf Course and the north Front Street intersection, a small church south of the Chart House, and a private school at Dickenson Street. Although updated aerial photomaps were not available along the entire length of Honoapiilani Highway, the existing single family residence, multi-family dwellings, and a hotel unit are believed to be located outside (or with noise levels less than) the Base Year 67 Leq(h) contour line.

At areas removed from Honoapiilani Highway, such as the residential areas along Lahainaluna Road and to the east (mauka) of the highway, Base Year noise levels are very low. Base Year noise levels in areas removed from Honoapiilani Highway are probably less than 55 Leq(h), and possibly as low as 40 Leq(h).

Existing traffic noise levels along Honoapiilani Highway from Kaanapali to Honokowai do not exceed FHWA noise abatement criteria. If this section of the highway is widened by the Year 2007 to accommodate anticipated demand, FHWA noise abatement criteria would be exceeded at 26 or more single family dwellings, 5 apartment and 2 hotel complexes, 4 public use facilities, and 5 coastal parks. The construction of new sections of the highway inland of the existing highway would divert traffic from the existing highway by varying amounts. The proposed alignment is predicted to contribute to a future decrease of traffic noise along the existing Honoapiilani Highway from Puamana to Honokowai, with significant decreases projected

TABLE 10

LIST OF EXISTING NOISE IMPACTED STRUCTURES AND LAND AREAS
DURING THE BASE YEAR PERIOD

HIGHWAY SEGMENT	NUMBER OF IMPACTED UNITS (BASE YEAR LEQ)		
	PRIVATE DWELLINGS	PUBLIC USE STRUCTURES	PARK LANDS
(a1)	None	None	None
(b)	None	None	None
(c)	None	None	None
(d)	None	None	None
(e)	None	None	None
(f)	None	1 School	None
(g)	None	None	None
(h)	None	None	None
(i)	None	None	None
(j)	None	1 Church*	None
(k)	None	None	1 Beach Park
(l)	None	None	1 Beach Park
(m2)	None	None	2 Beach Parks

Notes:

* Presently air conditioned with window units.

upon completion of the realignment extension from Kaanapali to Honokowai.

The FHWA procedures for the abatement of highway traffic and construction noise are outlined in Title 23, Part 772 of the Federal Code of Regulations (See reference 9 of Appendix G, page 77). To comply with these procedures, noise mitigation are considered when (a) predicted traffic noise levels approach or exceed the noise abatement criteria for different types of land uses or (b) when the predicted traffic noise levels substantially exceed existing noise levels. The noise levels, expressed in Hourly Equivalent Sound Levels (or Leq (h)) for the five general land use categories are shown in Table 11. Leq is the equivalent steady state noise level which in a stated time period would contain the same acoustic energy as the time-varying sound level during the same period. All study results and discussions are addressed in terms of A-Weighted hourly Leq noise levels or Leq (h). The noise abatement criteria level applicable to activity category B is an hourly exterior Leq of 67 dBA.

Along the existing Honoapiilani Highway, the FHWA exterior criteria of 67 dB for Activity Category B was used for all Parks, playgrounds, residences, apartments, and hotels. For public use structures such as churches, schools, civic center, etc., the 52 dB interior criteria of Activity Category E was used for evaluation of noise impacts. At the quieter inland areas along the alternate bypass routes, where significant increase in traffic noise levels could occur as a result of the bypass alternative, the lower FHWA criteria of 57 dB was used to evaluate potential noise impacts and to develop noise mitigation measures. Although the 57 dB FHWA criteria for Activity Category A may not have been originally intended to be used for residences, its use was considered to be appropriate for this project due to the relatively low background ambient noise levels in the inland areas.

In conjunction with the use of the 57 dB FHWA criteria level for noise sensitive inland areas which may be impacted by the bypass alternatives, traffic noise vs. distance contours for the bypass alternatives were constructed out to the 55 dB contours. In addition, traffic noise mitigation measures developed were designed to achieve a mitigated noise level of 57 dB under forecasted CY 2007 traffic volume conditions.

H. Infrastructure and Utilities

Telephone and electrical lines are presently found overhead on utility service poles along the existing highway and along interior roads. Telephone and electrical line adjustments will be necessary where the alternative alignment crosses the urbanized area adjacent to Lahainaluna Road. Also, the widening alternative from Kaanapali to Honokowai will require minor adjustments of their utility poles.

TABLE 11

NOISE ABATEMENT CRITERIA
[Hourly A-Weighted Sound Level--Decibels (dBA)]

Activity Category	Leq(h)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	----	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

(Extracted from REFERENCE 9 of Appendix G) (FHWA-RD-108)

I. Public Facilities and Services

1. Fire

The project area is serviced by the County Fire Department located in Lahaina. Response time to the project area is expected to be good.

2. Medical

Emergency medical care for the area is by Physicians Ambulance Service, a private company on contract with the State of Hawaii. There is one ambulance that services the West Maui area.

Technicians in the ambulance are in direct communications with a physician at Maui Memorial Hospital. Usually these emergency services are directed to either of the following clinics.

Kaiser Foundation Clinic, 910 Wainee Street

Maui Medical Group, 130 Prison Street

3. Police

Patrols for the Lahaina area are usually comprised of 3 officers on duty. If necessary, 2 officers could be dispatched to the project area in 5 minutes, or sooner if the officers are closer to the site at the time. Problems on their service are not anticipated due to the proposed project.

J. Other Governmental Actions in the Project Area

Major actions by other governmental agencies in the area are:

1) Kahoma Stream Flood Control by the Corps of Engineers and the County of Maui.
2) Construction of Lahaina Recreation Park Complex at Shaw Street and Honoapiilani Highway.
3) Expansion of the schools at Lahainaluna Road.
4) Soil Conservation Service flood control projects in Lahaina and in Honokowai.
5) State of Hawaii's affordable housing program.
6) Lahaina Historic, Cultural, Scenic District (Maui County).

VI. RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

The project is consistent with land uses and policies affecting the project area.

A. State Transportation Plan

The objectives of the State Transportation Plan are:

- An integrated multi-modal transportation system which services statewide needs relating to the efficient, safe, and convenient movement of people and goods.

- A statewide transportation system supportive of planned growth objectives throughout the state.

The proposed project is expected to be consistent with these objectives, however, it should be noted that the project is not expected to serve as a catalyst for undesired growth.

B. State Land Use Boundary

The project area is located on lands designated for urban use and agricultural use.

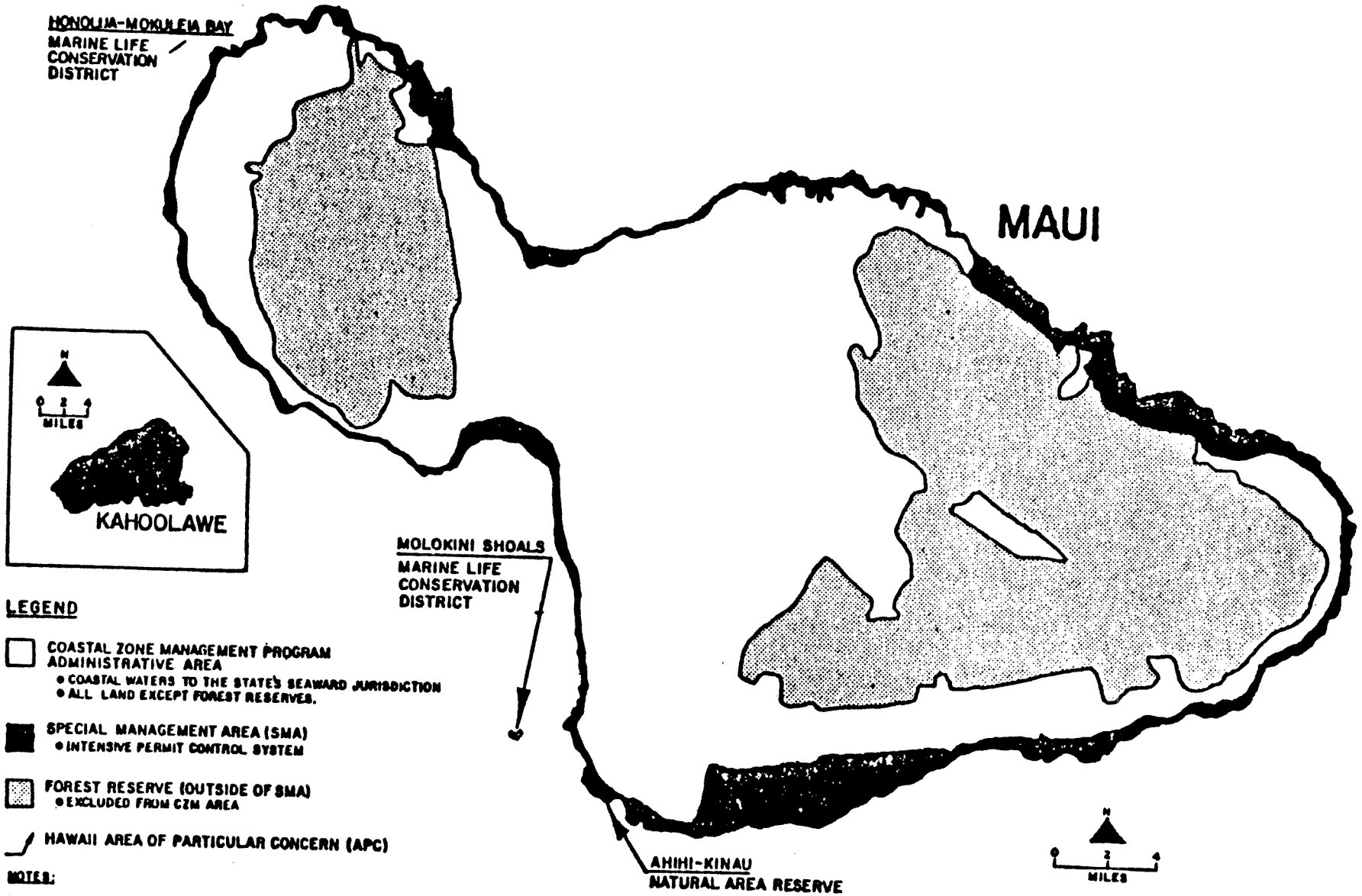
C. Lahaina Community Development Plan

The proposed project specifically implements a recommendation for section support systems: utilities and facilities, of the Lahaina Community Plan. Subsection 1. Transportation, recommendation k. states: Plan, design, and construct a bypass highway to facilitate ingress and egress in Kaanapali and in the Lahaina Town Cove. The alternative sites are currently designated for: Agriculture, Single-Family Residential, and Open Space.

D. Coastal Zone Management Program

The proposed action is consistent with the Hawaii Coastal Zone Management Program. A letter dated April 6, 1990 from the Director of the Office of State Planning (Appendix R) states that the subject project is consistent with the Hawaii Coastal Zone Management Program. An outline of the intent and project compliance with the CZM are described as follows.

Portions of the island of Maui (Figure 21) are subject to control by the Hawaii State Coastal Zone Management Program and Chapter 205A, Hawaii Revised Statutes. All of the project alignments are located within areas subject to the Hawaii CZM. Hawaii's Zone Management Act of 1977 (Act 188, SLH 1977) was enacted as a result of the Federal Coastal Zone Management Act (CZMA),



SOURCE: [3.22]

HAWAII CZM AREAS SUBJECT TO MANAGEMENT

FIGURE 21

P.L. 92-583, which became law on October 27, 1972. It is the purpose of this program to comply with the requirements of the National Coastal Zone Management Act and "to provide for the effective management, beneficial use, protection, and development of the coastal zones of the several states." Sections 205A-2 and 205A-6 presents objectives and policies of the program. The following discusses those objectives and policies that are directly applicable to this project which lies outside of the

Special Management Area. It can be assumed that those objectives and policies not discussed, have no relationship to the proposed action.

"Provide public or private facilities and improvements important to the State's economy in suitable locations." (Section 205A-2 (a) (5) Economic Uses (A))

The proposed action will improve traffic through Lahaina town and western Maui. The impact resulting from construction of the improvements will provide the state with economical benefits.

"Identify and analyze significant archaeological resources." (Section 205A-6 (c) (2) Historic resources (A))

Support State goals for protection, restoration, interpretation, and display of historic resources." (Section 205A-6 (c) (2) Historic resources (c)

An archaeological reconnaissance (Appendix C) has been conducted for the project area and notable resources in the area have been identified and assessed. In the event that any finds are uncovered during project construction, all work will cease and the State Historic Officer notified for appropriate action.

"Develop and communicate adequate information on storm wave, tsunami, flood, erosion, and subsidence hazard."

"Ensure that developments comply with requirements of the Federal Flood Insurance Program." (Section 205A-6 (c) (6) Coastal hazards (A) (B) (c))

E. Section 4(f) Evaluation

The following are Section 4(f) properties in the project vicinity:

- Puamana Beach Park
- County of Maui Recreation Center
- County Park at Ikena Avenue and Lahainaluna Road
- Historical/Archaeological Resources described in Section V of the EIS document.

The location of these properties are shown in Figures 22 to 27.

1. Puamana Beach Park

Puamana Beach Park is located on the west side of the existing Highway near the beginning of the project. the proposed project alternative would consist of a realignment of the route to an easterly direction, about 500 feet, away from the park and therefore lessening the amount of traffic near the park. No impacts are expected to occur on the park or its use due to the implementation of the proposed alignment.

2. County of Maui Recreation Center

The County of Maui Recreation Center would be about 1,700 feet westerly of the proposed realignment Alternative B which would reduce the amount of traffic on the westerly side of the park which is adjacent to the existing Honoapiilani Highway. No impacts are expected on park usage as a result of implementation of the proposed project.

3. Kelawea-Mauka County Park

Kelawea-Mauka County Park is located just makai (westerly) and adjacent to Alternative B, mauka tier concept.

The park is under the ownership/jurisdiction of the County of Maui. Pedestrian and vehicular traffic currently access the park by using Lahainaluna Road and Ikena Avenue. There are no available written accounts of current usage of the park which is essentially a neighborhood park having a grassed area of about 90,000 square feet with no park equipment or amenities. The park staff has indicated that the park is currently used as practice field for youth baseball and soccer. etc.

4. Historical/Archaeological Resources

The field reconnaissance conducted for the proposed project did not locate any significant archaeological finds. Although the alignment does pass through Site 1775, the Kahoma Stream Terrace System Complex, the State Historic Preservation Officer has indicated that a recent field inspection found the site totally destroyed and that no previously mapped features were found (Appendix M and N).

The State Office of Historic Preservation has indicated that the project area was inspected for any sites subject to Section 106 and was found to have "no effect" on significant historic sites. In the event that any sites are uncovered during construction, the SHPO is contacted after work is halted and an

evaluation of the find is made. SHPO then advises the start of construction after the find has been evaluated.

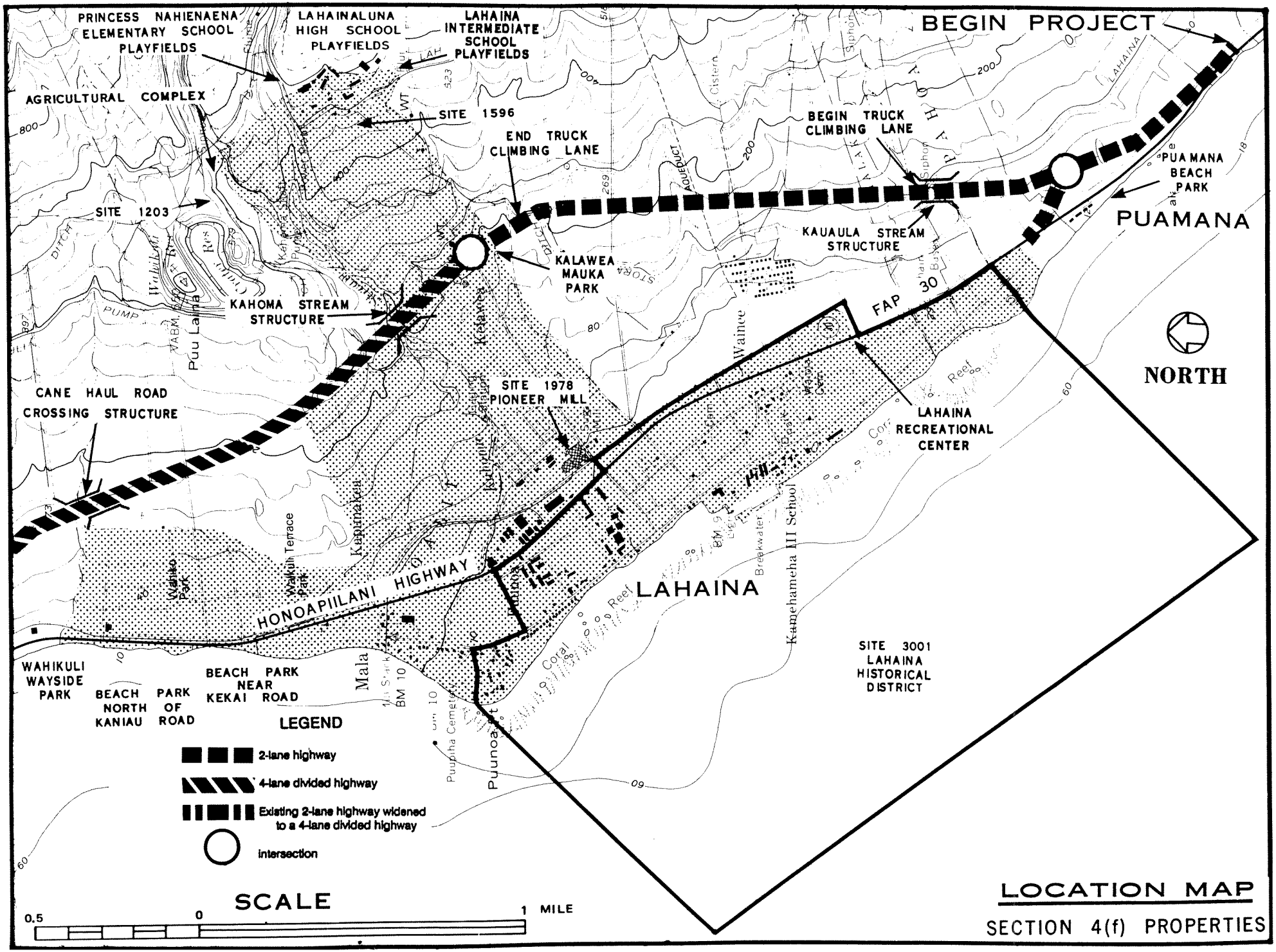
Based on the information and evaluation of Items 1 through 4, the proposed project will not involve lands protected by Section 4(f).

Other Section 4(f) sites also located in the general project area included:

- Lahaina Civic Center Tennis Courts
- Wahikuli Wayside Park
- Beach Park North of Kaniau Road
- Beach Park near Kekai Road
- Princess Nahienaena Elementary School Playfields
- Lahainaluna High School Playfields
- Lahainaluna Intermediate School Playfields
- Lahaina Recreational Center

  The location of these properties are shown in Figures 22 and 23.

The above properties are not expected to be affected by the proposed alignment due to distance or the nature of use such as the Lahaina Civic Center Tennis Courts. The proposed project will not involve these sites which are selected by Section 4(f).


PRINCESS NAHIENAENA ELEMENTARY SCHOOL PLAYFIELDS
LAHAINALUNA HIGH SCHOOL PLAYFIELDS
LAHAINA INTERMEDIATE SCHOOL PLAYFIELDS
BEGIN PROJECT
AGRICULTURAL COMPLEX
SITE 1596
END TRUCK CLIMBING LANE
BEGIN TRUCK CLIMBING LANE
PUAMANA BEACH PARK
PUAMANA
SITE 1203
KAUAULA STREAM STRUCTURE
KALAWEA MAUKA PARK
KAHOMA STREAM STRUCTURE
FAP 30
NORTH
CANE HAUL ROAD CROSSING STRUCTURE
SITE 1978 PIONEER MILL
LAHAINA RECREATIONAL CENTER
HONOAPIILANI HIGHWAY
LAHAINA
SITE 3001 LAHAINA HISTORICAL DISTRICT
WAHIKULI WAYSIDE PARK
BEACH PARK NEAR KEKAI ROAD
BEACH PARK NORTH OF KANIAU ROAD
LEGEND
2-lane highway
4-lane divided highway
Existing 2-lane highway widened to a 4-lane divided highway
intersection
SCALE
0.5
0
1 MILE
LOCATION MAP
SECTION 4(f) PROPERTIES

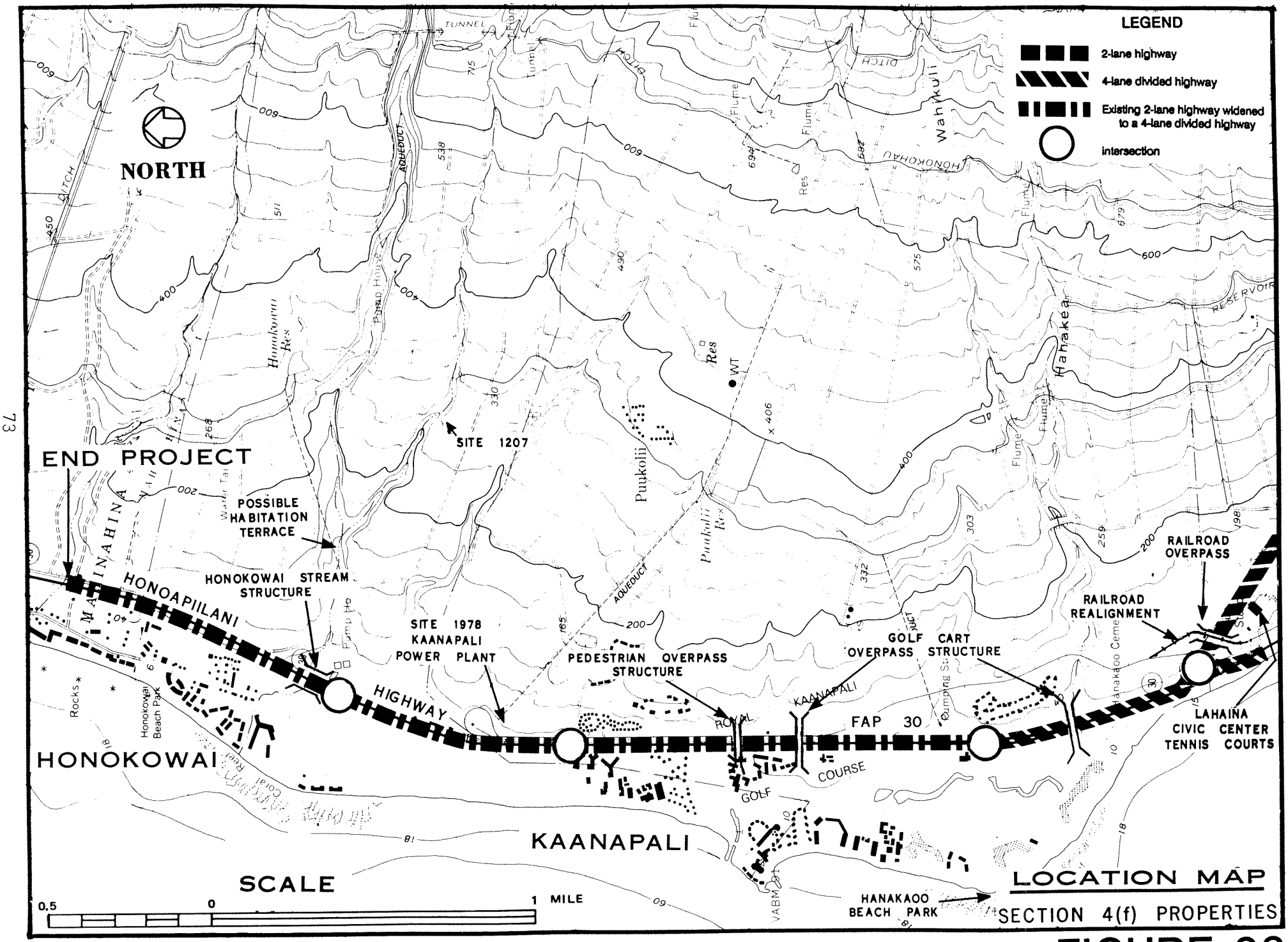
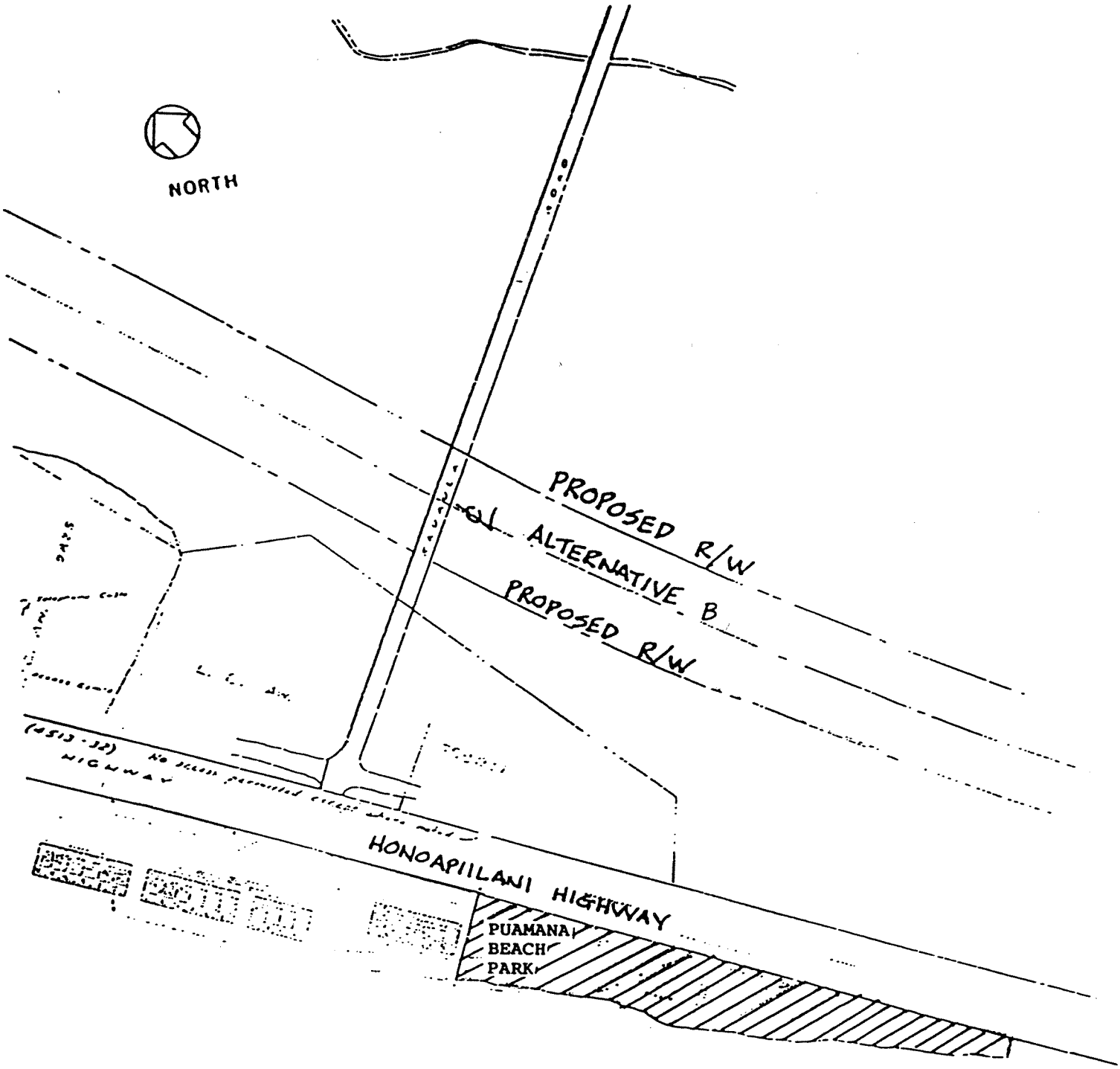

LEGEND
2-lane highway
4-lane divided highway
Existing 2-lane highway widened to a 4-lane divided highway
intersection
NORTH
END PROJECT
POSSIBLE HABITATION TERRACE
HONOKOWAI STREAM STRUCTURE
SITE 1207
SITE 1978 KAANAPALI POWER PLANT
PEDESTRIAN OVERPASS STRUCTURE
GOLF CART OVERPASS STRUCTURE
RAILROAD OVERPASS
RAILROAD REALIGNMENT
LAHAINA CIVIC CENTER TENNIS COURTS
HONOAPIILANI HIGHWAY
FAP 30
KAANAPALI
HONOKOWAI
HANAKAOO BEACH PARK
Honokowai Res
Puukolii Res
Wahikuli
Hahakea
SCALE
0.5 0 1 MILE
LOCATION MAP
SECTION 4(f) PROPERTIES

FIGURE 23

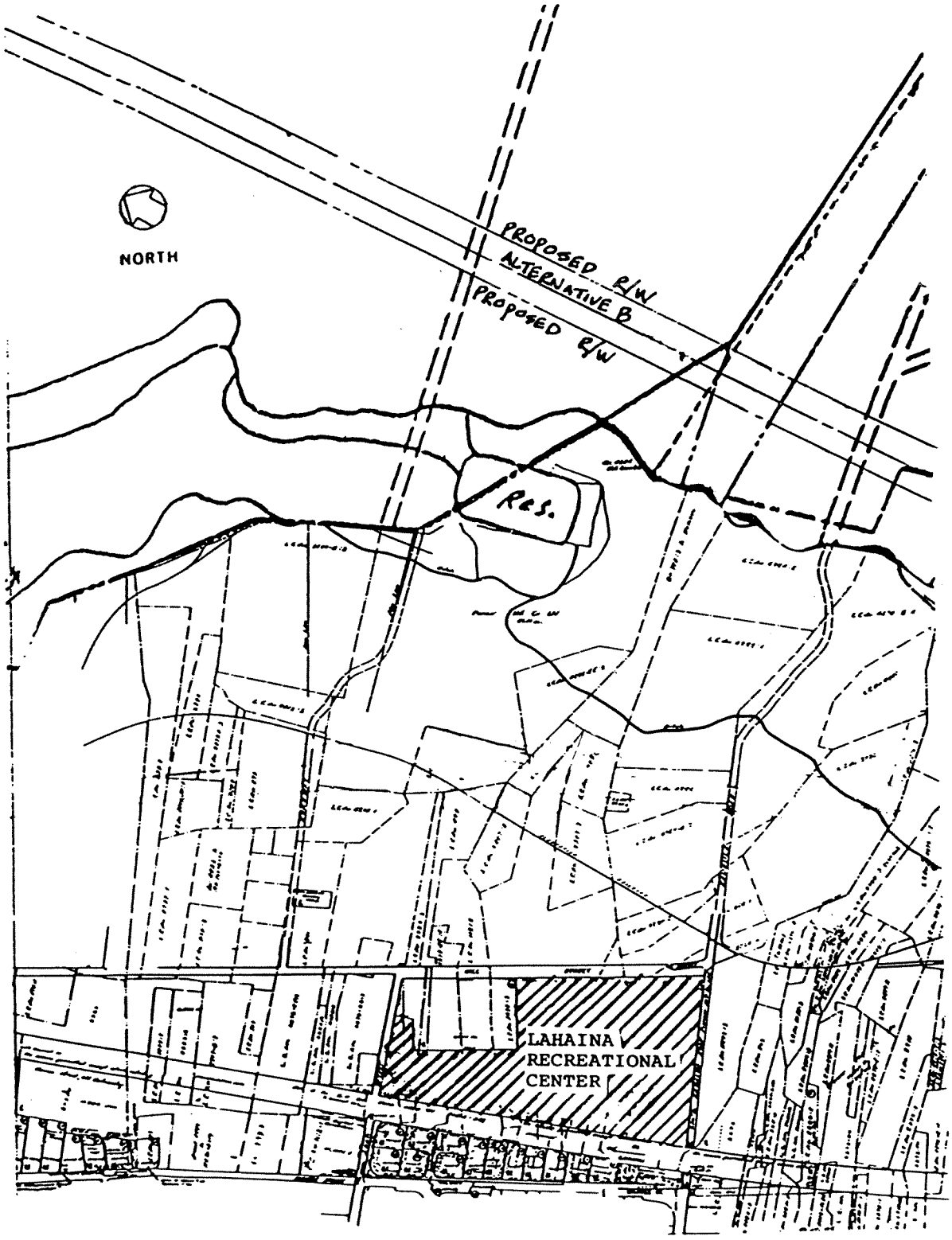


SCALE

0 200 400 FEET

LOCATION MAP
SECTION 4(f) PROPERTIES & ALTERNATIVE B

FIGURE 24

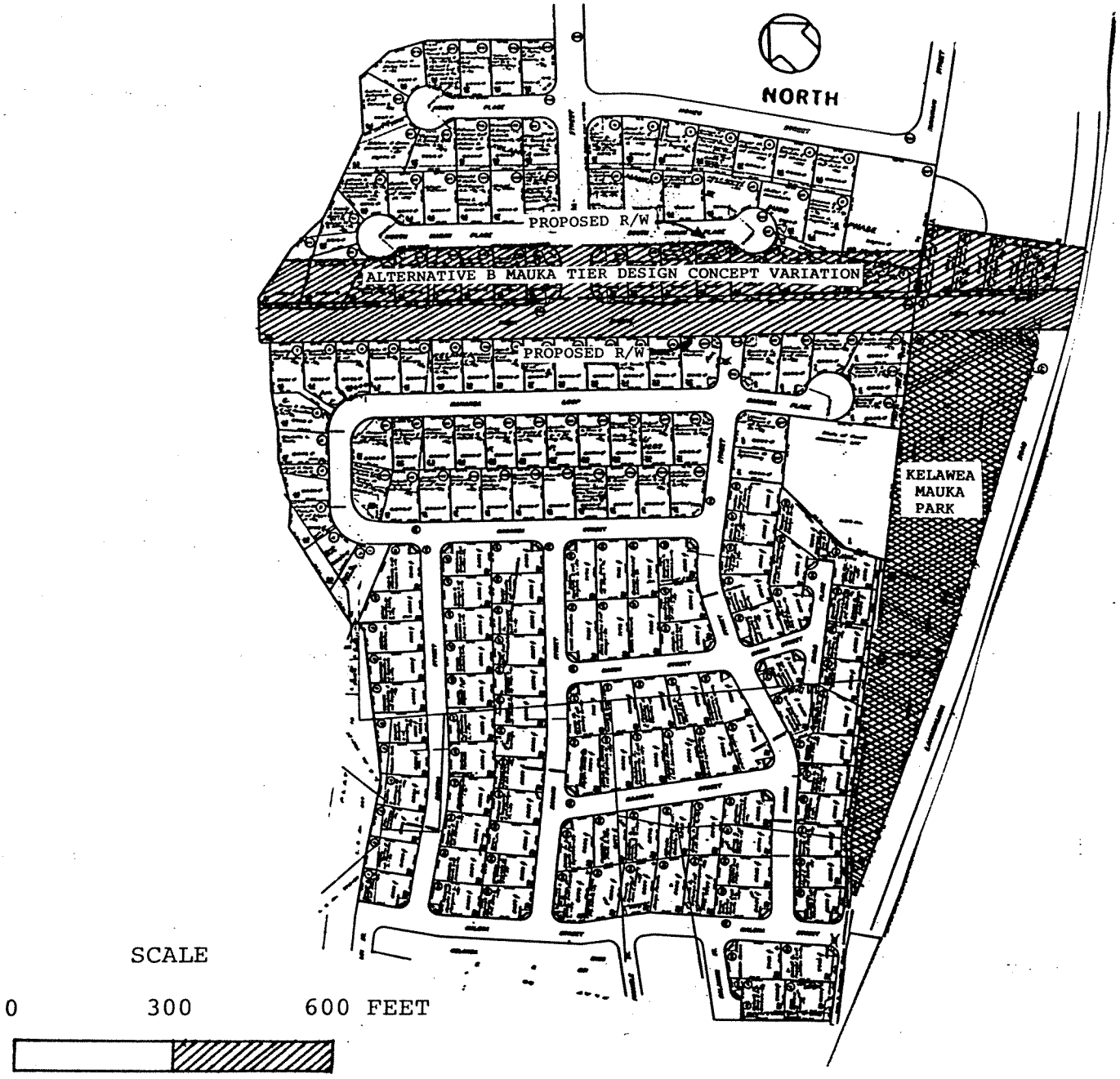


SCALE

0 500 1000 FEET

LOCATION MAP
SECTION 4(f) PROPERTIES & ALTERNATIVE B

FIGURE 25



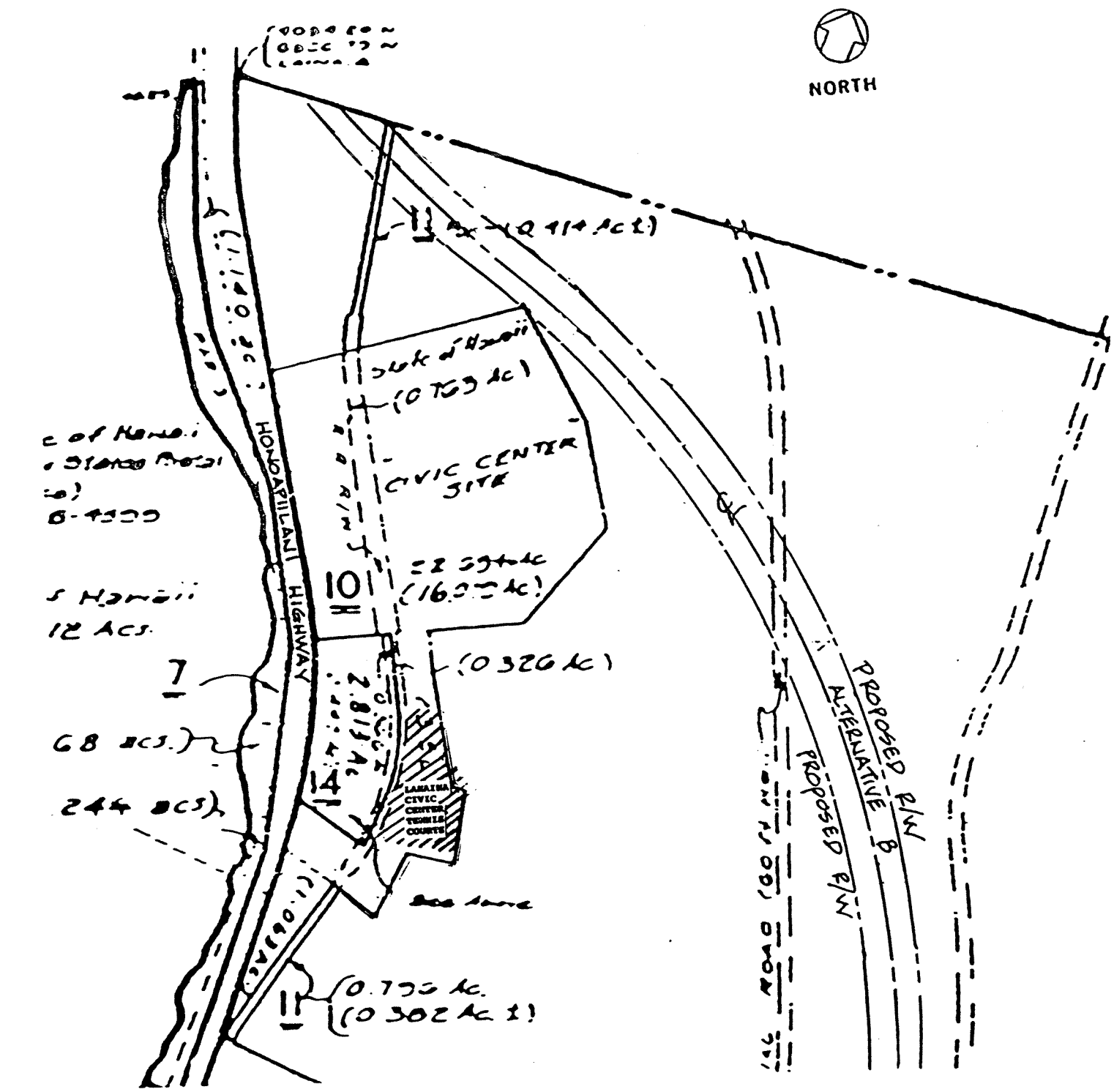
LOCATION MAP

SECTION 4(f) PROPERTIES &

ALTERNATIVE B

(MAUKA TIER DESIGN CONCEPT)

FIGURE 26



LOCATION MAP
SECTION 4(f) PROPERTIES &
ALTERNATIVE B

FIGURE 27

F. Wetlands

There are no wetlands as defined by the Army Corp of Engineers 33 CFR 328.3(b) in the project area.

G. Hazardous Waste

Coordination with the Maui County Department of Public Works has indicated that there are no hazardous waste sites along the alternative alignment. There are no landfill sites located along the project alignment.

The basic procedure that would be followed should hazardous waste sites be discovered during construction would be contact and coordination with the applicable regulatory agency (State Department of Health, Environmental Health Division) which would determine the type of waste material and would then prescribe appropriate mitigation measures.

H. Section 106, National Historic Preservation Act

The preferred alternatives do not affect any historic properties on or eligible for nomination to the State and National Registers of Historic Places. The project can proceed without further involvement in the Section 106 process. Appendices M and N from the State Historic Preservation Officer state that the proposed alignment will have "no effect" on historic sites and that compliance with Section 106 has been met. In the event that any archaeological resources are uncovered during construction, all work will be halted and the State Historic Preservation Officer will be consulted. Further information on archaeological impacts can be found in Chapter VII, Section E, page 86.

I. Section 404, U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers has indicated that it prefers to be a "review agency" in the processing of the National Environmental Protection Act documentation for the subject project (Appendix P). The proposed alignment will cross the Kauaula, Kahoma, and Honokowai streams as located in Figure 11. The proposing agency will continue to coordinate with the Corps of Engineers and the federal, state, and local resource agencies and state and local water quality agencies as required. Based on preliminary plans, construction is not proposed within the streams; however, when more definitive design plans are prepared prior to construction, a Department of Army permit will be obtained if any fill is to be placed within the stream. Evidence of coordination with the Corps of Engineers regarding the need for permit is shown in Appendix S. This coordination will be continued as the project plans are developed.

VII. ANTICIPATED IMPACTS AND MITIGATIVE MEASURES

The project will be constructed in compliance with all Federal, State, and City and County environmental control laws, ordinances, rules and regulations in effect at the time of construction.

A. Impact on Geographical Characteristics

No significant impacts are expected on the topography of the project areas. Any impacts occurring should be construction related and temporary. Minor grading will be required and erosion and siltation during construction will be kept to a minimum. Retaining walls or temporary measures such as berms, dikes, dams, sediment basins, fibermats, netting, gravel, and other control devices may be used to prevent erosion and siltation. Field inspections during construction will be conducted.

B. Impact on Hydrological Characteristics

The project crosses over three intermittent waterways, the Kahoma Stream, Honokowai Stream and the Kauaula Stream. During construction, some erosion of the cleared and grubbed areas by storm runoff, could result in temporary siltation of the stream waters and could appear in Lahaina's coastal waters. Presently, the near shore waters of Lahaina have been designated either for Class A or Class B uses.

At the present stage of development of the proposed corridor, the highway improvements are not anticipated to cause any significant change in stream flows, or cause any significantly adverse channel alterations, or create any significantly adverse surface runoff effects. All of these listed possible concerns will be again considered in preparing the construction plans for the project.

Data on the three streams and work involved in the project corridor is summarized below:

Kauaula Stream will be crossed approximately 0.3 miles east of the existing highway. A single-span bridge will be utilized over this section. There may be some potential impacts during construction on marine resources in coastal waters adjacent to the mouth of the stream. The construction plans will contain specific mitigation measures to prevent siltation of stream and coastal waters during construction. The measures may include stream crossing construction only during low flow periods, exclusion of the use of heavy equipment in the stream beds, and the re-vegetation of cleared areas bordering the streams in order to prevent erosion and discharge of sediments into the streams and coastal waters.

Kahoma Stream will be crossed north of Ikena Avenue by a single or multi-span bridge. There may be potential impacts during construction on marine resources in coastal waters adjacent to the mouth of the stream. The construction plans will contain specific mitigation measures to prevent siltation of stream and coastal waters during construction. The measures may include stream crossing construction only during low flow periods, exclusion of the use of heavy equipment in the stream beds, and the re-vegetation of cleared areas bordering the streams in order to prevent erosion and discharge of sediments into the streams and coastal waters.

The Honokowai Stream crossing is adjacent to, and just east of, the existing highway bridge and will be crossed with a multi-span bridge. There may be potential impacts during construction on marine resources in coastal waters adjacent to the mouth of the stream. The construction plans will contain specific mitigation measures to prevent siltation of stream and coastal waters during construction. The measures may include stream crossing construction only during low flow periods, exclusion of the use of heavy equipment in the stream beds, and the re-vegetation of cleared areas bordering the streams in order to prevent erosion and discharge of sediments into the streams and coastal waters.

C. Impact on Biological Characteristics

A summary of biological impacts are summarized below and attached as Appendix A.

Vegetation along the proposed realignment corridor and Honoapiilani Highway consists largely of introduced or exotic species. Sugar cane is cultivated on most of the lands which will be impacted by the proposed project. Of a total of 98 species inventoried during this survey, 86 (87.8%) are introduced; 2 (2%) are endemic (i.e., native only to the islands); 7 (7.1%) are indigenous (i.e., native to the islands and elsewhere); and 3 (3.1%) are originally of early Polynesian introduction.

The two endemic species, wiliwili (Erythrina sandwicensis) and 'anunu, are found in similar lowland, leeward environments. The wiliwili occurs throughout all the main islands; the 'anunu is found essentially in the area from Kihei to Makena in koa-haole scrub and open kiawe forest. The seven indigenous species are widely distributed throughout the Pacific and some, such as they prefer disturbed areas. None of these native species is considered rare, threatened or endangered by the federal and/or state governments (Fosberg and Herbst 1975, U.S. Fish and Wildlife service 1985, Herbst 1987). A letter from the United States Department of the Interior, Fish and Wildlife Service (Appendix K), has indicated that there are no endangered or threatened plants or animals expected to be found in the project vicinity.

There is little of botanical interest or concern on the realignment corridors and Honoapiilani Highway. However, areas along the stream are of some concern. The roots of the Java plum forest bind the stream banks and prevent excessive soil loss and stream bank erosion during periods of heavy rain and flash flooding. It is recommended that these areas be revegetated as soon as possible to prevent discharge of sediments into the stream and ocean.

D. Impact on Social Environment

A summary of social impacts for the proposed project has been evaluated by Earthplan's Social Impact Assessment (Appendix B) and is presented below.

1. Potential Residential Displacement of Proposed Alignment

Ikena Avenue currently has a 66-foot right-of-way. The Department of Transportation (DOT) will require at a minimum a 150-foot right-of-way along Ikena Avenue for the proposed alignment. DOT would therefore need to acquire at least 84 feet from adjacent easterly residential lots to establish the right-of-way.

All lots adjacent to the bypass right-of-way would have noise mitigation measures consisting of a 6-foot high noise barrier at the right-of-way line and/or a shorter noise/traffic barrier at the edge of the roadway shoulder. The parcels on the makai side would have their back yards facing these highway noise barriers and the parcels on the mauka side would have these highway noise barriers facing their front yards from across their subdivision street, namely South Hakau Place and North Hakau Place.

The estimate of available replacement housing for residential displacees is provided in the conceptual relocation plan in the Appendix F. Current real estate listings and for sale advertisements have been evaluated in terms of the availability of comparable housing resources. The conceptual relocation plan in Appendix F also includes a summary of relocation payments and services which will be provided and includes a commitment to use last resort housing provisions in case otherwise comparable replacement housing will not be available within the financial means of potential displacees.

The acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and relocation resources are available to all residential and business relocatees without discrimination.

It is stressed that the actual displacement impacts of partial acquisition cannot be determined until the Hawaii State Department of Transportation completes its engineering design and right-of-way studies, as well as cost analyses.

2. Issues Raised by Ikena Avenue Residents

Interviews with a cross-section of Ikena Avenue households were held to gather information about current families, understand the extent of their awareness of the DOT project, and identify issues or concerns they may have about the project's effect on them (displacement or otherwise).

Thirty-four people, representing 22 households (56 percent of the 36 households), were interviewed during this study. Each person was informed that input would be summarized in the Social Impact Assessment and that individual conversations would remain confidential. Project information was provided by DOT representatives and no written project descriptions were provided for the interviews.

Except for one person, those interviewed agreed with the wider West Maui community on the need for a Lahaina Honoapiilani bypass. All of those interviewed knew that Ikena Avenue was part of one of the bypass alternatives; all felt that the State should not displace any families to accommodate traffic. They felt that an alignment through the Lahainaluna School properties would have fewer impacts on residents in general, and that the State should protect residents first and foremost.

The majority felt frustrated because they suspected that their desire to remain at their present location could easily be superseded either by the needs of the wider community or by possibly favorable Alternative B costs. There was also resentment and suspicion about being sold this land and being allowed to build homes here "if this was coming."

They were therefore willing to be relocated providing certain conditions which they feel are fair and just are met.

- total relocation (not just compensation for the current house),
- relocation in Lahaina,
- at a site with comparable views and quiet,
- reimbursement of moving expenses, and,
- for a few, compensation for the non-tangible impacts, such as the stress and the "sacrifice" for the wider community.

They also had concerns about their ability to find comparable housing they could afford; financing, the quality of the new homes and neighborhood and timing.

Ikena Avenue residents only learned of possible "partial acquisition" in April 1988. Both makai and mauka residents opposed this option. People did not approve of the "high wall" which would be built by the DOT to buffer noise

and visual impacts. For the mauka residents, the wall would block their views; the makai residents feared that their mountain breezes would be cut off.

Both mauka and makai residents preferred relocation to partial acquisition. Further, all wanted to be relocated if Ikena Avenue were part of the bypass because of possible noise, visual, safety and construction impacts.

Demographically, a few pertinent demographic statistics are presented below:

1. Age breakdown for the State of Hawaii, Maui County and Lahaina CDP, the latter of which is the study area:
2. Percentages indicating those with work disabilities and between the ages of 16 and 64, in the three population groups; and
3. Percentages indicating public transportation disability in the three population groups.

The sources of information for the three tables is the 1980 Census of Population and Housing - Census Tracts - Honolulu, Hawaii, PHC80-2-183, and 1980 summary Tape Files 1-A and 3-A, prepared by the U.S. Bureau of the Census.

Population by Age:
State of Hawaii, Maui County and Lahaina CDP, 1980

	State of Hawaii %	Maui County %	Lahaina CDP %
Age Groups			
Less than 5	8.00	8.00	7.00
5 - 17 years	20.00	21.00	17.00
18 - 64 years	64.00	61.00	64.00
65 or more years	8.00	10.00	10.00
Total	100.00	100.00	98.00

Persons Aged 16 to 64 with Work Disability:
State of Hawaii, Maui County and Lahaina CDP, 1980

	State of Hawaii %	Maui County %	Lahaina CDP %
Total percentage of population aged 16 to 64 with work disability	6.00	6.00	5.00
Percentage of work disability population in labor force	44.00	49.00	63.00

Persons Aged 16+ with Public Transportation Disability:
State of Hawaii, Maui County and Lahaina CDP, 1980

	State of Hawaii %	Maui County %	Lahaina CDP %
Ages 16-64	1.00	1.00	1.00
Ages 65 +	12.00	8.00	4.00

E. Impact on Archaeological Characteristics

Because the proposed alignment is located near historic properties either on or eligible for nomination to the State and National Registers of Historic Places, the FHWA has coordinated with the State Historic Preservation Officer following the procedures of Section 106 of the National Historic Preservation Act of 1966. The State Historic Preservation Officer has confirmed that Alternative B (between Puamana and Kaanapali Parkway) and the Widening Alternative (between Kaanapali Parkway and Honokowai) would not adversely affect the following sites:

- Lahaina National Historic District

  Alternative B is outside of the boundary of the historic district. (See Appendix Q).

- Plantation Houses

  The State Historic Preservation Officer (SHPO) had earlier indicated that the possibility of plantation houses within the corridor of Alternative B. Based on subsequent discussions between the SHPO's

staff and the State Highways Division's staff, it was established that there are no plantation houses within the Alternative B corridor.

- Kaanapali Power Plant

  The Widening Alternative is located easterly of the Kaanapali Power Plant site. A railroad is between the site and the proposed highway corridor. Most of the widening will be confined within the existing highway right-of-way.

Written confirmation has been received from the SHPO in regards to the State DOT's assessment that "Alternative B" will have "no effect" on the Lahaina National Historic District or the Kaanapali Power Plant. Also, SHPO has concurred with the finding that no plantation houses are present along this alignment. It was therefore concluded that the requirements of Section 106 of the National Historic Preservation Act have been fulfilled. (See Appendix M and N).

The procedure, in the event that any sites are uncovered during construction, is that the SHPO will be contacted after the work is halted, and an evaluation of the find will be made. The SHPO will then advise the start of construction after the find has been evaluated.

F. Impact on Air Quality

A summary of impacts evaluated in the Air Quality Study (Appendix D) is presented below.

1. Short-Term Direct and Indirect Impacts of Project Construction

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

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

Adequate fugitive dust control can usually be accomplished by establishment of a frequent watering program to keep bare-dirt surfaces in work areas from

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

On-site mobile and stationary construction equipment will also emit some air pollutants in the form of engine exhausts.

Indirectly, slow-moving construction vehicles on Lahaina roadways could obstruct the normal flow of traffic to such an extent that overall vehicular emissions of carbon monoxide are increased, but this impact can be mitigated by moving heavy construction equipment during periods of low traffic volume.

2. Long-Term Direct and Indirect Impact of Project Construction

Once construction is completed, the proposed new roadways will not in themselves constitute a major direct source of air pollutants and overall the main indirect impact of the project will be to significantly decrease air pollution levels along the current Honoapiilani Highway route through Lahaina.

By building new roadways in areas that currently have little or no current vehicular traffic, however, the project will be a potential new indirect source of air pollutants in these areas.

Motor vehicles, especially those equipped with gasoline-powered engines, are significant emitters of carbon monoxide. Motor vehicles also emit some nitrogen dioxide and those burning leaded gasoline can emit some lead particles as well. The major control measure limiting lead emissions is a Federal law requiring the use of unleaded fuel in most new automobiles. As older cars disappear from the vehicle fleet, lead levels have been falling sharply and recent readings from monitoring stations in the urban Honolulu area have been below the threshold of detection since mid-1986.

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

spots" along the proposed roadways using mathematical diffusion modeling techniques as is done in the next section of this report.

3. Carbon Monoxide Diffusion Modeling

Six critical receptor sites were selected for detailed carbon monoxide diffusion modeling analysis. Current levels of carbon monoxide near site 1 (Honoapiilani at Lahainaluna) are estimated to exceed allowable State of Hawaii Ambient Air Quality Standards, (AAQS) under worst case peak hour traffic and meteorological conditions. The proposed future alignment will abate this situation. Levels or carbon monoxide for 1987 at other sites appear to be well within allowable AAQS. For 1997, after project completion, all projected carbon monoxide values are within allowable AAQS, with highest projected concentrations near site 6 (Honoapiilani Highway and the Kaanapali Parkway). By the year 2007 projected peak hour carbon monoxide values at this site show a potential to exceed State of Hawaii AAQS under worst case conditions unless the Extension Alternative is adopted from Kaanapali to Honokowai rather than the Widening Alternative.

None of the computed worst case carbon monoxide levels for any of the scenarios studies is within even one third of allowable Federal one-hour AAQS.

Eight hour carbon monoxide levels are estimated by multiplying the peak hour values by a "meteorological persistence factor" of 0.6 which is recommended in EPA modeling guidelines (6) to account for the fact that average one hour traffic volumes and the fact that meteorological dispersion conditions are more variable (and hence more favorable) over an eight-hour period than they are for a single-hour. Results are essentially the same as those for the peak hour scenarios, except that the current projected eight-hour level for site 1 is on the order of two-thirds of the allowable Federal AAQS and the projected 2007 levels for site 6 cannot meet State of Hawaii eight-hour AAQS no matter which alternative is selected.

The State of Hawaii Air Quality Agency (Department of Health), has produced an Air Quality Implementation Plan that states that compliance with Federal Air Quality Standards for vehicle-related pollutants will depend on vehicle-manufacture compliance with Federal emissions limitations. This study indicates that present and future worst case levels of vehicle related pollutants are likely to be well within Federal AQS. The State of Hawaii has no published policy or plan of action to deal with potential exceedances of State of Hawaii standards, which, in the case of peak hour carbon monoxide, are four times more stringent than Federal limits. The Do-Nothing alternative will result in possible background levels of carbon monoxide approaching 1 ppm occurring at sites 1, 2, 5 and 6, but with no industry or major urban traffic center upwind in the usual tradewind direction for

thousands of miles a background valve of near zero is considered to be appropriate for sites 3 and 4.

G. Energy Impact

A comparative energy analysis (Appendix E) was also conducted for the proposed alternatives. All appear to yield a potential energy savings of about 17 percent over the option of widening Honoapiilani Highway between Kaanapali and Honokowai.

H. Impact on Noise Environment

The exterior noise levels along the project alignment were evaluated for locations representative of frequent human use, situated within the yards of residences between the dwellings and the right-of-way line as indicated in Table 12, first column. For the entire preferred alternative route, the only areas where noise levels are expected to exceed FHWA's criteria as a result of the project are along the Ikena Avenue crossing (see Table 9 of Appendix H). The private dwellings, public use structures, and park lands, as shown in Table 8 of Appendix G, are not located in the vicinity of the recommended Alternative B. (These properties are located in the vicinity of the Widening Alternative, Puamana to Kaanapali Section, which is not a recommended alternative). A summary of noise impacts from the Noise Study (Appendix G, H) is provided below.

Existing traffic noise levels along Highway from Puamana to Honokowai do not exceed FHWA noise abatement criteria except at 1 school and 4 beach parks. The construction of new sections of the highway inland of the existing highway would divert traffic from the existing highway by varying amounts. The proposed alignment is predicted to contribute to a future decrease of traffic noise along the existing Honoapiilani Highway from Puamana to Honokowai, with significant decreases projected upon completion of the realignment extension from Kaanapali to Honokowai.

Traffic noise mitigation measures will probably be required in the vicinity of the Ikena Avenue crossing of the proposed project.

1. Future Traffic Noise Impact

Existing noise sensitive developments along Honoapiilani Highway (from Puamana Park to Kaanapali Parkway) include single-family residences, multi-family residences, three churches, one private school, and beach parks.

Potential traffic noise impacts would be the most severe under the former Highway Widening Alternative, primarily because of the presence of single-family residences, apartment complexes, a hotel, public use structures, and

beach parks on both sides of the highway. Potential traffic noise impacts would be the less severe under the proposed corridor since future as well as existing traffic on the northern section of Honoapiilani Highway would be diverted to the bypass. Potential traffic noise impacts under the former Alternative A, Phase II, and the proposed alignment are similar, with the proposed alignment having a higher risk of adverse noise impacts under roadway capacity conditions. All alternatives are not impact free, since all alternatives do not reduce traffic volumes along the entire project length of Honoapiilani Highway below base year volumes.

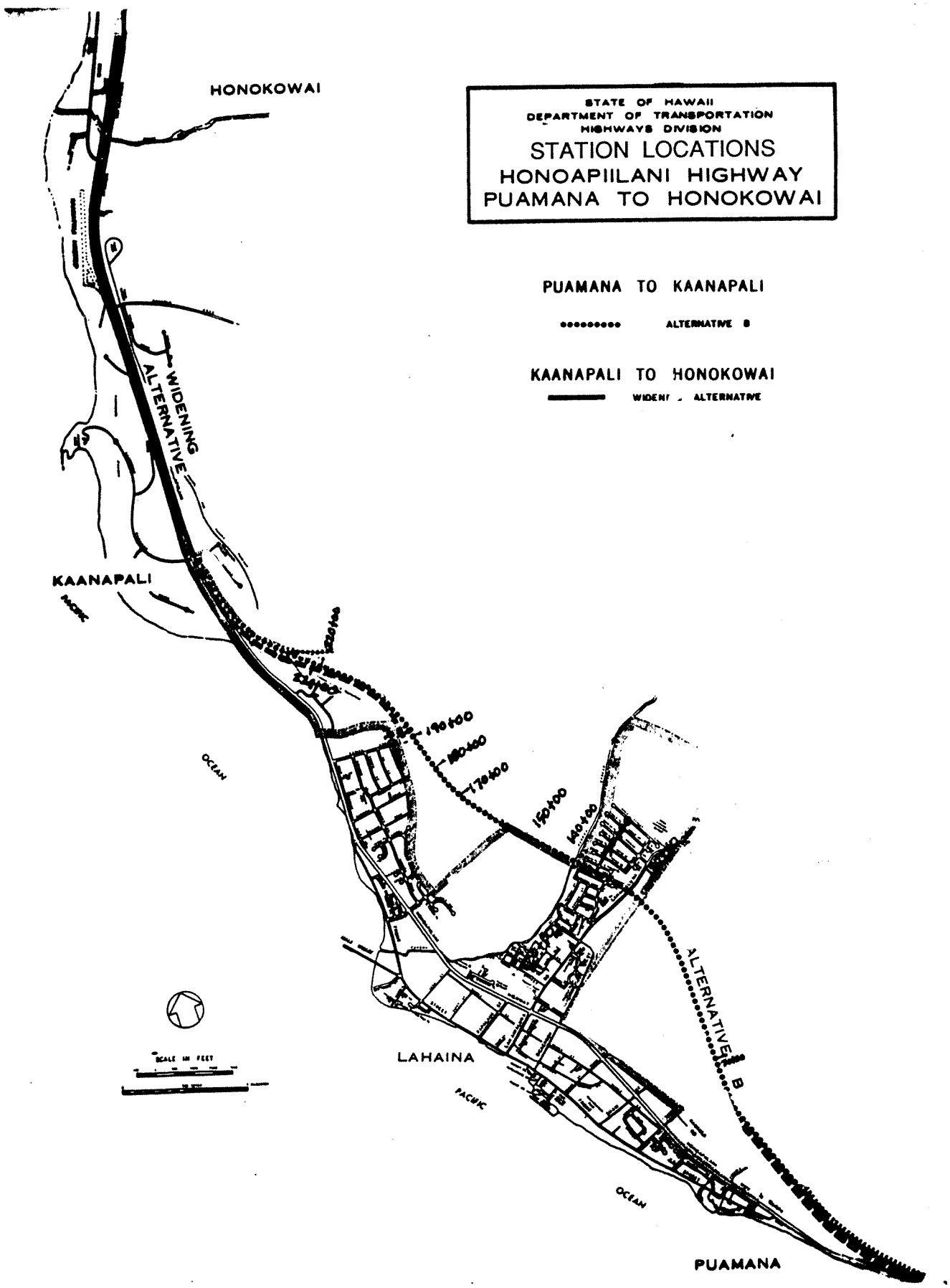
Traffic noise impacts in the form of large increases in background ambient noise levels are expected along the proposed new alignments. Because existing background ambient noise levels are very low (40 to 50 Leq) at inland residential areas which are removed from the existing highway, and because the new bypass must cross or pass near these quiet residential areas, unavoidable increases in background ambient noise levels are expected to occur if a new bypass is built. These increases, although large, should not result in excessively high noise levels which exceed the 67 Leq FHWA noise abatement criteria for residences, parks and playgrounds. In essence, if a bypass is constructed, a redistribution of future traffic and traffic noise will occur from the existing highway to locations inland (to the east). This redistribution will minimize future traffic noise impacts along the existing highway corridor.

A summary of the potential traffic noise impacts and the noise mitigation implications can be found in Figure 28.

Traffic noise levels under the proposed alignment, however, are expected to be only marginally below the 67 Leq FHWA noise abatement criteria where it parallels Ikena Avenue, but are expected to substantially exceed the existing ambient noise levels. The State of Hawaii Department of Transportation does not have a noise abatement criteria standard however, traffic noise mitigation measures will probably be required along the new highway at Ikena Avenue.

2. Construction Noise Impacts

Short-term noise impacts associated with widening or new construction activities will occur as a result of the proposed project under all Build Alternatives. These impacts will occur as a result of the short distances (less than 100 feet) between existing noise sensitive receptors and the possible construction sites. The total duration of the construction period for the



STATION LOCATIONS

FIGURE 28

proposed project is not known, but noise exposure from construction activities at any one receptor location is not expected to be continuous during the total construction period.

Noise levels of diesel powered construction equipment typically range from 80 to 90 dB at 50 FT distance. Under the proposed alignment, distances between the construction sites and receptors are expected to be greater than 50 FT, and construction noise levels should generally be below 80 dB. The State Department of Health currently regulates noise from construction activities on Oahu under a permit system (Reference 5, Appendix H). Under current permit procedures, noisy construction activities which exceed 95 dB at the project boundary lines are restricted to hours between 9:00 AM and 5:30 PM, from Monday through Friday, and excluding certain holidays. These restrictions minimize construction noise impacts on residences, schools, and churches, and have generally been successfully applied.

3. Possible Noise Mitigation Measures

Existing residences currently line the Rights-of-Way along Ikena Avenue. Relocation of residents east of Ikena Avenue would be required to accommodate the proposed bypass. Following construction of the new bypass, existing residences fronting Hakau Place, which parallels and is one block east of Ikena Avenue, would then have their front yards facing the new bypass highway. Residences along the west right-of-way of the new bypass would typically have their backyards facing the new bypass highway.

Typical setback distances to the residences east of the bypass are in the order of 80 to 105 feet from the proposed highway centerline. Typical setback distances to residences west of the bypass are in the order of 80 to 100 feet. Comparisons of existing background ambient noise levels with projected highway noise levels at these residences are shown in Table 12 and Figure 29. Because existing background ambient noise levels along the proposed bypass are very low, the most conservative FHWA criteria level of 57 dB was used to develop the noise mitigation recommendations at affected residences.

Possible noise mitigation measures considered included the following:

a. Restricting the growth in the number of noisy buses, heavy trucks, motorcycles, and automobiles with defective mufflers.

b. Alteration of the horizontal or vertical alignment of the highway.

c. Acquisition of property rights for construction of noise barriers along the right-of-way.

TABLE 12

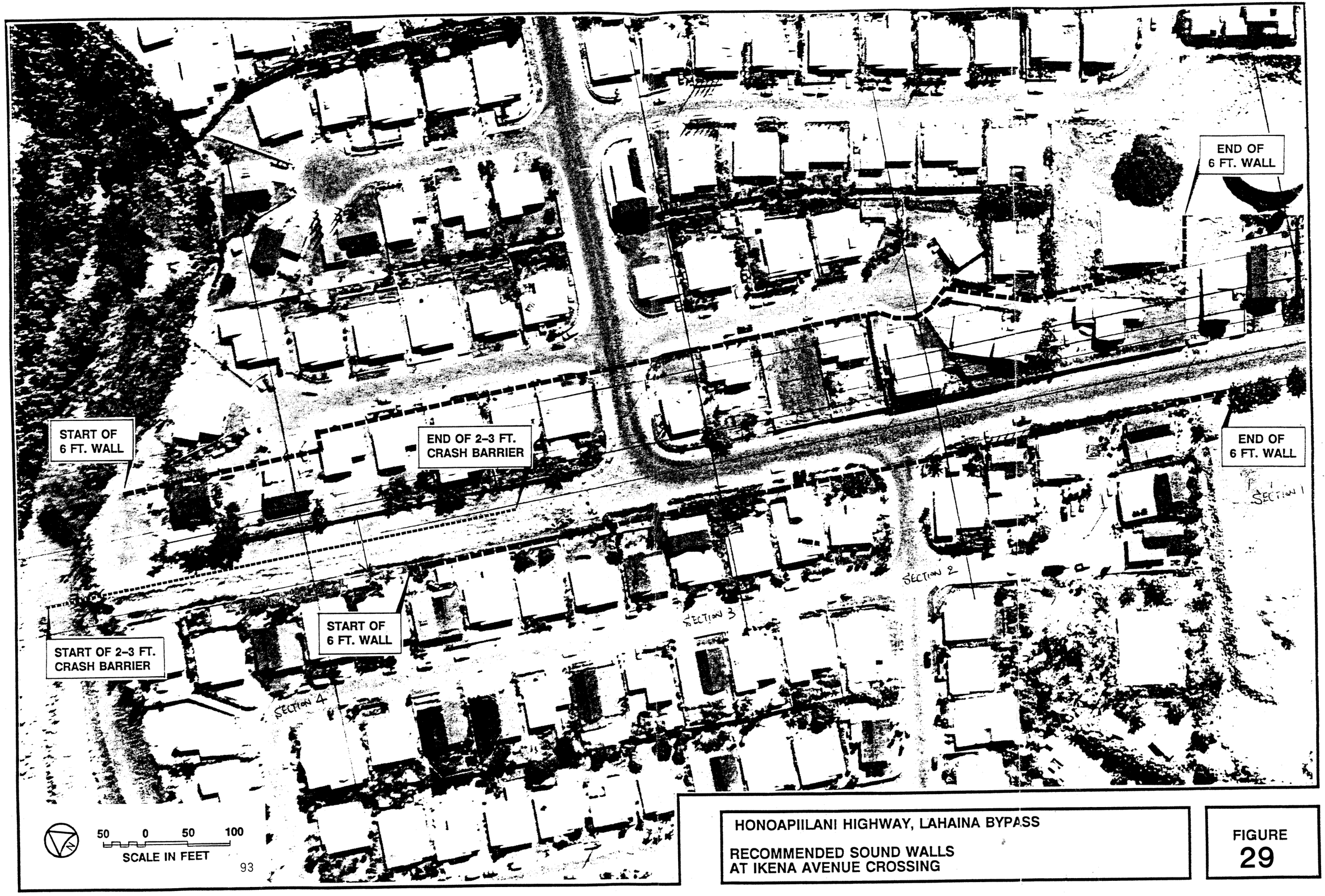
SOUND ATTENUATION WALL PERFORMANCE ALONG IKENA AVENUE
(REALIGNMENT B, AT-GRADE CROSSING ALONG IKENA AVENUE WITH ACCESS)
(CY 2007, PM PEAK HOUR, 2218 VPH, 40 MPH, 95.0%/2.6%/2.4%)

HWY. CROSS SECTION	BACKGROUND AMBIENT	LEQ(H) W/O BARRIER	LEQ WITH 3' BARRIER	LEQ WITH 6' BARRIER
Section #1, 200' Mauka of R/W	45-50 Leq	52 Leq	--	--
Section #1.5, 10' Mauka of R/W	45-50 Leq	65 Leq	65 Leq	59 Leq*
Section #2, 37' Mauka of R/W	45-50 Leq	57 Leq	56 Leq	53 Leq
Section #2, 20' Makai of R/W	45-50 Leq	62 Leq	57 Leq	54 Leq
Section #3, 60' Mauka of R/W	45-50 Leq	60 Leq	58 Leq	54 Leq
Section #3 20' Makai of R/W	45-50 Leq	64 Leq	58 Leq	55 Leq
Section #4, 35' Mauka of R/W	45-50 Leq	63 Leq	61 Leq	57 Leq
Section #4 42' Makai of R/W	45-50 Leq	58 Leq	58 Leq	58 Leq**

Notes: * 8 FT high wall above R/W elevation required to reduce traffic noise to 57 Leq in this area.

** 2 to 3 FT solid crash barrier at makai edge of shoulder required to reduce traffic noise to 57 Leq in this area.

*** Cost of proposed attenuation walls with crash barriers approximately 1.27 million, State DOT 11/89.



HONOAPIILANI HIGHWAY, LAHAINA BYPASS

RECOMMENDED SOUND WALLS
AT IKENA AVENUE CROSSING

FIGURE
29

d. Acquisition of real property interests to serve as a noise buffer zone.

e. Noise insulation of public use or nonprofit institutional structures.

I. Impact on Infrastructure and Utilities

Telephone and electrical line adjustments will be necessary where the project alignment crosses the urbanized areas adjacent to Lahainaluna Road. The project will require water for landscaping purposes.

J. Impact on Public Facilities and Services

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

K. Impact on Agricultural Land and Land Uses

The realignment for this project will require the acquisition of agriculturally-zoned lands.

Some prime sugar cane lands would be removed from production and represent a permanent loss of such land resources. Cane sugar mill operations may be affected or require some relocation adjustments.

Form AD 1006 of the Farmland Protection Policy Act and initial scoping with the Soil Conservation Service have been completed with copies reprinted in the EIS comments section and Appendix I. No significant agency comments regarding agricultural impacts have been received at this time. Specific information on soil types in the area can be found in Section V.

An evaluation of land use patterns in Lahaina would reveal that over several years residentially- and commercially-zoned areas have increased and agriculturally-zoned areas have decreased. An improved highway facility would tend to support or accelerate this trend. It should be noted that all development in the County is planned, therefore, no development or population shift are considered "unplanned." All development is under the review jurisdiction of Maui County, and as such, must be submitted for compliance review with existing land use policy designations. The corridor alignment is proposed on agricultural lands and will be subject to those land use policy provisions.

L. Impact on Natural Landmarks

No natural landmarks are located in the alignment areas.

M. Mitigation of Construction Impacts

Mitigation measures for short-term construction related impacts will be implemented as required by all applicable Federal, State and County standards. Specific mitigation measures will include but not be limited to approved dust control, erosion control, noise control, and traffic detouring measures.

N. Economic Impacts

The proposed alignment will involve the use of existing agricultural lands. A loss of approximately 99.3 acres will be necessary to accommodate the proposed right-of-way. This will result in an income loss of approximately $300,000 per annum to the Pioneer Mill.

The tax loss to Maui County is estimated at $200 per year. The sugar cane fields have an assessed value (agricultural use) of $500 per acre and an agricultural tax rate of $4.75 per thousand dollar assessed value.

It is estimated that there will be no additional cost to sugar operations because access openings will be provided to mitigate severance damages. Any irrigation lines affected will be restored and if any crop is taken during construction, crop damages will be computed and paid to the sugar operator.

O. Visual Impacts

The proposed alignment is not expected to have any adverse visual impacts on view planes from populated and public accessible areas. The alignment primarily crosses sugar cane lands which. when cultivated, will shield the roadway visually. The roadways appearances from Honoapiilani Highway and Lahaina will be negligible or nonexistent. There are no visually significant features in the project area.

VIII. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY AND IRREVERSIBLE/ IRRETRIEVABLE COMMITMENTS OF RESOURCES

It is anticipated that the construction of the proposed project will commit the necessary construction materials and human resources (in the form of planning, designing, engineering, construction labor, landscaping, and maintenance functions). Labor expended for this development is not retrievable. However, labor will be compensated during the various stages of the project.

Air and noise quality will be affected by this proposed project, but will remain in compliance with State standards. While ambient air and noise quality in the area is relatively good, however, the proposed development will result in vehicles going to and from the project areas, resulting in vehicular pollution emissions.

The project development will result in a commitment of land for a long-term period. Commitment of land for these purposes will likely foreclose certain future use options of the land. The project development will, in short- and long-term result in transportation uses which will likely benefit residents, visitors and private businesses.

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IX. ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The following adverse environmental effects (both short- and long-term) cannot be avoided.

(1) Agricultural use under the proposed alignment will be lost.

(2) The site-clearing and construction work will result in temporary fugitive dust, some disruption to traffic, and noise.

(3) Traffic congestion may temporarily increase during construction of the proposed project. Additional impacts associated with increased traffic include potential air and noise quality deterioration.

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X. SUMMARY OF UNRESOLVED ISSUES

A. Dickenson Street Extension

The County of Maui is currently evaluating an extension plan for Dickenson Street which would allow access to the selected bypass.

B. State Land Use Designation

The proposed project is generally consistent with all land use plans and policies; however, State Land Use Designations for agricultural lands will require boundary changes and should be considered an unresolved issue until an alignment has been selected.

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XI. AGENCIES AND ORGANIZATIONS CONSULTED DURING THE EIS PREPARATION NOTICE PERIOD

ORGANIZATIONS AND AGENCIES

Agency	Date of Comment	Date Comment Received	Date of Response
State			
Department of Accounting & General Services	06/23/87	06/24/87	NRN
Department of Agriculture	06/25/87	07/06/87	07/30/87
Department of Defense	06/22/87	06/30/87	NRN
Department of Education	06/23/87	06/02/87	NRN
Hawaii Housing Authority	06/30/87	07/06/87	NRN
Department of Planning & Economic Development	06/30/87	07/10/87	07/30/87
Department of Land and Natural Resources	07/06/87	07/09/87	08/04/87
	07/16/87	07/21/87	08/04/87
	08/12/87	08/18/87	09/03/87
University of Hawaii Environmental Center	07/21/87	07/22/87	07/31/87
City & County of Maui			
Office of the Mayor - Maui County	06/19/87	06/30/87	07/28/87
Department of Finance	07/29/87	08/03/87	NRN
Department of Parks and Recreation	06/25/87	07/06/87	07/30/87
Planning Department	07/15/87	07/29/87	07/31/87
Planning and Land Use Committee	06/23/87	06/27/87	NRN
Department of Public Works	07/14/87	07/20/87	08/04/87
Office of Human Concerns	06/18/87	07/22/87	07/28/87
Police Department	07/28/87	07/30/87	09/10/87
Federal			
Agricultural Stabilization and Conservation Service	06/23/87	06/26/87	NRN
Department of the Army, Corp of Engineers	07/06/87	07/09/87	08/04/87
U.S. Fish & Wildlife Service	06/29/87	06/30/87	07/28/87

Organizations and Agencies Consulted (Continued)

Agency	Date of Comment	Date Comment Received	Date of Response
U.S. Dept. of Housing & Urban Development	06/22/87	06/29/87	07/28/87
U.S. Geological Services	09/10/87	09/11/87	10/05/87
U.S. Soil Conservation Services	07/06/87	07/07/87	NRN
FHWA	07/09/87	07/09/87	NRN
Private Organizations			
County of Maui			
Hawaiian Telephone Co.	07/09/87	07/17/87	08/04/87
Maui Electric Co., Ltd.	06/25/87	06/29/87	NRN
Pioneer Mill Company, Ltd.	07/16/87	07/20/87	08/04/87
Lahaina Town Operators Association	06/16/87		

NRN: No Response Needed

XII. COMMENTS AND RESPONSES DURING THE ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE PERIOD

JOHN WAIHEE
GOVERNOR

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

RUSSEL S. NAGATA
COMPTROLLER

KEN KIYASU
DEPUTY COMPTROLLER

LETTER NO. (P)1497.7

JUN 23 1987

Honorable Edward Y. Hirata
Director
Department of Transportation
State of Hawaii
Honolulu, Hawaii

106

Dear Mr. Hirata:

Subject: Honoapiilani Highway
Puamana to Honokowai
Project Nos. 30AB-01-85
& 30AB-01-87

We have reviewed the subject document and have no comments to offer.

Very truly yours,

RUSSEL S. NAGATA
State Comptroller

JOHN WAIHEE
GOVERNOR

SUZANNE D. PETERSON
CHAIRPERSON, BOARD OF AGRICULTURE

TADASHI TOJO
DEPUTY TO THE CHAIRPERSON

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814-2512

Mailing Address:
P. O. Box 22159
Honolulu, Hawaii 96822-0159

June 25, 1987

Mr. Edward Y. Hirata, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Subject: Environmental Impact Statement (EIS) Preparation Notice for Honoapiilani Highway, Puamana to Honokowai, Project Nos. 30AB-01-85 & 30AB-01-87
TMK: 4-4, 5 & 6 Lahaina, Maui
File No.: HWY-PA 2.95387
Acres: unknown

The Department of Agriculture has reviewed the subject document and offers the following comments.

The Department of Agriculture previously responded to the earlier EIS Preparation Notice for Project No. 30AB-01-85 which identified issues we wished to see addressed (see attached copy of our letter to Mr. Wayne J. Yamasaki, June 27, 1985). In both the earlier and the subject EIS Preparation Notices, a section titled "Agricultural Lands and Land Use" briefly summarizes the probable impact on sugarcane fields that are in the respective projects' paths (found on page 3 of the subject document and on page 8 of the June, 1985 document). These impacts include: (1) the affect on the economic viability on Pioneer Sugar Mill's operations due to the loss of land, (2) the total amount of land lost between alternative roadway alignments and the selection of an alternative which may least reduce the agricultural land loss, (3) the possibility of land substitution elsewhere to compensate for the lost agricultural lands, and (4) changes in existing land use patterns, including an increase in the residentially- and commercially-zoned areas and a decrease in the agriculturally-zoned land.

The current project which adds Project No. 30AB-01-87, extends the proposed roadwork further northward of the Earlier Project No. 30AB-01-85. This northern segment of roadwork includes the following soil types in addition to those mentioned in our June 27, 1985, memorandum.

The Soil Conservation Service Soil Survey identifies the additional soils as Wahikuli stony silty clay (WbB and WcC) with 3 to 15 percent slopes and Pulehu clay loam (PsA) with 0 to 3 percent slopes. These soils are used for sugarcane, truck crops and pasture. Their soil capability classification ranges from I to IIIe (soils with few limitations to severe erosion hazard if cultivated and not protected).

The northern segment of the proposed improvements are adjacent to "Prime" and "Other Important" lands classified according to the Agricultural Lands of Importance to the State of Hawaii (ALISH) system.

This additional soils information and the issues noted in the memorandum to Mr. Wayne J. Yamasaki should be addressed in the draft EIS.

Thank you for the opportunity to comment.

Suzanne D. Peterson

SUZANNE D. PETERSON
Chairperson, Board of Agriculture

Attachment

cc: OEQC

June 27, 1985

MEMORANDUM

To: Mr. Wayne J. Yamasaki, Director
Department of Transportation

Subject: Environmental Impact Statement (EIS)
Preparation Notice for Honoapiilani Highway,
Puamana to Kaanapali, Project No. 30AB-01-85
TMK: 4-4, 5 & 6 Lahaina, Maui

The Department of Agriculture has reviewed the subject application and has the following comments to offer.

We note from the EIS Preparation Notice that the following agriculturally related issues will be subject to further analysis in the Draft EIS: (1) some sugar cane lands may be removed from production and Pioneer Sugar Mill's operations may be affected (page 8); (2) the agricultural lands will be inventoried and the highway alignment may be adjusted to avoid severe impacts (page 11); and (3) an evaluation of existing land use patterns would reveal an increase in the residentially- and commercially-zoned areas and a decrease in the agriculturally-zoned land.

The present roadway is adjacent to or dissects lands classified "Prime" and "Other Important" according to the Agricultural Lands of Importance to the State of Hawaii (ALISH) system.

The Soil Conservation Service Soil Survey identifies the soils as Ewa silty clay loam (EaA) with 0 to 3 percent slopes and Pulehu silty loam (PpA) with 0 to 3 percent slopes. Both of these soils are used for sugar cane and have a soil capability classification of "I" with irrigation (soils having few limitations that restrict their use).

The land area adjacent to the existing highway has Land

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Study Bureau Overall Productivity Rating of A71 with smaller areas of B52i, C55 and E73. By this method of classification, most of the land area has excellent productivity potential for most agricultural uses.

Thank you for the opportunity to comment.

Jack K. Suwa

JACK K. SUWA
Chairman, Board of Agriculture

JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO:
HWY-PA
2.96510

July 30, 1987

TO: The Honorable Suzanne D. Peterson
Chairperson, Board of Agriculture

FROM: Director of Transportation

SUBJECT: HONOAPIILANI HIGHWAY, PUAMANA TO HONOKOWAI
PROJECT NOS. 30AB-01-85 AND 30AB-01-87

Thank you for your letter of June 25, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

The Draft EIS will address the issue of impact on sugarcane fields that are in the respective projects' paths and the issue of soil erosion. However, it will not be possible for the DOT to provide replacement agricultural lands.

Edward Y. Hirata

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John Waihee

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD, HONOLULU, HAWAII 96816

ALEXIS T. LUM
MAJOR GENERAL
ADJUTANT GENERAL

FH '87

June 22, 1987

Engineering Office

Mr. Tetsuo Harano, Chief
Highways Division
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Environmental Impact Statement Preparation Notice
Honoapiilani Highway, Puamana to Honokowai,
Project Nos. 30AB-01-85 and 30AB-01-87

Thank you for providing us the opportunity to review the above subject project.

We have no comments to offer at this time regarding this project.

Yours truly,

Jerry M. Matsuda
Major, Hawaii Air
National Guard
Contr & Engr Officer

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JOHN D. WAIHEE
GOVERNOR

CHARLES T. TOGUCHI
SUPERINTENDENT

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

June 23, 1987

MEMO TO: Honorable Edward Y. Hirata, Director
Department of Transportation

F R O M: Charles T. Toguchi, Superintendent
Department of Education

SUBJECT: Honoapiilani Highway
Project No. 30AB-01-85 & 30AB-01-87

111

Our review of your proposed highway project indicates that it will have a negligible impact on our area schools.

Please keep us informed of any change of plans.

CTT:jl

cc E. Imai, OBS
L. Lindsey, Maui Dist.

JOHN WAIHEE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF SOCIAL SERVICES AND HOUSING
HAWAII HOUSING AUTHORITY
P. O. BOX 17907
HONOLULU, HAWAII 96817

RUSSELL N. FUKUMOTO
EXECUTIVE DIRECTOR

IN REPLY REFER

TO:

June 30, 1987

The Honorable Edward Y. Hirata
Department of Transportation
869 Punchbowl Street
Honlulu, Hawaii 96813

Dear Mr. Hirata:

Re: Honoapiilani Highway, Puamana to Honokowai, Project Nos. 30AB-01-85 and 30AB-01-87 (HWY-PA 2.95387)

We have reviewed the EIS Preparation Notice for the proposed project and have no comments to offer at this time.

Sincerely,

RUSSELL N. FUKUMOTO
Executive Director

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DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT
KAMAMALU BUILDING 250 SOUTH KING ST, HONOLULU HAWAII
MAILING ADDRESS P.O. BOX 2359 HONOLULU HAWAII 96804 - TELEX 7430250 (HOPER)

JOHN WAIHEE
GOVERNOR
ROGER A. ULVELING
DIRECTOR
MURRAY E. TOWILL
DEPUTY DIRECTOR
BARBARA KIM STANTON
DEPUTY DIRECTOR

DIVISIONS
BUSINESS AND INDUSTRY DEVELOPMENT DIVISION
ENERGY DIVISION
FOREIGN-TRADE ZONE DIVISION
LAND USE DIVISION
PLANNING DIVISION
RESEARCH AND ECONOMIC ANALYSIS DIVISION

OFFICES
ADMINISTRATIVE SERVICES OFFICE
INFORMATION OFFICE

Ref. No. P-6681

June 30, 1987

MEMORANDUM

TO: The Honorable Edward Y. Hirata, Director
Department of Transportation

FROM: Roger A. Ulveling

SUBJECT: EISPN - Honoapiilani Highway, Puamana to Honokawai, Maui

We have reviewed the subject EISPN and have the following comments.

The EIS should include a discussion of relevant objectives and policies of the Hawaii CZM Program, as specified in Chapter 205A, Hawaii Revised Statutes.

It should also discuss the relationship of the proposed project to the Hawaii State Plan (Chapter 226, HRS). The plan should be reviewed to identify objectives, policies, and priority guidelines which have a strong relationship to or are impacted by the proposed project. Important relationships should be discussed in the EIS. The State Functional Plans should be reviewed to determine relevance to your project and important relationships discussed in the EIS.

Thank you for allowing us the opportunity to comment.

for Director

cc: Office of Environmental Quality Control

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JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO:
HWY-PA
2.96512

July 30, 1987

TO: The Honorable Roger A. Ulveling
Director, Department of Planning and
Economic Development

FROM: Director of Transportation

SUBJECT: HONOAPIILANI HIGHWAY, PUAMANA TO HONOKOWAI
PROJECT NOS. 30AB-01-85 AND 30AB-01-87

Thank you for your memorandum of June 30, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

The EIS for the subject project will include a discussion of relevant objectives and policies of the Hawaii CAM Program, as specified in Chapter 205A, Hawaii Revised Statutes. Also, the EIS will discuss the relationship of the proposed project to the Hawaii State Plan (Chapter 226, HRS).

We appreciate your input in the planning of the proposed highway improvements.

Edward Y. Hirata

JOHN WAIHEE
GOVERNOR OF HAWAII

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

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

LIBERT K. LANDGRAF
DEPUTY

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

Mr. Edward Y. Hirata, Director
Department of Transportation
869 Punchbowl Street
Honolulu, HI

Ref. No. 87SW-60

Dear Mr. Hirata:

SUBJECT: EIS Preparation Notice
Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB & 30AB-01-87

This is in response to your letter of June 15, 1987 with the enclosed EIS preparation notice for the proposed project involving the widening and/or realigning of a section of Honoapiilani Highway in the Lahaina District, on the island of Maui.

Land and Water Conservation Fund Concerns

The Lahaina Recreational Center is located in close proximity to the Honoapiilani Highway corridor as shown in the attached maps. The recreation center is owned and operated by the County of Maui, and has received federal assistance from the Land and Water Conservation Fund (L&WCF), Public Law 88-578, as amended. If this recreation area is impacted by the proposed project, the provisions of Section 6(f) of the L&WCF may be applicable. Taking of land from this recreation area would require the approval of the Secretary of the Interior and replacement land of equivalent value and utility. An assessment in accordance with Section 4(f) of the Transportation Act also would be necessary.

If you have any questions regarding Section 6(f) of the L&WCF, please contact us as we are the state liaison agency in Hawaii for L&WCF matters.

Historic Sites Concerns

Our department may also have historic preservation concerns relating to your project. We will address such concerns in a subsequent letter, sometime in July 1987.

State Parks Concerns

The subject highway borders Wahikuli State Wayside, providing its only road access. This is a popular beach park with an estimated 500,000 visits per year. Unfortunately, this 8.3 acre park is already constrained by limited space to provide the parking, picnicking and open space needed for a heavily used beach park. Any reduction in the size of the park for highway widening will worsen the situation. We are also concerned about ingress and egress to the park.

Very truly yours,

WILLIAM W. PATY
Chairperson

cc: Ms. Marilyn Moniz-Kahoohanohano
Dept. of Parks & Recreation
County of Maui

JOHN WAIHEE
GOVERNOR OF HAWAII

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

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

LIBERT K. LANDGRAF
DEPUTY

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

DOC. NO. 0689E
FILE NO.: 87-231

JUL 16 1987

Honorable Edward Y. Hirata, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

SUBJECT: Preparation Notice of Environmental Impact Statement (EIS)--Honoapiilani Highway, Puamana to Honokowai, Lahaina, Maui

Thank you for the opportunity to review the EIS preparation notice cited above. We offer the following comments:

Historic Sites Concerns:

The proposed project involves widening and/or realigning of an 8-mile section of the Honoapiilani Highway in Lahaina. The project has been determined to have major impact on significant historic sites, specifically the sections located within the boundaries of the Lahaina Historic District, nearby existing railroad facilities and the restored Royal Palm Grove. Since the exact locations, where the realignment and/or widening are planned to occur, are still undetermined, there may be other historic sites that will be impacted. Therefore, the EIS should adequately identify all historic sites that will be impacted, the nature of the effects and proposed mitigation measures.

Should you have any questions, please contact Ms. Annie Griffin, staff archaeologist handling the island of Maui, at 548-6408.

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Recreation Concerns:

The subject project includes a section of the Honoapiilani Highway fronting Wahikuli State Wayside. This is a popular park with over one half million visitors per year. It already lacks sufficient space for park amenities to support the swimming beach which is of high statewide significance according to a draft 1987 Statewide Recreation Resources Inventory of Principal Swimming Areas. We are therefore concerned about any road widening which would encroach on the park as well as ingress and egress to the park from the subject highway.

Thank you for your consideration of our concerns.

Very truly yours,

WILLIAM W. PATY, Chairperson
Board of Land and Natural Resources

JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

AUG 1987

IN REPLY REFER TO
HWY-PA
2.96508

MEMORANDUM

TO: The Honorable William W. Paty
Chairperson, Department of Land and Natural Resources

FROM: Director of Transportation

SUBJECT: HONOAPIILANI HIGHWAY, PUAMANA TO HONOKOWAI
PROJECT NOS. 30AB-01-85 AND 30AB-01-87

Thank you for your letters of July 6, 1987 and July 16, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

We do not at this time anticipate impacting the Lahaina Recreation Center. The EIS will identify all historic sites that will be impacted, the nature of the effects and the proposed mitigation measures.

With regards to the Wahikuli State Wayside Park, we will consider the needs of the park including its access requirements. We will also evaluate the widening alternative in terms of its encroachment on the park.

We appreciate your input in the planning of the proposed highway improvements.

Edward Y. Hirata

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JOHN WAIHEE
GOVERNOR OF HAWAII

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

LIBERT K. LANDGRAF
DEPUTY

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

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

AUG 12 1987

DOC. NO. 0972E
FILE NO.: 87-231

Honorable Edward Y. Hirata, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

RECEIVED
AUG 18 7 27 AM '87
DEPT. OF TRANSPORTATION
HIGHWAYS DIVISION

Dear Mr. Hirata:

SUBJECT: Preparation Notice of Environmental Impact Statement (EIS)--Honoapiilani Highway, Puamana to Honokowai, Lahaina, Maui

Please consider the comments below as an addendum to our letter of July 16, 1987 (attached).

It appears that because relatively little or no native stream fauna exists in these streams, turbidity-related impacts to such resources are expected to be minimal. To minimize the threat of sedimentation and turbidity to nearshore waters adjacent to each stream, construction should be conducted during periods of low rainfall and run-off, and areas graded or grubbed should be planted (or replanted) as soon as possible. Further, precautionary measures should include the prevention of construction materials, debris, wastes, petroleum products, and landscaping substances (herbicides, pesticides, fertilizers) from falling, flowing, or leaching into the sea.

Again, we appreciate your consideration of our concerns.

Very truly yours,

WILLIAM W. PATY, Chairperson
Board of Land and Natural Resources

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JOHN WAIHEE
GOVERNOR

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

EDWARD Y. HIRATA
DIRECTOR

DEPUTY DIRECTORS
JOHN K. UCHIMA
RONALD N. HIRANO
DAN T. KOCHI

IN REPLY REFER TO:
HWY-PA
2.97058

September 3, 1987

MEMORANDUM

TO: The Honorable William W. Paty
Director & Chairperson
Board of Land and Natural Resources

FROM: Director of Transportation

SUBJECT: HONOAPIILANI HIGHWAY, PUAMANA TO HONOKOWAI, PROJECT NOS. 30AB-01-85 & 30AB-01-87

Thank you for your letter of August 12, 1987 providing additional comments on the Environmental Impact Statement Preparation Notice for the subject project.

We will minimize the threat of sedimentation and turbidity to nearshore waters adjacent to each stream during construction. We will plant or replant graded or grubbed areas as soon as possible and take precautionary measures to prevent construction materials, debris, wastes, petroleum products, and landscaping substances from falling, flowing or leaking into the sea.

We appreciate your input in the planning of the proposed highway improvements.

Edward Y. Hirata

University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

July 21, 1987
PN:0055

Mr. Tetsuo Harano
Chief, Highways Division
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Harano:

Preparation Notice of Environmental Impact Statement
Honoapiilani Highway Improvement
Puamana to Honokowai, Maui

As the area to be addresed by the EIS now in preparation is noted for its historical significance, subsurface testing in localized sites with high potential for archaeological remains should be considered.

We note in the discussion of water quality that this project will produce some degradation of stream and coastal waters. As this will pose potentially significant impacts, we suggest that this issue be fully addressed in the Draft EIS.

Thank you for the opportunity to comment on this document. We look forward to your consideration of our comments in the preparation of the EIS.

Sincerely,

Jacquelin Miller
Associate Environmental Coordinator

cc: OEQC
L. Stephen Lau

A Unit of Water Resources Research Center

AN EQUAL OPPORTUNITY EMPLOYER

JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO
HWY-PA
2.96601

July 31, 1987

Ms. Jacqueline Miller
Associate Environmental Coordinator
University of Hawaii at Manoa
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Dear Ms. Miller:

Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 and 30AB-01-87

Thank you for your letter of July 21, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

We will consider conducting subsurface testing in localized sites with high potential for archaeological remains, after a corridor alternative is selected. We will address, in the EIS, the issues of water quality and degradation of stream and coastal waters.

We appreciate your input in the planning of the proposed highway improvements.

Very truly yours,

Edward Y. Hirata
Director of Transportation

HANNIBAL TAVARES
Mayor
TELEPHONE 244-7855
CMO

OFFICE OF THE MAYOR
COUNTY OF MAUI
WAILUKU, MAUI, HAWAII 96793

June 19, 1987

Mr. Edward Y. Hirata, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Hirata:

SUBJECT: HONOAPIILANI HIGHWAY, PUAMANA TO HONOKOWAI, PROJECT NOS. 30AB-01-85 & 30AB-01-87

Thank you for your letter dated June 15, 1987 informing me of the Environmental Impact Statement Preparation Notice for the Honoapiilani Highway, Puamana to Honokowai Improvement Project.

This project, including both the widening of the existing highway and provision of a by-pass highway, is essential to the solution of the severe traffic congestion problem in West Maui. I will very much appreciate your expediting the approval and implementation of this project as much as possible.

Please let me know if there is anything I can do to assist you in this matter.

Very truly yours,

Hannibal Tavares

HANNIBAL TAVARES
Mayor, County of Maui

cc: Planning Director
Public Works Director
W.S. Haines, Executive Assistant

JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO
HWY-PA
2.96501

July 28, 1987

The Honorable Hannibal Tavares
Mayor
County of Maui
Wailuku, Hawaii 96793

Dear ~~Mayor Tavares~~ Hannibal:

Honoapiilani Highway, Puamana to Honokowai,
Project Nos. 30AB-01-85 & 30AB-01-87

Thank you for your letter of June 19, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

We will consider your comment that both widening the existing highway and providing a by-pass highway are essential to the solution of the severe traffic congestion in West Maui. We are expediting the development of this project as much as possible.

We appreciate your input and your offer of assistance in the planning of the proposed highway improvements.

Very truly yours,

Ed

Edward Y. Hirata
Director of Transportation

HANNIBAL M. TAVARES
Mayor

HENRY T. S. LAU
Director of Finance

Gerald S. Matsui
Deputy Director of Finance

COUNTY OF MAUI
DEPARTMENT OF FINANCE
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

July 29, 1987

Mr. Edward Y. Hirata
Director of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Subject: Honoapiilani Highway, Puamana to Honokowai,
Project Nos. 30AB-01-85 & 30AB-01-87

We have no substantive comments to make on the proposed project, except to agree that there will be probable beneficial as well as adverse inpacts with the new highway; and that we await this development anxiously but with mixed emotions. On one hand, we know the highway is needed to speed traffic along and to spur progress and development; but yet, on the other hand, we hate to see all the greenery and prime agricultural land disappear. However, this has happened before at other locations, and we continued to survive.

We wish you well on this project.

Very truly yours,

Henry T. S. Lau
Director of Finance

HSTL:cm

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HANNIBAL TAVARES
Mayor

MARILYN M. MONIZ
Director

KENJI KAWAGUCHI
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PARKS AND RECREATION

1580 Kaahumanu Avenue
Wailuku, Maui, Hawaii 96793

Ref. to:
HWY-PA 2.95387

June 25, 1987

Mr. Edward Y. Hirata, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Re: Honoapiilani Highway, Puamana to Honokowai.
Project Nos. 30AB-01-85 & 30AB-01-87

We have reviewed the EIS Preparation Notice for the above-named project, and have the following concerns:

Will the widening of the highway have an impact on Lahaina Civic Center, Lahaina Recreation Center, and Puamana Beach Park as far as established boundary lines are concerned? If so, to what extent will this project affect our park boundaries (especially Puamana Beach Park)? Based on this, we may recommend certain safety precautions for park users such as fencing and/or a turning lane into the Park for traffic approaching from the Wailuku direction.

Thank you for allowing us the opportunity to comment. Should you have any questions, please call me at 244-9018.

Very truly yours,

Marilyn Moniz-Kahoohanohano

MARILYN MONIZ-KAHOOHANOHANO
Director

MMK:MA:jm

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JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO:
HWY-PA
2.96511

July 30, 1987

Ms. Marilyn Moniz-Kahoohanohano
Director
Department of Parks and Recreation
County of Maui
1580 Kaahumanu Avenue
Wailuku, Hawaii 96793

Dear Ms. Moniz-Kahoohanohano:

Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 and 30AB-01-87

Thank you for your letter of June 25, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

At this time, we do not anticipate affecting the boundary lines of the Lahaina Civic Center, Lahaina Recreation Center and Puamana Beach Park.

We appreciate your input in the planning of the proposed highway improvements.

Very truly yours,

Edward Y. Hirata

Edward Y. Hirata
Director of Transportation

HANNIBAL TAVARES
Mayor

CHRISTOPHER L. HART
Planning Director
RALPH N. MASUDA
Deputy Planning Director

COUNTY OF MAUI
PLANNING DEPARTMENT
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

July 15, 1987

Mr. Edward Y. Hirata
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

RE: EIS Preparation Notice-Honoapiilani Highway Project Nos. 30AB-01-85
30AB-01-87

Thank you for sending us a copy of the subject EIS Preparation Notice. We hereby offer the following comments:

1. The environmental impact statement should address the effects of the proposed action on the cemeteries situated at Aholo Road and Honoapiilani Highway.

2. The document should also address the projects' effects on State and County parks and other facilities.

3. The environmental impact statement should contain adequate social, environmental and economic information and discussion on each alignment studied, and also appropriate comparative analyses between them.

Should there be any questions, please contact my office at any time.

Sincerely yours,

Ralph Masuda

for CHRISTOPHER L. HART
Planning Director

JC/jas

cc Mayor Tavares
Joseph Ventura

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JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO
HWY-PA
2.96599

July 31, 1987

Mr. Christopher L. Hart
Planning Director
Planning Department
County of Maui
200 S. High Street
Wailuku, Hawaii 96793

Dear ~~Mr. Hart~~ Chris:

Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 and 30AB-01-87

Thank you for your letter of July 15, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

The Draft Environmental Impact Statement will address the effects of the proposed highway improvements on 1) the cemeteries situated at Aholo Road and Honoapiilani Highway, and 2) the State and County parks and other facilities. The environmental statement will have social, environmental and economic information and discussion of the alignments developed including appropriate comparisons.

We appreciate your input in the planning of the proposed highway improvements.

Very truly yours,

Ed

Edward Y. Hirata
Director of Transportation

Council Chairman
Bob Nakasone

Council Vice-Chairman
Goro Hokama

Council Members
Linda Crockett Lingle
Pat S. Kawano
Howard S. Kihune
Thomas P. Morrow
Wayne K. Nishiki
Velma M. Santos
Joe S. Tanaka

COUNTY COUNCIL
COUNTY OF MAUI
WAILUKU, MAUI, HAWAII 96793

Gwen Yoshimi-Ohashi
Director of Council Services

June 23, 1987

Mr. Tetsuo Harano
Chief, Highways Division
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Harano:

SUBJECT: HONOAPIILANI HIGHWAY - PROJECT NOS. 30AB-01-85 AND 30AB-01-87

As a member of the Maui County Council, I recently received a copy of the Environmental Impact Statement Preparation Notice for the subject project.

While I have no substantive comments to offer at this time, as Chairperson of the Council's Planning and Land Use Committee, I have followed this project with great interest. As such, I would appreciate being a consulted party during the EIS review phase of this project.

Sincerely,

(Mrs.) VELMA M. SANTOS
Chairperson, Planning and
Land Use Committee

VMS:MM:po

HANNIBAL TAVARES
Mayor

ALVIN K. FUKUNAGA
Director

BRIAN HASHIRO, P.E.
Deputy Director

GEORGE KAYA
Highways Division

FRED ARAKI, P.E.
Engineering Division

EDWIN KAGEHIRO P.E.
Waste Management Division

AARON SHINMOTO, P.E.
Land Use and Codes Administration

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

July 14, 1987

Mr. Edward Y. Hirata
Director of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

124

Dear Mr. Hirata:

Subject: Honoapiilani Highway, Puamana to Honokowai,
Project Nos. 30AB-01-85 & 30AB-01-87

Thank you for the opportunity to comment on your EIS preparation notice for the above subject project.

First of all, we are in support of this proposed project and are willing to lend whatever support that we can to see that this project goes through.

Second, the widening of the existing highway should include the adjustment of water valves and sewer manholes to final finish grade. Any other utilities should be relocated, replaced, etc., as necessary.

Third, we recommend a discussion be included on the impact to our force mains and gravity sewer lines during the proposed construction.

Upon the development of a preliminary plan indicating the proposed locations for realignment and widening we would be better able to comment on any possible adverse impacts of this project.

As your plans progress, we would be more than happy to meet with your staff on this matter. Please feel free to call us if we can be of further assistance.

Very truly yours,

ALVIN K. FUKUNAGA
Director of Public Works

JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO
HWY-PA
2.96598

Mr. Alvin K. Fukunaga
Director
Department of Public Works
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Dear Mr. Fukunaga:

Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 and 30AB-01-87

Thank you for your letter of July 14, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

We will include a discussion of the project's impact to the County's force mains and gravity sewer lines during the proposed construction for the widening alternative. Coordination with your agency concerning any adjustments, relocations or replacement of affected utilities will be accomplished in the design phase of this project.

Thank you for your offer of assistance.

We appreciate your input in the planning of the proposed highway improvements.

Very truly yours,

Edward Y. Hirata
Director of Transportation

HANNIBAL TAVARES
Mayor

ROBERT AGRES, JR.
Director

MARLENE MANEHA
Deputy Director

County of Maui
DEPARTMENT OF HUMAN CONCERNS
Housing Division
200 South High Street
Wailuku, Maui, Hawaii 96793
Telephone: 244-7752, 244-7849, 244-7822

June 18, 1987

Mr. Edward Y. Hirata, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Subject: Honoapiilani Highway, Puamana to Honokowai, Project Nos. 30AB-01-85 & 30AB-01-87, Ref. No. HWY-PA 2.95387

In response to your June 15, 1987 letter, please be advised that we have reviewed the Environmental Impact Statement Preparation Notice for the subject project, and wish to inform you that the County's Komohana Hale Subdivision is proposed for development on a 7.5 acre parcel which abuts the Honoapiilani Highway.

The Komohana Hale Subdivision is proposed for development between Honoapiilani Highway and Mill Street (cane haul road), from the Aholo Road extension to the vicinity of the Kauaula Road extension. Please refer to the attached map.

The subdivision improvements for the Komohana Hale Subdivision have been designed on the basis of the road right-of-way for the Honoapiilani Highway remaining at its present width. Any decision to widen the Honoapiilani Highway will have an adverse impact on our proposed housing project.

Please contact Mr. Edwin Okubo of our Housing Division if you have any question.

Very truly yours,

ROBERT AGRES, JR.
Director of Human Concerns

ETO:jkh
Attachment
cc: Mr. Edwin Okubo w/attachment
Mr. Albert Saiki w/attachment

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JOHN D WAIHEE
GOVERNOR

EDWARD Y HIRATA
DIRECTOR

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

IN REPLY REFER TO:
HWY-PA
2.96500

July 28, 1987

Mr. Robert Agres, Jr.
Director
Department of Human Concerns
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Dear Mr. Agres:

Honoapiilani Highway, Puamana to Honokowai,
Project Nos. 30AB-01-85 & 30AB-01-87

Thank you for your letter of June 18, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

We will consider the impacts of the widening alternative on your proposed housing project, Komohana Hale Subdivision.

We appreciate your input in the planning of the proposed highway improvements.

Very truly yours,

Edward Y. Hirata
Director of Transportation

POLICE DEPARTMENT
COUNTY OF MAUI
P. O. BOX 1029
WAILUKU, HAWAII 96793
AREA CODE (808) 244-7811

OUR REFERENCE
KD:tg
YOUR REFERENCE

JOSEPH CRAVALHO
CHIEF OF POLICE

HOWARD H. TAGOMORI
DEPUTY CHIEF OF POLICE

July 28, 1987

Mr. Tetsuo Harano
Chief, Highways Division
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Harano:

Please be informed that we have received and reviewed your Environmental Impact Statement Preparation Notice. Our concern is in the construction phase, the re-routing of traffic where need be, traffic control and part of the construction impacts that you have pointed out.

Regarding the flow of traffic, it is of great concern that there be at least three lanes that will be made available for vehicular travel, especially where there are three lanes already established. Take for example the construction that is occurring at Kahoma Bridge: at first the by-pass route at the bridge called for just two lanes, both travelling in opposite directions, and Front Street serving as an alternate route. When this was made public, the people living and working on the West side showed great concern. A special meeting took place with members of the State Highway Division, County Public Works, Police, Councilman, and community leaders attending. A study of the use of Front Street as an alternate route was not feasible; other traffic problems on Front Street would be created, adding a greater flow of traffic to the already congested Front Street. A final solution, acceptable to all, was adding a third lane to the by-pass route.

Traffic control by private contractors hired by the State has been a problem in the past. We have not always seen the best effort by contractors in hiring personnel for directing traffic. Honoapiilani Highway, according to the State highway vehicle count in the Lahaina area, was said to run as high as 29,000 vehicles in a 24-hour period. There were incidents in which construction workers, with no experience or proper equipment, were used to direct traffic. Many times private security personnel are hired, and they, too, lack the proper training and equipment in directing traffic. We realize the cost factor of hiring qualified personnel, but we feel you must take into consideration the jeopardy of peoples lives when dealing with the contractors and their choice of traffic control.

We noticed that you have addressed construction impacts in the EIS Preparation Notice. Noise levels will be compared with Federal and State noise level criteria; dust created at the job site can be controlled by watering down the area, especially in the residential areas.

In closing, we are pleased that the State is taking steps to help alleviate a major traffic problem in the Lahaina area. Please feel free to call upon this Department for assistance.

Very truly yours,

JOSEPH CRAVALHO
Chief of Police

JOHN WAIHEE
GOVERNOR

EDWARD Y HIRATA
DIRECTOR

DEPUTY DIRECTORS
JOHN K UCHIMA
RONALD N HIRANO
DAN T KOCHI

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

IN REPLY REFER TO
HWY-PA
2.97138

September 10, 1987

Mr. Joseph Cravalho
Chief of Police
Police Department
County of Maui
P.O. Box 1029
Wailuku, Hawaii 96793

Dear Mr. Cravalho:

Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 and 30AB-01-87

Thank you for your letter of July 28, 1987 commenting on the Environmental Preparation Notice for the subject project.

To minimize the inconvenience to the public during the construction period, we are planning to keep at least 3 traffic lanes available for vehicular travel in the current 3-lane section. Also, we will provide for qualified personnel to be used to direct traffic during the construction period.

Dust problems at the construction site will be minimized by watering or other appropriate measures. These measures will apply to both the interim project of adding the fourth (north-bound) lane and the ultimate improvements for additional corridor lanes.

We appreciate your input in the planning of the proposed highway improvements.

Very truly yours,

Edward Y. Hirata
Director of Transportation

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United States Department of Agriculture
Agricultural Stabilization and Conservation Service
P. O. Box 50008
Honolulu
Hawaii 96850

June 23, 1987

Mr. Edward Y. Hirata
Director of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Hirata:

Thank you for informing us on this proposed project (Project Nos. 30AB-01-85 and 30AB-01-87).

We do not have any comments regarding the probably benefits nor adverse impacts on this plan.

Yours very truly,

Ralph K. Ajifu
State Executive Director
Hawaii State ASCS Office

ASCS

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT. SHAFTER, HAWAII 96858 - 5440

REPLY TO ATTENTION OF:

July 6, 1987

Mr. Edward Y. Hirata
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Thank you for the opportunity to review and comment on the EIS Preparation Notice for Honoapiilani Highway, Puamana to Honokowai, County of Maui. The following comments are offered:

a. The need for a Department of the Army permit will be addressed when more information is available for the stream crossing. Suggest coordination with Operations Branch at telephone 438-9258.

b. Since the highway will cross Kahoma Stream, planning and construction plans should also be coordinated with Mr. Clarence Lee of Planning Branch at telephone 438-1907.

c. Approximate Flood Insurance Rate Maps for site evaluations are given since tax map keys (TMK) were not provided. TMKs will be needed for final input. The following are possible site designations:

1) Foldout 1 - Zones A4 (with base flood elevation of 17 feet mean sea level) and Zone C.

2) Foldout 2 - Zones C and B.

3) Foldout 3 - Zones A2 (with base flood elevation of 14 feet mean sea level) and Zone A.

4) Map 4 - Zone C only.

5) Map 5 - Zone C and Zone A4.

c. Flood Zone Designations.

1) Zone A4 - Areas within the limits of the 100-year flood. Under the National Flood Insurance Program,

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floodproofing is mandatory for proposed development in A-numbered zones.

2) Zone C - Areas of minimal flooding and not considered flooplain area.

3) Zone B - Areas subject to 100-year flooding with average depths of less than 1-foot. Floodproofing is not required.

4) Zone A2 - Special flood hazard areas inundated by the 100-year flood. Floodproofing is mandatory.

Sincerely,

Enclosures

Kisuk Cheung
Chief, Engineering Division

JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO:
HWY-PA
2.96509

July 30, 1987

Mr. Kisuk Cheung
Chief, Engineering Division
Department of the Army
U.S. Army Engineering District, Honolulu
Building 230
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Cheung:

Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 and 30AB-01-87

Thank you for your letter of July 6, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

Our response to your comments follows:

a. We will coordinate with your Operations Branch when more details are developed that will address the need for a Department of Army permit.

b. We will coordinate the planning and construction plans for the crossing of Kahoma Stream with Mr. Lee of your Planning Branch.

c. We will consider the requirements for construction in the Flood Zone designated areas.

We appreciate your input in the planning of our proposed highway improvements.

Very truly yours,

Edward Y. Hirata
Director of Transportation

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P.O. BOX 50167
HONOLULU, HAWAII 96850

ES
Room 6307

JUN 29 1987

Mr. Tetsuo Harano
Chief, Highways Division
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Re: Honoapiilani Highway, Puamana to Honokowai, Project Nos. 30AB-01-85 and 30AB-01-87, Maui

Dear Mr. Harano:

We have reviewed the June 15, 1987 Preparation Notice for the proposed project and offer the following comments for your consideration.

The Draft Environmental Impact Statement should include the following:

a. A description of freshwater species inhabiting Kauaula, Kahoma, and Honokowai streams that may be affected by replacement and improvement of bridge crossings;

b. A description of nearshore marine fishery resources that may be affected by highway and bridge improvements;

c. A description of mitigation measures to protect freshwater and marine habitats from degradation associated with construction activities. Potential mitigation measures include erosion control of cleared areas and careful location of stockpile and grubbed materials to avoid runoff into streams and coastal waters.

We appreciate this opportunity to comment.

Sincerely,

Ernest Kosaka

Ernest Kosaka
Project Leader, Environmental Services
Pacific Islands Office

cc: DLNR

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

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JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO:
HWY-PA
2.96462

July 28, 1987

Mr. Ernest Kosaka
Project Leader, Environmental Services
Pacific Islands Office
U.S. Department of the Interior
Fish and Wildlife Service
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

Dear Mr. Kosaka:

Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 and 30AB-01-87

Thank you for your letter of June 29, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

The Draft Environmental Impact Statement will include the following:

a. A description of freshwater species inhabiting Kauaula, Kahoma, and Honokowai streams that may be affected by replacement and improvement of bridge crossings;

b. A description of nearshore marine fishery resources that may be affected by highway and bridge improvements; and

c. A description of mitigation measures to protect freshwater and marine habitats from degradation associated with construction activities. Potential mitigation measures include erosion control of cleared areas and careful location of stockpile and grubbed materials to avoid runoff into streams and coastal waters.

We appreciate your input in the planning of the proposed highway improvements.

Very truly yours,

Edward Y. Hirata
Director of Transportation

U.S. Department of Housing and Urban Development
Honolulu Office, Region IX
300 Ala Moana Blvd., Room 3318, Box 50007
Honolulu, Hawaii 96850-4991

87-125

June 22, 1987

Mr. Edward Y. Hirata
Director of Transportation
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Hirata:

SUBJECT: Environmental Impact Preparation Notice
Honoapiilani Highway, Puamana to Honokowai
Projects Nos. 30AB-01-85 and 30AB-01-87

We have reviewed the subject notice regarding the preparation of a Draft EIS on the proposed improvement and/or realignment of the Honoapiilani Highway. We recommend that the Draft EIS discuss the existing and projected (to the year 2005) noise levels generated by vehicular traffic.

Noise should be evaluated in terms of day-night sound level as DNL at several locations, i.e., each end of the project area and near Lahainaluna Road to show the different noise levels.

We appreciate the opportunity to comment on the subject notice and look forward to receiving the Draft EIS.

If you have any questions please feel free to contact Frank Johnson at 541-1326.

Sincerely,

Calvin Lew
Director
Community Planning and
Development Division, 9.2C

JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO:
HWY-PA
2.96460

July 28, 1987

Mr. Calvin Lew, Director
U.S. Department of Housing and
Urban Development
300 Ala Moana Blvd., Room 3318
Box 50007
Honolulu, Hawaii 96850

Dear Mr. Lew:

Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 and 30AB-01-87

Thank you for your letter of June 22, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

The Draft EIS will discuss the existing and projected (to the year 2005) noise levels generated by vehicular traffic. The noise will be evaluated in terms of day-night sound level as DNL at various locations including each end of the project area and near Lahainaluna Road to show different noise levels.

We will send you a copy of the Draft EIS when it is prepared.

We appreciate your input to the planning of the proposed highway improvements.

Very truly yours,

Edward Y. Hirata
Director of Transportation

United States Department of the Interior

GEOLOGICAL SURVEY

Water Resources Division
P.O. Box 50166
Honolulu, Hawaii 96850

September 10, 1987

Mr. Edward Y. Hirata
Director of Transportation
Department of Transportation
State of Hawaii
880 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

We have reviewed the Environmental Impact Statement (EIS) Preparation Notice for Project Nos. 30AB-01-85 and 30AB-01-87, Honoapiilani Highway, Puamana to Honokowai. We noticed that the projects impact on flooding in the area of concern was not mentioned in the Preparation Notice. We assume that this was an oversight and the subject of flooding will be included in the EIS.

We have no other comments at this time. Thank you for giving us the opportunity to comment on this EIS preparation Notice.

Sincerely,

William Meyer
District Chief

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JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO:
HWY-PA
2.97595

October 5, 1987

Mr. William Meyer
District Chief
U.S. Department of Interior
Geological Survey
Water Resources Division
P.O. Box 50166
Honolulu, Hawaii 96850

Dear Mr. Meyer:

Honoapiilani Highway, Puamana to Honokowai,
Project Nos. 30AB-01-85 & 30AB-01-87

Thank you for your letter of September 10, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

We will consider the project's impact on flooding in the project area.

We appreciate your input in the planning of the proposed highway improvements.

Very truly yours,

Edward Y. Hirata
Director of Transportation

UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

P. O. BOX 50004
HONOLULU, HAWAII
96850

July 6, 1987

Mr. Edward Y. Hirata, Director
State Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata

Subject: Honoapiilani Highway, Pusmana to Honokowai,
Project Nos. 30AB-01-85 & 30AB-01-87

We have no comments to offer at this time; however, we would appreciate the opportunity to review the draft EIS on this project.

Sincerely,

RICHARD N. DUNCAN
State Conservationist

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HAWAIIAN TEL GTE

Hawaiian Telephone Company
P.O. Box 370
Wailuku, Hawaii 96793

Telephone (808) 242-5276

July 9, 1987

State of Hawaii
Deptartment of Transportation
869 Punchbowl Street
Honolulu, Hi 96813

Subject: EIS Preparation Notice for Honoapiilani Highway, Puamana to Honokowai Highway PA 2.95387

Gentlemen:

Thank you for informing us of the proposed project and giving us the opportunity to provide you with our comments to assist you in your plan development.

We are assuming that the joint poleline along the mauka side of Honoapiilani Highway will be affected in some areas because of the widening. Any forced relocation of the pole line will probably have an adverse impact on the over-all construction schedule. Some of the probable adverse conditions are:

1. Until definite plans are available, funds cannot be budgeted for our construction.
2. Should new cables be required, a lead time of six months is necessary for ordering and delivery of special cables.
3. A construction period of six months will be required depending on the scope of work.

We would appreciate receiving preliminary plans as soon as it becomes available. Joe Santos, Outside Plant Engineer, is the person to contact (phone 242-5104) should you have any questions.

Sincerely,

Ron Saito
Supervising Engineer

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JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

AUG 1987

IN REPLY REFER TO
HWY-PA
2.96597

Mr. Ron Saito
Supervising Engineer
Hawaiian Telephone Company
P.O. Box 370
Wailuku, Hawaii 96793

Dear Mr. Sato:

Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 and 30AB-01-87

Thank you for your letter of July 9, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

We will consider the impacts of our highway improvements on your company's joint poleline along the mauka side of Honoapiilani Highway. We are developing several corridor alternatives and have not made a final decision on the alternative to be constructed.

Our Maui District Engineer will be coordinating with your staff, our interim plans to add another northbound lane on Honoapiilani Highway.

We appreciate your input in the planning of the proposed highway improvements.

Very truly yours,

Edward Y. Hirata
Director of Transportation

MAUI ELECTRIC COMPANY, LTD. · 210 WEST KAMEHAMEHA AVENUE · PO BOX 398 · KAHULUI MAUI HI 96732-0398 · (808) 871-8461

GOV
M-W

HEI

June 25, 1987

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

Attention: Mr. Edward Y. Hirata
Director of Transportation

Dear Mr. Hirata:

Subject: Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 & 30AB-01-87

This is in reply to your letter of June 15, 1987 concerning our comments pertaining to the subject project.

The impact of this project on Maui Electric Company is as follows:

1. Approximately 7 miles of overhead electric facilities would need to be relocated. A project of this magnitude will require extensive use of our engineering and construction manpower.

2. A rough cost estimate for the relocation of the electric facilities is $1.3 million, of which half will be borne by Maui Electric Company.

Thank you for this opportunity to provide comments. Please contact me at 871-8461 if there are any questions.

Sincerely,

Calvin A. Kuwanoe
Manager, Engineering

SK:rt

A Hawaiian Electric Industries Company

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JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO:
HWY-PA
2.96461

July 28, 1987

Mr. Calvin A. Kuwanoe
Manager, Engineering
Maui Electric Company, Ltd.
210 West Kamehameha Avenue
Kahului, Hawaii 96732-0398

Dear ~~Mr. Kuwanoe~~ Calvin:

Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 and 30AB-01-87

Thank you for your letter of June 25, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

We will consider the impacts of our highway improvements on electric facilities of the Maui Electric Company.

We appreciate your input to the planning of the proposed highway improvements.

Very truly yours,

Edward Y. Hirata
Director of Transportation

PIONEER MILL COMPANY, LIMITED

Growers of sugar cane and producers of raw sugar

P. O. Box 727
Lahaina, Hawaii 96761

July 16, 1987

Mr. Edward Y. Hirata
Director of Transportation
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, HI 96813

Gentlemen:

Honoapiilani Highway, Puamana to Honokowai
Project No. 30AB-01-85 & 30AB-01-87

We are in receipt of a copy of your Environmental Impact Statement Preparation Notice for the above mentioned project. Regarding this project, we would like to make the following comments:

-Pioneer Mill Company, Limited must be closely consulted during the planning of this project. Regardless of which alignment is chosen, there are many impacts to PMCo's facilities which will have to be addressed, including cane haul road circulation, irrigation system, operations and harvesting schedules, drainage, etc. We would like to see these impacts minimized and feel that our assistance will be useful in this regard.

-The Preparation Notice is unclear as to the actual proposed work. We assume this EIS will be for the by-pass road which has recently been proposed.

-Some discussion has occurred recently which tends to support an alignment through the PMCo millyard. The mill operation is critical to PMCo. We agree that a by-pass road is needed in West Maui, and we wish to cooperate with the state to that end. However, at this point in time we prefer to see the state choose the mauka alignment as recommended by the ad-hoc committee.



We would appreciate receiving any additional information which you can provide regarding this project. We stand willing and able to assist your office in the planning of this project. Please feel free to call me at 661-0592 to discuss this matter further.

Very truly yours,

PIONEER MILL COMPANY, LTD.

John C. Hance

J. C. Hance
President and Manager

JCH/MB:vk

cc: D. Gleason
M. Burke

JOHN D. WAIHEE
GOVERNOR

EDWARD Y. HIRATA
DIRECTOR

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

IN REPLY REFER TO
HWY-PA
2.96600

AUG 3 1987

Mr. J. C. Hance
President and Manager
Pioneer Mill Company, Ltd.
P.O. Box 727
Lahaina, Hawaii 96761

139

Dear Mr. Hance:

Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 and 30AB-01-87

Thank you for your letter of July 16, 1987 commenting on the Environmental Impact Statement Preparation Notice for the subject project.

As our plans are developed, we will be working closely with you to address the impacts to your facilities and to minimize these impacts.

The Preparation Notice states that "the proposed action involves the widening and/or realignment of a section of Honoapiilani Highway (FAP 30)"..."extending from the vicinity of the Puamana Beach Park to the vicinity of Honokowai." Currently we are studying several corridor alternatives including widening along the existing highway alignment and several new mauka alignment alternatives. The Draft EIS will discuss all of these alternatives. The Final EIS will focus on the recommended or selected alternative.

We are including your preferred mauka alignment alternative in our studies. We will provide your company with additional information as our plans are developed.

We appreciate your input and your offer of assistance in the planning of the proposed highway improvements.

Very truly yours,

Edward Y. Hirata
Director of Transportation

Lahainatown Operators Association

June 16, 1986

MEMO:TO: Mayor Hannibal Tavares and Ad Hoc Committee

FROM: Lahainatown Operators Association

RE: Short term and Long term suggestion for West Maui Traffic

In response to the request for short and long term solutions, please be advised that our Association met and have the following suggestions:

SHORT TERM SUGGESTIONS

1. Make third lanes (passing) alternately from Lahaina to Airport Road on the other side of the Pali:

   a. Passing lane south from Puamana to Launiupoku Park
   b. Passing lane north from Olowalu to Dump road
   c. Passing lane from Olowalu south to Lone Pine Bridge
   d. Passing lane from Pali north to just before Lone Pine Bridge
   e. At least one passing lane going both ways on Airport Road
   f. a passing lane from Pali to Kihei turn-off going Wailuku direction.

Reason: The marked passing lanes would allow traffic to flow from the Pali to and thru Lahaina so it would not be backed up before it even got to Lahaina.

2. Speed signs made larger as speed changes, especially 30 and 55 MPH signs.
3. Until thrid lanes are completed, no two speed signs ie 55/45, one or the other.
4. Traffic light at Shaw/ Honoaliilani with left and right turn lane.
5. Destination parking lots at Shaw, Puunene and Maalaea with bus transportation from these points to Lahaina Town, Kaanapali and Kapalua.
6. All majot employers create car pooleing for their different shifts.
7. Right turn lanes at strategic points - mostly at lights.
8. Police to monitor, enforce and promote the law on impeding traffic. minimum speed limit signs
9. Change left turn lane arrows to green instead of red after arrow traffic is complet ie the light at Puunene and Kaahamanu Avenue
10. Better signeage for Lahaina District from Puamana and to Chart house Highway. next 3 exists Lahaina etc

LONG TERM SUGGESTIONS

1. Extend and Complete highway from Kapalua to Wailuku.
2. Lahaina By-Pass
3. Look at feasibility of another two lane above the Pali Highway - as far as the end of some of the gullies.
4. Four lanes wherever possible

We thank you for your attention and will be willing to expand on any of the above suggestions.

Sincerely yours,

Sharon Lawrence, Chairperson, HUI LOA

P.O. Box 338 · Lahaina, Maui · Hawaii 96761

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P O BOX 50167
HONOLULU, HAWAII 96850

IN REPLY REFER TO:
ES
Room 6307
JUN 27 1985

Mr. Wayne Yamasaki, Director of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Re: Environmental Impact Statement (EIS) Preparation Notice (PN), Honoapiilani Highway Improvement Project, Maui

Dear Mr. Yamasaki:

The U.S. Fish and Wildlife Service has reviewed the referenced document and offers the following comments for your consideration.

It is our understanding that the proposed highway improvements will cross over the Kahoma and Kauaula Streams. The EIS should specify whether the existing stream crossings will remain or whether new structures will be constructed. The Service recommends that heavy machinery work and construction in the stream beds be limited as much as possible. 141

We appreciate this opportunity to comment.

Sincerely yours,

Ernest Kosaka

Ernest Kosaka
Project Leader
Office of Environmental Services

cc: RD, FWS, Portland, OR (AHR)
EPA, San Francisco
DLNR

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

JOHN WAIHEE
GOVERNOR

CHARLES T. TOGUCHI
SUPERINTENDENT

STATE OF HAWAII
DEPARTMENT OF EDUCATION
LAHAINALUNA HIGH SCHOOL
FOUNDED 1831
980 LAHAINALUNA ROAD
LAHAINA, HAWAII 96761-1399

January 14, 1988

Mr. Ed Hirata
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

142

Dear Mr. Hirata:

May I express my concern over the possibility of building the planned Lahaina Highway through the Lahainaluna High School property that borders the Lahainaluna campus and the Lahaina Intermediate and Kamehameha III Elementary School Extension property.

Lahainaluna has been designated a Learning Center by the Department of Education for the agriculture program and taking away that lower campus property is taking away our learning center land area. The area is also designated for future expansion of the school as this site is the only available site left for expansion of the school as our school population increases.

The high traffic volume and noise to be created by the highway running between the campuses is not conducive to the health and safety of the students and to good learning.

The stream that runs at the end of the property is very deep and to cross the stream poses a cost and engineering problem. Crossing at the Ikena Street site and the Pioneer Mill property areas are much more cost effective. The Ikena Street site was the planned site and I cannot understand the need to take away our valuable school property by the State.

I sincerely hope that other alternatives will be considered as our entire school community is opposed to this proposed plan to take away part of our school property.

Sincerely yours,

Mitsuji Ariyoshi
Principal

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

XIII. LIST OF AGENCIES, ORGANIZATIONS AND PERSONS TO WHOM COPIES OF THE DRAFT EIS ARE SENT

ORGANIZATIONS AND AGENCIES

Agencies	Date of Comment	Disposition
Federal		
National Oceanic and Atmospheric Administration - U.S. Department of Commerce	1/17/89	EP
Forest Service U.S. Department of Agriculture	NCR	NRR
Federal Aviation Administration Department of Transportation	NCR	NRR
Agricultural Stabilization and Conservation Service - U.S. Department of Agriculture	12/23/88	NRR
Soil Conservation Service, Honolulu Office - U.S. Department of Agriculture	1/23/89	RP-3/07/89
Fish and Wildlife Service, Pacific Division - U.S. Department of Interior	NCR	NRR
Federal Energy Administration	12/22/88	NRR
District Engineer, U.S. Army Corps of Engineers - Honolulu District	2/02/89	RP-3/07/89
National Marine Fisheries Service U.S. Department of Commerce	NCR	NRR
Geological Survey U.S. Department of Interior	1/27/89	EP

RP- Response Provided to Commenter
NCR- No Comment Received
NRR- No Response Required
EP- Evaluation Provided in FEIS

Agencies	Date of Comment	Disposition
U.S. Department of Housing and Urban Development	1/06/89	NRR
Environmental Protection Agency	1/25/89	EP
U.S. Department of the Interior Office of the Secretary	2/17/89	EP
Department of the Navy Commander Naval Base Pearl Harbor	1/04/89	NRR
Commandant, U.S. Coast Guard Department of Transportation 14th Coast Guard District	1/19/89	RP-3/07/89
Economic Development Administration - U.S. Department of Commerce	NCR	NRR
Senator Daniel K. Inouye United States Senate	12/22/89	NRR
Senator Spark Matsunaga United States Senate	12/19/89	NRR
State Agencies		
The Honorable Richard Kahle, Jr. Director Department of Taxation	1/24/89	NRR
The Honorable Marvin T. Miura, Ph.D., Director - Office of Environmental Quality Control	NCR	NRR
The Honorable John Lewin Director Department of Health	NCR	NRR

RP- Response Provided to Commenter
NCR- No Comment Received
NRR- No Response Required
EP- Evaluation Provided in FEIS

Agencies	Date of Comment	Disposition
The Honorable Russel S. Nagata Director Department of Accounting and General Services	1/17/89	EP
Mr. John Harrison, Ph.D. Environmental Coordinator Environmental Center	2/01/89	EP
Mr. Shinji Soneda Environmental Health Division Department of Health	1/18/89	RP-3/7/89
Department of Land and Natural Resources HCRS Office	1/31/89	See BLNR 2/7/89
The Honorable Roger Ulveling Director - Department of Business and Economic Development	NCR	NRR
The Honorable Joseph K. Conant Executive Director Housing Finance and Development Corporation	2/02/89	RP-3/07/89
Fish and Game Division Department of Land and Natural Resources	NCR	NRR
The Honorable Winona Rubin Director Department of Social Services and Housing	NCR	NRR
General Alexis Lum Office of the Adjutant General Department of Defense	12/20/88	NRR

RP- Response Provided to Commenter
NCR- No Comment Received
NRR- No Response Required
EP- Evaluation Provided in FEIS

Agencies	Date of Comment	Disposition
State Parks Division Department of Land and Natural Resources	NCR	NRR
The Honorable William W. Paty Director & Chairperson Board of Land and Natural Resources Department of Land and Natural Resources	2/7/89	EP
The Honorable Charles T. Toguchi Superintendent Department of Education	See Department of Accounting and General Services	
The Honorable Ilima Piianaia Director Department of Hawaiian Home Lands	12/29/88	NRR
The Honorable Yukio Kitagawa Director and Chairperson Board of Agriculture Department of Agriculture	2/6/89	EP
Kamaki Kanahele, Director Office of Hawaiian Affairs	12/27/88	RP-1/27/89
State Legislators		
The Honorable Richard Wong Senate President State Capitol	NCR	NRR
The Honorable Daniel J. Kihano Speaker of the House State Capitol	NCR	NRR
Libraries		
Wailuku Public Library	NCR	NRR

RP- Response Provided to Commenter
NCR- No Comment Received
NRR- No Response Required
EP- Evaluation Provided in FEIS

Agencies	Date of Comment	Disposition
State of Hawaii Hawaii State Library (Main Branch) Reference Desk	NCR	NRR
Lahaina Public Library	NCR	NRR
Maui County Agencies		
Mr. Robert Nakasone, Chairman Maui County Council	2/18/89	NRR
Mr. Henry Lau, Director Department of Finance County of Maui	1/23/89	NRR
Mr. Howard Tagamori, Chief Police Department County of Maui	NCR	NRR
Ms. Ann Takabuki Managing Director County of Maui	NCR	NRR
Mr. Alvin Fukunaga, Director Department of Public Works	2/07/89	RP-4/04/89
Mr. Christopher Hart, Director Department of Planning County of Maui	NCR	NRR
The Honorable Hannibal M. Tavares, Mayor, County of Maui	12/21/88	NRR
Mr. Selberio Menor Administrator, Civil Defense Agency, County of Maui	NCR	NRR
Mr. Fred Matsumoto Economic Development Coordinator Office of Economic Development	12/19/88	RP-1/27/89

RP- Response Provided to Commenter
NCR- No Comment Received
NRR- No Response Required
EP- Evaluation Provided in FEIS

Agencies	Date of Comment	Disposition
Mr. Robert J. Agres Jr., Director Department of Human Concerns County of Maui	1/31/89	RP-3/07/89
Ms. Marilyn Moniz Kahoohanohano Director, Department of Parks and Recreation, County of Maui	1/04/89	NRR
Mr. Roger Melrose, Chairman Maui County Traffic Safety Council	NCR	NRR
Mr. Herbert Campos, Chief Department of Fire Control County of Maui	NCR	NRR
Mr. Vince Bagoyo, Jr., Director Department of Water Supply County of Maui	12/20/88	RP-1/27/89
Mrs. Velma M. Santos Planning Commission County of Maui	NCR	NRR
Public Utilities		
Hawaiian Telephone Company	NCR	NRR
Maui Electric Company	2/01/89	RP-3/07/89
Other Organizations/Individuals		
Executive Director Maui Chamber of Commerce	2/06/89	RP-3/23/89
Mr. Wayne Hedani, Chairman Governmental Affairs Committee Maui Chamber of Commerce	NCR	NRR
Maui Contractors Association	NCR	NRR

RP- Response Provided to Commenter
NCR- No Comment Received
NRR- No Response Required
EP- Evaluation Provided in FEIS

Agencies	Date of Comment	Disposition
Ms. Lynn Britton, Maui Hotel Association	NCR	NRR
Mr. Miles Nishijima, Manager Whalers Village/Shopping Complex Museum	NCR	NRR
Mr. Gary Getman, General Manager Lahaina Kaanapali & Pacific RR	2/05/89	EP
Ms. Linda Rink Commission on the Handicapped Lahaina Civil Club	NCR	NRR
Lahaina Shopping Center Business Association	NCR	NRR
Mr. David Gleason, President Amfac Property Investment Corporation	2/06/89	RP-3/16/89
Mr. R. Brian Tsujimura Amfac Property Development Corp	2/06/89	RP-3/08/89
Mr. Iseo Nishimoto, Chairman Kelawea-Kalena Community Association, Inc.	NCR	NRR
Mr. Mel Gowing, Manager L.K. & Pacific R.R.	NCR	NRR
Maui Farmer's Cooperative Exchange	NCR	NRR
Mr. James Luckey, Chairman West Maui Ad Hoc Committee on Traffic	NCR	NRR

RP- Response Provided to Commenter
NCR- No Comment Received
NRR- No Response Required
EP- Evaluation Provided in FEIS

Agencies	Date of Comment	Disposition
Mr. Charlie Nalepa, Executive Director - Transportation and Utilities Committee West Maui Taxpayers Association	NCR	NRR
Lahaina Restoration Foundation	NCR	NRR
Mr. Mitsuji Ariyoshi, Principal Lahainaluna High School	NCR	NRR
Lahaina Business & Professional Women's Club	NCR	NRR
West Maui Cultural Council	NCR	NRR
Mr. John Hance, President and Manager, Pioneer Mill	NCR	NRR
Mr. K.E. Mathias	NCR	NRR
Ms. Andrea Heath-Blundell	1/05/89	RP-1/13/89
Mr. Brian K. Blundell	1/02/89	RP-2/28/89
D. G. Malcolm	1/29/89	RP-3/13/89
Ms. Mary Lou Kunkel	1/21/89	RP-3/07/89
Ms. Jan Bailey	2/10/89	RP-3/29/89
Kent & Susan Simon	1/14/89	NRR
Mr. Ed Miyabara	2/05/89	EP
Mr. Reuben N. Aotaki	2/11/89	RP-4/04/89
Mr. Richard Darling	7/24/89	EP

RP- Response Provided to Commenter
NCR- No Comment Received
NRR- No Response Required
EP- Evaluation Provided in FEIS

XIV. COMMENTS AND RESPONSES ON THE DRAFT EIS

This section contains copies of comments received on the Draft Environmental Impact Statement. These comments are followed by an evaluation prepared by the State of Hawaii Department of Transportation and the EIS consultants. Section XIII provides a log of all comments received.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
300 South Ferry Street
Terminal Island, CA 90731

January 17, 1989 F/SWR13:JJN

Mr. William R. Lake
Division Administrator
Federal Highway Administration
U.S. Department of Transportation
Box 50206
Honolulu, Hawaii 96850

Dear Mr. Lake:

The NOAA Fisheries, Southwest Region has reviewed the Draft Environmental Impact Statement (DEIS) for Honoapiilani Highway (FAP Route 30), Puamana to Honokowai, County of Maui, State of Hawaii.

In order to provide as timely a response to your request for comments as possible, we are submitting the enclosed comments to you directly, in parallel with their transmittal to the Department of Commerce for incorporation in the Departmental response. These comments represent the views of NOAA Fisheries, Southwest Region. The formal, consolidated views of the Department should reach you shortly.

Sincerely yours,

E C Fullerton
E.C. Fullerton
Regional Director

Attachment

cc:
F/SWR13, Naughton

NOAA Fisheries, Southwest Region DEIS Comments

The Draft Environmental Impact Statement (DEIS) for Honoapiilani Highway (FAP Route 30), Puamana to Honokowai, County of Maui, State of Hawaii has been received by the NOAA Fisheries, Southwest Region for review and comment. The statement has been reviewed and the following comments are offered for your consideration.

General Comments

The proposed action described in the subject DEIS for the most part should not significantly affect resources for which NOAA Fisheries has a responsibility. The one potential exception is the stream crossings at Kauaula Stream and Kahoma Stream which would be necessary regardless of the realignment alternative implemented. Although both streams have been rated as having "low natural quality (degraded severely), native species absent or present in low diversity and abundance", NOAA Fisheries is concerned about potential impacts during construction on marine resource in coastal waters adjacent to the mouth of both streams.

In view of the above, NOAA Fisheries recommends that construction plans contain specific mitigation measures to prevent siltation of stream and coastal waters during construction. Measures should include stream crossing construction only during low flow periods, exclusion of the use of heavy equipment in the stream beds, and the revegetation of cleared areas bordering the streams in order to prevent erosion and discharge of sediments into the streams and coastal waters.

EVALUATION

The DOT's construction plans will contain specific mitigation measures to prevent siltation of stream and coastal waters during construction. Where appropriate, the measures may include stream crossing construction only during low flow periods, exclusion of the use of heavy equipment in the stream beds, and the re-vegetation of cleared areas bordering the streams in order to prevent erosion and discharge of sediments into the streams and coastal waters.

United States Department of Agriculture
Agricultural Stabilization and Conservation Service
P. O. Box 50008
Honolulu, Hawaii
96850

December 23, 1988

Mr. William R. Lake
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
Box 50206
Honolulu, Hawaii 96850

154

Dear Mr. Lake:

This is to inform that this office has no comments to offer at this time to the Draft Environmental Impact Statement for the proposed construction of Honoapiilani Highway between Puamana and Honokowai on the island of Maui.

The draft is returned herewith and we do not desire a copy of the Final Environmental Impact Statement.

Thank you for including us on your list.

Sincerely,

for Ralph K. Ajifu
State Executive Director
Hawaii State ASCS Office

ASCS

UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

P. O. BOX 50004
HONOLULU, HAWAII
96850

January 23, 1989

Mr. Marvin Miura, Director
Office of Environmental Quality Control
465 S. King Street, Rm. 104
Honolulu, HI 96813

Dear Mr. Miura:

Subject: Draft Environmental Impact Statement (DEIS) -
FWHA-HI-FIS-88-02-D, Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai, County of Maui, State of Hawaii

Per your request, the above-mentioned draft has been reviewed. We offer the following comments for your consideration:

On page V-15, Honokowai Stream is referred to as perennial. This particular stream is diverted for irrigation approximately at the 1600 ft. elevation. Below this elevation, the stream would be correctly defined as intermittent.

The remainder of our comments relate to potential interaction between these state highway plans and proposed flood control improvements for the PL-566 Lahaina Watershed Project currently being developed by the Soil Conservation Service:

Highway alternative A passes through the area of our proposed debris basin and diversion channel in the vicinity of Kauaula Stream. This highway alignment again re-crosses our proposed diversion approximately 1000 feet north of Kauaula Stream. (See enclosed map).

Highway alternative B's alignment crossing Kauaula Stream appears to be shown differently on figure 14 than on figure 6. We assume that figure 14, being a more detailed map, better approximates the route of alternative B.

Highway alignments for Alternatives B and C lie entirely uphill of our proposed flood control improvements. The existing drainage patterns must be retained for proper operation of these flood control measures. The design of the highway drainage for these two alternatives should be coordinated with SCS.

The highway bridge design at Kauaula Stream offers an opportunity for a coordinated, mutually beneficial integration with the flood control needs of the SCS project.

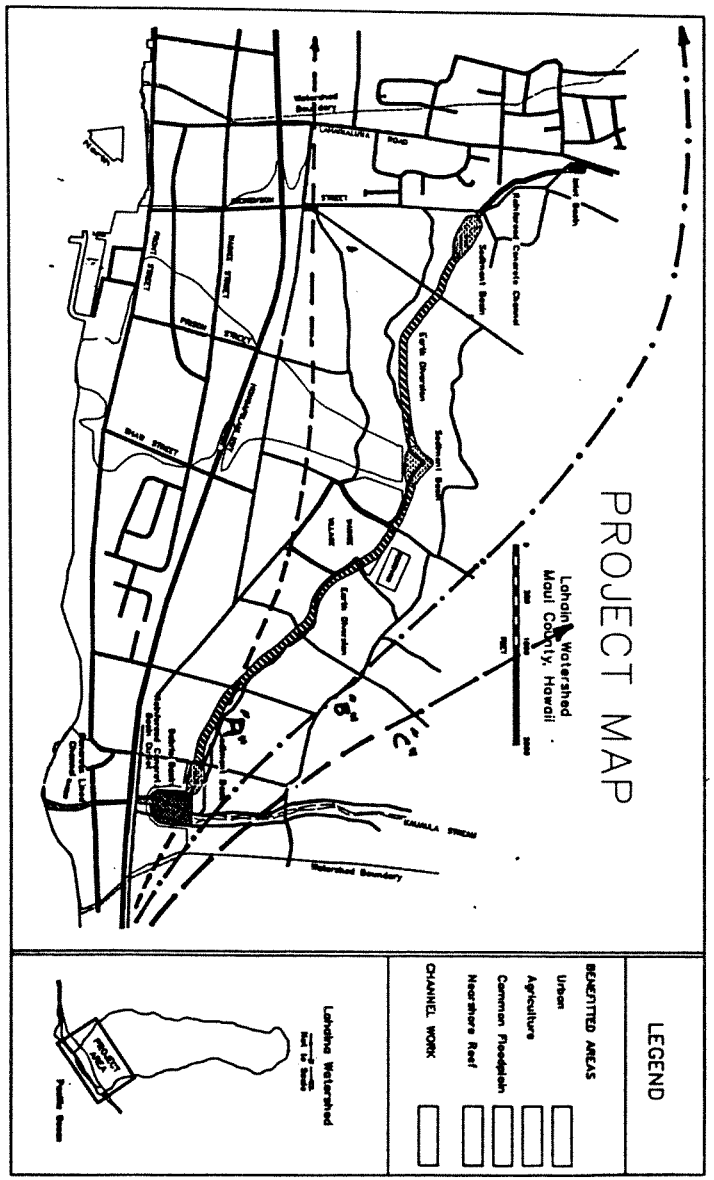
If you require further information, please contact Kenneth M. Kaneshiro, Planning Staff Leader, at the above-referenced address. He can be contacted at 541-2611.

Sincerely,

Warren M Lee

WARREN M. LEE
State Conservationist

cc:(w/encl.):
Mr. Edward Y. Hirata, Director, Hawaii Department of Transportation
869 Punchbowl Street, Honolulu, HI 96813
Mr. William R. Lake, Division Administrator, Federal Highway
Administration, U.S. Department of Transportation, Box 50206,
Honolulu, HI 96850



EVALUATION

1. The description of Honokowai Stream has been corrected on page 54 of the Final EIS to indicate it is a perennial stream..

2. Figure 14 has been revised to correct the alignment of the proposed alternatives and is shown in the Final EIS as Figure 15.

3. The highway bridge design at Kauaula Stream offers an opportunity for a coordinated, mutually beneficial integration with the flood control needs of your SCS project. The DOT will coordinate the highway drainage design plans with SCS as the project plans are developed.

UNITED STATES
DEPARTMENT OF ENERGY

P.O. BOX 50168
HONOLULU, HAWAII 96850

December 22, 1988

Mr. N.L. Arthur
Assistant Division Administrator
U.S. Department of Transportation
Hawaii Division, Box 50206
Honolulu, HI 96850

Subject: FHWA-HI-EIS-88-02-D
Honoapiilani Highway

Dear Mr. Arthur:

I have scanned the above referenced Draft EIS, and have no substantive comments to offer.

It is unfortunate that busing or other forms of mass transit are not appropriate for relieving congestion at this site. However, the proposed improvement should facilitate traffic flow, particularly for the projected vehicular usage--with a significant savings in fuel over existing conditions.

Best wished with the project.

Sincerely yours,

John Shupe

John W. Shupe, Director
Pacific Site Office

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EVALUATION

No response required

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT. SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF

February 2, 1989

Planning Branch

Mr. Edward Y. Hirata, Director
Hawaii Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Thank you for the opportunity to review the Draft Environmental Impact Statement (DEIS) for the proposed Honoapiilani Highway (FAP Route 30), Puamana to Honokowai, Lahaina District, Maui County, Hawaii. The following comments are offered:

a. Our previous comments in response to the EIS Preparation Notice (letter dated July 6, 1987), have been incorporated into the DEIS (page XII-27).

b. Coordination should be continued with Operations Branch (telephone 438-9258) regarding the need for a Department of the Army permit for stream crossings.

c. A joint Federal and County of Maui flood control project is being constructed at Kahoma Stream. Where the proposed highway would cross the Kahoma Stream Flood Control project, the highway is required to clearly span the channel improvements without altering or obstructing stream flows within the limits of the constructed flood control project. As acknowledged in your July 30, 1987 letter (DEIS, page XII-31), the Kahoma Stream portion of the proposed highway project will be coordinated with Planning Branch. If there are any questions, please contact the project manager for the flood control project, Ms. Sharon Okamoto, at telephone 438-8866.

Sincerely,

Kisuk Cheung
Chief, Engineering Division

158

Copies furnished:

Director
Office of Environmental Quality Control
465 S. King Street, Room 104
Honolulu, Hawaii 96813

Mr. William R. Lake, Division Administrator
Federal Highway Administration
U.S. Department of Transportation
Box 50206
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

EVALUATION

a. So noted.

b. At the present design stage the need for a Department of the Army permit for stream crossings will not be required. Coordination with the Corps of Engineers is documented in Appendices P and S of the Final EIS.

c. Coordination regarding the design of the Kahoma Stream portion of the proposed new highway will be continued.

United States Department of the Interior

GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

January 27, 1989

U.S. Department of Transportation
Federal Highway Administration
Box 50206
Honolulu, Hawaii 96850

Gentlemen:

Subject: FHWA-HI-EIS-88-02-D
Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai, County of Maui, State of Hawaii

The Hawaii District Office of the U.S. Geological Survey, WRD, has reviewed the subject DEIS (Draft Environmental Impact Statement) and offers the following comments on the Water-Quality section, page V-12, paragraph 3:

Kahana Stream quality should be evaluated or compared with applicable Hawaii stream-quality standards. We are not aware of any maximum standards established by the U.S. Environmental Protection Agency (EPA) for streams in Hawaii.

Supporting data for the water quality tests should be included in the appendix. Besides turbidity, what other constituents were tested from 1966 through 1978, and by whom? Also, what organic parameters were tested during sampling of April 17, 1978? Even though we have no reason to doubt that Kahana Stream quality is very good, a list of supporting data can aid the reviewer to make independent judgement on the accuracy of the statement.

Thank you for the opportunity to review the document.

Sincerely,

William Meyer
District Chief

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EVALUATION

The standards cited were actually the Interim Primary Drinking Water Standards (Safe Drinking Water Act - PL 93-523). The quotation of those standards was obtained from an earlier document prepared for a potable water processing plant to be developed using Kahana Stream water. The correction has been made to the narrative section on page 49 of the Final EIS.

It should be noted that the proposed highway improvements are outside of the Kahana Stream area.

U.S. Department of Housing and Urban Development
Honolulu Office, Region IX
300 Ala Moana Blvd., Room 3318, Box 50007
Honolulu, Hawaii 96850-4991

89-8

January 6, 1989

Mr. William R. Lake
Division Administrator
U.S. Department of Transportaion
Federal Highway Administration
Box 50206
Honolulu, HI 96850

Dear Mr. Lake:

SUBJECT: FHWA-HI-EIS-88-02-D
Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai, County of Maui, State of Hawaii

We have reviewed the Draft EIS for the subject project that is considering three alternate vehicular by-pass routes around the town of Lahaina from Puamana to Honokowai. We have no substantive comments for your consideration at this time and find no need for a copy of the Final EIS.

Very sincerely yours,

Calvin Lew
Director
Community Planning and
Development Division

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EVALUATION

No response required

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

Mr. William R. Lake
Division Administrator
Federal Highway Administration
Box 50206
300 Ala Moana Blvd.
Honolulu, HI. 96850

25 JAN 1989

Dear Mr. Lake:

The Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) titled **Honoapiilani Highway (FAP Route 30), Puamana to Honokowai, Lahaina District, Maui County, Hawaii.** Under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, EPA is required to review and comment on this DEIS.

We have classified this DEIS as category EC-2, Environmental Concerns (see attached "Summary of Rating Definitions and Follow-Up Actions"). EPA suggests that mass transit/buses alternatives and the reasons for their elimination as viable alternatives be discussed in more detail. Our itemized comments are enclosed.

We appreciate the opportunity to review this DEIS. Please send three copies of the Final Environmental Impact Statement (FEIS) to this office at the same time it is officially filed with our Washington, D.C. office. If you have any questions, please call me at (415) 974-8083 (FTS 454-8083), or have your staff contact Laura Fujii at (415) 974-7539 (FTS 454-7539).

Sincerely yours,

for Deanna M. Wieman, Director
Office of External Affairs

Enclosure (4 pages)

cc: HI Dept. of Agriculture, Suzanne D. Peterson
HI Dept. of Land & Natural Resources, William W. Paty
HI Dept. of Transportation, Edward Y. Hirata
Mayor, County of Maui, Hannibal Tavares
Maui County Council, Velma M. Santos
Maui County Planning Dept., Christopher L. Hart
Maui County Dept. of Parks & Recreation, Marilyn Moniz-Kahoohanohano
Lahainatown Operators Association, Sharon Lawrence
USFWS, Pacific Islands Office, Ernest Kosaka
Univ. of Hawaii, Environmental Center, Jacquelin Miller

Comments

Alternative Analysis Comments

1. The Council on Environmental Quality, in their Memorandum for Federal NEPA Liaisons, Federal, State and Local Officials and Other Persons Involved in the NEPA Process (March 16, 1981), states that:

> "An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable. .... Alternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies. Section 1506.2(d) & Section 1500.1(a)" (Question and answer 2b).

Although there is no current public and private financing for mass transit/buses, this fact does not exempt them from consideration as alternatives. Mass transit/buses may be reasonable alternatives because they help:
- reduce future air quality deterioration (Appendix D, Air Quality Assessment, states that by 2007 the State of Hawaii AAQS for eight hour carbon monoxide could be exceeded under worst case conditions regardless of the alternative selected.);
- minimize the loss of prime agricultural land, cultural resources, and aesthetic values which provide the bases for Maui's agricultural and tourist industries; and
- reduce the number of vehicles which cause the traffic congestion problem.

We suggest that the FEIS discuss alternatives such as the following:
1) Extension of the existing trolley service between Lahaina and Kaanapali;
2) Use of the existing Kaanapali and Pacific Railroad for local and tourist transportation; and
3) Joint mass transit/buses/highway improvements.

The FEIS should discuss the specific reasons (e.g. cost analyses) for elimination of mass transit or joint mass transit/highway improvement alternatives.

Water Quality Comments

1. The FEIS should discuss the project's compliance with State and local water quality management plans and State-adopted, EPA-approved water quality standards.

EPA recommends that project planning be fully coordinated with the U.S. Fish and Wildlife Service, Hawaii Department of Health, and Hawaii Department of Aquatic Resources to ensure protection of water quality and maintenance of beneficial uses.

2. The DEIS does not discuss specific water quality parameters such as temperature, BOD, or pH. Furthermore, data cited is from the 1970s. The FEIS should document existing water quality in Kauaula, Kahoma, and Honokowai streams and address the project's potential impacts to water quality parameters (e.g., temperature, suspended sediment, organic and inorganic constituents, BOD, pH).

3. The FEIS should include and commit to revegetation and monitoring plans to ensure protection of water quality and beneficial uses as recommended in the Botanical Survey, Appendix A. The monitoring plan should detail performance standards needed to measure the progress of the revegetation plan, and describe remedial actions (i.e. replanting) required to maintain the long-term integrity of the planting program. Consult with the appropriate resource agencies to develop monitoring parameters and the performance standards.

4. The FEIS should describe current ground water conditions in the project locale and determine whether highway construction would adversely affect ground water.

5. Protective measures and Best Management Practices should be included in the project design and construction specifications to prevent water quality degradation from pollutants such as heavy metals, petrochemicals, or sediments in pavement run-off.

Cumulative Impacts Comments

1. Section 1508.7 of the Council on Environmental Quality Regulations defines cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."

The FEIS should evaluate the cumulative impacts of the proposed project in relation to any other proposed or ongoing highway or related projects. Growth inducing impacts and potential for future development should be discussed in detail.

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION*

Environmental Impact of the Action

LO—Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC—Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO—Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU—Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1--Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2—Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3—Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

EVALUATION

Alternative Analysis Comments

Although mass transit/buses have the advantages of reducing air pollution, reducing the loss of agricultural lands and reducing vehicular traffic, these alternatives are not considered as a replacement to the proposed alternatives for the following reasons:

1) Public/private funds are not available for mass transit/buses.
2) These alternatives will not improve the existing traffic service. The existing highway would continue to not be able to function properly because of the many closely spaced intersections.
3) Such alternatives are deemed unattainable within the current project's implementation period.

While mass transit/buses are not deemed feasible at this time, these alternative modes of transportation will be further considered in a future and separate island-wide study to provide supplemental corridor capacity as needed. At the present time, the movement of traffic from the main airport at Kahului is done for the most part, by rental cars; a choice on the part of the visitor. There are available buses to move group travelers from the airport to their hotels, but the car rental agencies provide rental vehicles at the destination resort areas (Lahaina-Kaanapali -Kapalua, Wailea-Makena, and the east Maui areas.

There is currently no trolley service between Lahaina and Kaanapali. However the highway alternatives will enhance any such service. Without implementation of a highway alternative the current congestion is anticipated to continue and worsen.

The existing Kaanapali and Pacific Railroad is currently available for local and tourist transportation. However it is a slow moving, 10 to 20 mph service, featuring scenic views and deemed not effective for overall travel service that can replace the current highway alternatives.

If buses are implemented, it will need more highway lanes to be able to operate effectively. Patronage of such bus service is uncertain and is not anticipated to replace the need for more highway capacity. The current highway alternatives will enhance the operation/ implementation of bus services.

Other forms of mass transit, such as rail service, are considered too advanced for viability and would probably not be attainable within the project's design year period.

Water Quality Comments

The Final EIS indicates on page 54 the project's compliance with the State and local water quality managements plans and State-adopted, EPA-approved water quality standards. The project plans will be coordinated with.the U.S. Fish and Wildlife Service, Hawaii Department of Health, and the Hawaii Department of Aquatic Resources to ensure protection of water quality and maintenance of beneficial uses.

The data on stream water quality on page V-12, has been revised on page 44 of the Final EIS. The stream water quality standards referred to the Interim Drinking Water Standards (Safe Drinking Water Act - PL93-523).

The Final EIS describes on page 49 current ground water condition on the project location and whether highway construction would adversely affect ground water. Measures to reduce or minimize the adverse effects of pavement surface runoff into adjacent stream and receiving waters will be included in the project plans and specifications.

Cumulative Impacts Comments

A review of the proposed improvements scheduled for this portion of West Maui indicates that there is inadequate capacity on the existing Honoapiilani Highway.

State and local planning process has the responsibility to develop plans to meet the current overload factor and also to plan for future development in the adjacent areas. The Maui County Planning Department is actively involved in the review of this corridor study and as such, will be expressing their positions on the best practicable treatment of the traffic overload condition that exists at the present time.

Present traffic flow patterns have been improved with the completion of the second northbound lane. Peak periods at the Lahainaluna Road intersection experience only minimal congestion.

Future development projects of significant size that will be beneficially affected by the proposed project include the State Housing & Finance Development Corporation project; South Beach Mauka by AMFAC; and other projects at Kaanapali-Honokawai.Because the proposed highway improvements will incorporate appropriate mitigation measures, its' contribution, in terms of significant adverse cumulative impacts in the area, are anticipated to be minimal.Future development of urban projects not presently defined by current planning horizons, would not be included as part of the design capacity of these proposed highway improvements.

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

L7619(FNP-762)
ER 88/1086

FEB 17 1989

Mr. William R. Lake
Division Administrator
Federal Highway Administration
U.S. Department of Transportation
P. O. Box 50206
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

Dear Mr. Lake:

This is in response to the request for the Department of the Interior's comments on the Draft Environmental/Section 4(f) Statement for Honoapiilani Highway (Fap Route 30 from Puamana to Honokowai), Lahaina District, Maui County, Hawaii.

SECTION 4(f) STATEMENT COMMENTS

The Department of the Interior cannot concur with Section 4(f) approval at this time. While there is an identification and description of 4(f) properties, there is no explanation as to why there is "no feasible and prudent alternative to the use of such land."

ENVIRONMENTAL IMPACT STATEMENT COMMENTS

1) The DEIS fails to note that the Lahaina Historical District was designated a National Historic Landmark on December 29, 1962, and that because of its Landmark status, the FHWA should consult with the National Park Service during the EIS preparation period (see DEIS Section XI).

2) Page I-4: The DEIS indicates that other Federal and State agencies will be accomplishing certain work in connection with the construction project. Will these other agencies have any archeological compliance responsibilities for their areas of work?

3) Page I-5, paragraph 1: The incomplete reference should be revised to read "compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended) is a required Federal action that will be initiated during the course of the subject EIS."

4) Page III-17: A superficially brief historical perspective of Lahaina is presented but there is no synopsis of the prehistoric perspective of the project area.

5) Page VI-16, line 1 (see also VII-9, line 3): The statement should read "either on or eligible for nomination to the State and National Registers of Historic Places."

6) Page VI-16 (see also Item 10 below): "It has been recommended that the Department of Transportation continue the procedures of Section 106...." This statement requires clarification. What is the compliance process, where is the FHWA in the compliance process, and which specific aspects of the procedures require further consultation?

7) Page VII-9, Section E, concluding paragraph: The FHWA states that the potential exists for subsurface archeological deposits, but it does not state how an emergency discovery situation will be dealt with should such remains be encountered after highway construction starts. The FHWA may wish to include the following information:

In the event unanticipated subsurface archeological deposits are encountered during construction after compliance with 36 CFR 800 has been completed, disturbance to the site should be stopped immediately. The FHWA may elect to continue the consultation process with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (ACHP) to define an appropriate solution. Another method of resolving the difficulty is to notify the Secretary of the Interior of the discovery by telephone through his designated representative, Dr. Bennie C. Keel, Consulting Archeologist of the National Park Service at 1100 L Street, N.W., room 4127, P.O. Box 37127, Washington, D.C. 20013-7127, telephone (202) 343-1876. Subsequent written notification to the Secretary should be provided pursuant to the requirements of Section 4(a) of the Archeological and Historic Preservation Act of 1974 (P.L. 93-291) and Section 800.11 of the Advisory Council on Historic Preservation's regulations, 36 CFR 800.

8) Section XII: We note that the Hawaii State Historic Preservation Officer responded on July 16, 1987, to the FHWA's notice of intent to prepare an EIS, expressing historic preservation concerns.

The University of Hawaii (Manoa) also responded on July 21, 1987, noting the historic significance of Lahaina and recommending subsurface testing to assess the potential for

buried archeological deposits. Yet the archeological "reconnaissance" level survey did not include testing. The field survey methodology and reasons for not testing should be detailed.

9) Neither the EIS nor Appendix C (the archeological survey report) discusses the prehistoric significance of Lahaina and what is generally known about the archeology of the area and/or expected site types.

10) Section X(A), Summary of Unresolved Issues: The FHWA should summarize what has been accomplished to date in the Section 106 compliance process, what remains to be done, and how it will be done.

11) We are pleased to note that the Fish and Wildlife Service's comments of June 29, 1987, have been incorporated into this draft EIS document. The fish and wildlife resources have been adequately addressed.

SUMMARY COMMENTS

The Department of the Interior is unable to provide meaningful comments on the Section 4(f) Statement at this time because of the lack of evaluation under the first proviso of Section 4(f). We would be willing to expeditiously review any revised Section 4(f) documentation. The opportunity to review this document is appreciated.

Sincerely,

Acting Director
Environmental Project Review

cc:
Mr. Edward Y. Hirata
Director
Hawaii Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

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EVALUATION

Section 4(f) Statement Comments

The boundary depicted for the Lahaina Historical District/National Historic Landmark has been revised since the Draft EIS. The map depicted in Figures 21 and 23 of the FEIS reflect the actual boundaries which indicate that the proposed alignment lies outside of the Historical District. This is explained in section VI.E. of the FEIS.

The project will not cause actual or constructive use of section 4(f) resources in the project area. This is explained in section VI.E. of the FEIS. Since the project will not involve the use of section 4(f) resources, further consultation with the Department of the Interior in no longer necessary.

Environmental Impact Statement Comments

1) The proposed alignment lies outside of the Lahaina Historical District/National Historic Landmark boundary and will not affect the Landmark, therefore, consultation with the National Park Service is not needed.

2) On page I-4 of the Draft EIS, there was a description of major actions by other governmental agencies in the area. Their archaeological compliance responsibilities are not included in this project.

3) On page I-5, paragraph 1 of the Draft EIS the incomplete reference has been corrected and is shown on page 4 of the Final EIS.

4) The Final EIS shows a brief historical perspective of Lahaina in Appendix C.

5) On page VI-16, line 1 of the Draft EIS, the statement has been revised and is found on pages 79 and 86 of the Final EIS.

6) On page VI-16, the statement in question is clarified on page 79 of the Final EIS.

7) On page VII-16 of the Draft EIS, DOI's suggested information on how an emergency discovery situation will be dealt with has been included on pages 78 and 79 of the Final EIS.

8) Regarding Section XII, refer to the Final EIS Appendices M and N which show and document that the Hawaii State Historic Preservation Officer has been contacted is is satisfied regarding historic preservation on the project.

The project area would be in a developed area or an area repeated cultivated and plowed for agricultural operations.

9) The prehistoric significance of Lahaina and the known archeology of the area and /or expected site types have been considered and are deemed not significant relative to the project construction.

10) The section 106 compliance process has been completed. Consultation with the State Historic Preservation Officer (SHPO) has been completed and the SHPO has concurred that the project will have "no effect" on significant historical and archaeological resources. Appendices M and N document this conclusion.

Summary Comments

As discussed above in the section 4(f) comment response, the proposed project will not use section 4(f) resources and, therefore, further consultation with the Department of the Interior is not necessary.

DEPARTMENT OF THE NAVY
COMMANDER
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860-5020

IN REPLY REFER TO

5090 (91B)
Ser 032/71
4 Jan 1989

Mr. Edward Y. Hirata
Hawaii Department of Transportation
869 Punchbowl St.
Honolulu, Hawaii 96813

Dear Mr. Hirata:

DEIS FOR HONOAPIILANI HIGHWAY (FAP ROUTE 30) PUAMANA TO HONOKOWAI

The subject draft environmental impact statement (DEIS) has been reviewed and we have no comments to offer. Since we have no further use for the DEIS, it is being returned to the Office of Environmental Quality Control.

Thank you for the opportunity to review the draft.

Sincerely,

W K. LIU
Assistant Base Civil Engineer
By direction of
the Commander

Copy to:
✓Mr. William R. Lake
Division Administrator
Federal Highway Administration
Box 50206
300 Ala Moana Blvd.
Honolulu, HI 96850

Ofc of Environmental Quality Control (w/DEIS)

169

REPRODUCED AT GOVERNMENT EXPENSE

EVALUATION

No response required

U.S. Department of Transportation
United States Coast Guard

Commander (oan)
Fourteenth Coast Guard District

Prince Kalanianaole
Federal Building
300 Ala Moana Blvd.
Honolulu, Hawaii 96850-4982
Phone (808) 541-2315

16590
Serial 32014
JAN 19 1989

Mr. Edward Y. Hirata
Director of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

In response to your letter of 13 December 1988 concerning the Honoapiilani Highway, our concerns are for previously permitted bridges or any bridges over navigable waters which may be involved in the project. I have included a Bridge Permit Application Guide which lists our requirements. My point of contact for this matter is LTJG C. S. Wengenroth at 541-2318.

Sincerely,

H. W. MOTEKAITIS
Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
Fourteenth Coast Guard District
By direction of the District Commander

Encl: (1) Bridge Permit Application Guide

170

EVALUATION

The DOT will coordinate with U.S. Coast Guard on all previously permitted bridges or any bridges over navigable waters which may be involved in our project.

DANIEL K. INOUYE
HAWAII

United States Senate
SUITE 722, HART SENATE BUILDING
WASHINGTON, DC 20510
(202) 224-3934
FAX (202) 224-6747

PRINCE KUHIO FEDERAL BUILDING
ROOM 7325, 300 ALA MOANA BOULEVARD
HONOLULU, HI 96850
(808) 541-2542
FAX (808) 541-2549

December 22, 1988

Mr. Edward Y. Hirata
Director of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

I received your letter concerning the public hearing on the proposed Honoapiilani Highway. Thank you for keeping me apprised of your progress on this project.

Aloha,

DANIEL K. INOUYE
United States Senator

DKI:mco

171

EVALUATION

No response required

SPARK M. MATSUNAGA
HAWAII

WASHINGTON OFFICE
109 HART BUILDING
WASHINGTON D. C. 20510

HONOLULU OFFICE
3104 PRINCE KUHIO BUILDING
HONOLULU, HAWAII 96850

United States Senate

WASHINGTON, D.C. 20510

CHIEF DEPUTY
DEMOCRATIC WHIP

MEMBER

COMMITTEE ON FINANCE

COMMITTEE ON LABOR AND
HUMAN RESOURCES

COMMITTEE ON
VETERANS' AFFAIRS

December 19, 1988

Hon. Edward Y. Hirata, Dir.
HI Dept. of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Ed:

Re: Honokowai Project

This is just to acknowledge receipt of your recent communication addressed to Senator Spark Matsunaga.

Please be assured that the Senator will be responding to you at the earliest possible moment.

Yours truly,

Cherry Matano

Cherry Matano (Ms.)
Administrative Assistant
to Senator Matsunaga

172

EVALUATION

No response required

JOHN WAIHEE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TAXATION
P.O. BOX 259
HONOLULU, HAWAII 96809

RICHARD F. KAHLE, JR.
DIRECTOR OF TAXATION

GARY S. MIJO
DEPUTY DIRECTOR

January 24, 1989

Mr. William R. Lake
Federal Highway Administration
U.S. Department of
Transportation
Box 50206
Honolulu, Hawaii 96850

Dear Mr. Lake:

Re: Draft Environmental Impact Statement for the Proposed Construction of Honopiilani Highway Between Puamana and Honokowai on the Island of Maui

We have no comments to offer with respect to the economic, social and environmental consequences of your plans to the construction of Honopiilani Highway between Puamana and Honokowai on the Island of Maui.

Very truly yours,

Richard F. Kahle Jr.

RICHARD F. KAHLE, JR.
Director of Taxation

RFK-RCC-CAC

L73

EVALUATION

No response required

JOHN WAIHEE
GOVERNOR

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

RUSSEL S. NAGATA
COMPTROLLER

KEN KIYABU
DEPUTY COMPTROLLER

LETTER NO. (P)1020.9

JAN 17 1989

Honorable Edward Y. Hirata
Director
Department of Transportation
State of Hawaii
Honolulu, Hawaii

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

Gentlemen:

Subject: Draft Environmental Impact Statement
Honoapiilani Highway
Puamana To Honokowai

This is in response to your December 13, 1988 request for comments on the subject DEIS. Attached for your information and use is a list of our concerns regarding Alternative C, the alternative through the schools.

Please note that both the DOE and DAGS are opposed to Alternative C because of the number of students it impacts. It disrupts operations, impacts the Learning Center agricultural program, and restricts facilities planning for the affected schools.

If there are any questions on this matter, please have your staff contact Mr. Stephen Miwa of the Public Works Division at 548-3921.

Very truly yours,

RUSSEL S. NAGATA
State Comptroller

Attachment

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Attachment to Ltr. No. (P)1020.9

Honoapiilani Highway Realignment
Puamana to Honokowai

Concerns regarding the alternative that will cut through Lahainaluna High and Lahaina Intermediate Schools are as follows:

1. The alignment effectively wipes out the Learning Center agricultural complex of Lahainaluna High School.

2. The alignment is in the flatter areas of the schools. Therefore, expansion facilities will be constructed on steeper grades which will significantly increase costs, especially barrier-free designs.

3. Land taking should be minimized by considering a corridor width similar to the alternative through the Kelawea Subdivision.

4. Based on previous construction projects, the alignment through the schools will require extensive blasting. Therefore, the EIS should address proper mitigation measures and liability provisions.

5. A pedestrian walkway structure should be constructed to connect the intermediate school with the high school to maintain the educational interrelation between the schools.

6. Based on the above, the cost estimate for Alternative C should be revised to include costs for the following:

   a. Damage claims for relocation of the agricultural complex.

   b. Construction of a tunnel or retaining walls to maintain the narrower corridor of 80 feet.

   c. Extensive blasting.

   d. Pedestrian walkway structure.

EVALUATION

It should be noted that Alternative C is not the preferred alternative.

1. Alternative C misses most of the school's primary facilities which are the classrooms and the other main buildings as the tradeoff to affecting the school's currently located agricultural field.

2. The proposed alternative will occupy the flatter portion of the school, most of which is presently vacant.

3. A corridor width similar to the alternative through the Kelawea subdivision would have the disadvantages of a lower design roadway geometrics and would compromise noise mitigation designs.

4. The effects of any required blasting for construction of the roadway has been considered.

5. The construction of a pedestrian walkway structure to connect the intermediate school with the high school and also to provide a grade-separated crossing for pedestrian traffic to the high school.

6. The construction of a tunnel or retaining walls to maintain the narrower corridor of 80 feet minimum is not a preferable design alternative. The following costs have been considered:

a. Damage claims for relocation of the agricultural complex.

b. Extensive blasting

c. Pedestrian walkway structure

University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

February 1, 1989
RE:0517

Mr. William R. Lake
Division Administrator
Federal Highway Administration
U.S. Department of Transportation
Box 50206
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

Mr. Edward Y. Hirata, Director
State Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Gentlemen:

Draft Environmental Impact Statement
Honoapiilani Highway
(Puamana to Honokowai)
Lahaina District, Maui

The above referenced project, in the Lahaina District of the island of Maui, proposes improvements to provide additional highway corridor capacity between Puamana and Kaanapali. This Draft Environmental Impact Statement (EIS) studies three realignment (bypass) alternatives: a route through an existing sugar mill site, one through an existing residential street, and one through existing schools. For the project section between Kaanapali and Honokowai, widening and realignment alternatives were studied. This review was prepared with assistance of Michael Graves, Anthropology; Anders Daniels, Meteorology; George Taoka, Civil Engineering; and C. Anna Ulaszewski, Environmental Center.

Impact on Agricultural Lands and Land Use (page VII-24)

According to page VII-25: "Other projects in the proposed alignment areas will be considered during further impact assessment in the DEIS-FEIS review process by government agencies and other commenting parties. Any discussion prior to the DEIS review would be premature due to lack of the base information provided in this document." We find this in violation of Section 11-200-16 of the EIS Rules which states: "The contents shall

fully declare the environmental implication of the proposed action and shall discuss all relevant and feasible consequences of the action."

Archaeological Impacts (page VII-9)

Although a number of sites are identified which would be affected by the proposed highway corridors, there is no detailed analysis of the extent of the impact for any of the alternatives. At this point, it is not possible to determine the impacts in regards to a specific highway corridor. At the very least, the agency must adhere to Section 106, National Historic Preservations Act which applies to this kind of undertaking; however, according to this document, page X-1, this remains an "unresolved issue". This is in violation of Chapter 343 and EIS rules, since it precludes a thorough review of the proposed action and its potential impacts.

We notice that the July 17, 1988, letter from William W. Paty of the State Department of Land and Natural Resources makes much the same point: "The project has been determined to have major impact on significant historic sites.... Since the exact locations, where the realignment and/or widening are planned to occur, are still undetermined, there may be other historic sites that will be impacted. Therefore, the EIS should adequately identify all historic sites that will be impacted, the nature of the effects and proposed mitigation measures."

Geographical Characteristics (page V-1)

This section should have contained topographic and soil maps of the proposed project sites. It is of some concern that the soil material associated with Rock Land (rRK) is "very sticky and plastic" and has a "high shrink-swell potential". Since there is the potential of foundation failure in structures built on this type of soil, it is important to know the location of the soil in relationship to the project sites. The presence of this soil could increase the cost of site preparation of a project.

Fauna (page V-16)

Terrestrial Fauna. This section states that "[t]he only endemic bird expected at the site is the Hawaiian owl, or pueo (Asio flammeus sandwichensis)." The letter from the U.S. Fish and Wildlife Service, found in Appendix K, states that endangered or threatened species of animals would not be found in the vicinity of the project; however, this must be in reference to the federal list of endangered or threatened species, because the Hawaiian owl is on the State of Hawaii's list of endangered species. We believe a more comprehensive study should be conducted in order to determine the effect of this proposed project on the Hawaiian owl.

Aquatic Fauna. The survey referred to in this section was done in "1962-1963". We feel that this survey was done too long ago to reflect the current status of the Kahoma/Kanaha Streams. A current reconnaissance should be conducted.

Summary and Recommendations

As a planning document, this Draft EIS provides valuable information pertient to selection of the route of least harm. However, because of the serious inadequacies of this Draft EIS, we believe that a revised Draft EIS or a Draft Supplemental EIS should be prepared once a route is chosen and the exact locations for the right-of-ways are determined, so that deficiencies noted above may be rectified.

Thank you for the opportunity comment on this Draft EIS.

Yours truly,

John Harrison
Environmental Coordinator

cc: OEQC
Deanna Wieman, EPA
L. Stephen Lau
Michael Graves
George Taoka
Anders Daniels
C. Anna Ulaszewski

EVALUATION

Impact on Agricultural Lands and Land Use

The Draft EIS document reviews the various corridor alternatives all of which impacts the agricultural lands. The economic losses to users of the agricultural zoned lands are reflected in the right-of-way acquisition costs of each of the alternatives. These lands are owned or leased by the Pioneer Mill Company which has indicated that the project is necessary, that it opposes Alternative A and that it prefers the other alternatives. The company also indicated that with proper adjustments the alternatives would be compatible with its agricultural operations.

Archaeological Impacts

The EIS document has identified the historic and archaeological resources within the several alternative corridors being studied for the proposed highway improvements. The nature of the effects are indicated in Appendix C of the draft EIS document and is clearly noted in the text of the Final EIS document on pageS 86 and 87.

After the DOT's evaluation of the various corridors, it will select one for further development at which time, if any of the identified historic and/or archaeological resources sites are impacted, it will consult with the SHPO and the National Park Service and/or the State Historic Preservation Officer to determine the scope of additional studies and appropriate mitigation measures.

The Federal Highway Administration has initiated the Section 106 process. Coordination with the State Historic Preservation Officer in compliance with these regulations has been made. No further Section 16 involvement is anticipated.

Geographical Characteristics

Appropriate maps showing the location of soil material associated with Rock Land (rRK) will be included. These soil types occur within the proposed right-of-way of the project corridors along the banks of several streams and large gullies. The highway will be designed to safely cross these areas. Extraordinary designs are not anticipated. Completely avoiding these areas would not be feasible.

Terrestrial Fauna

The DOT does not agree that more comprehensive studies should be conducted on the Hawaiian owl because the Fish and Wildlife has concluded that endangered or threatened

species of animals would not be found in the vicinity of the project. This statement can be found in Appendix K of the FEIS in a letter from USFWS dated August 16, 1988. The statement in the Draft EIS that presumes its presence in the area is inconsistent and has been corrected in the Final EIS on page 83. Also, it should be noted that the proposed right-of-way is in areas of residential, industrial, public facilities, and extensive sugarcane cultivation.

Aquatic Fauna

The proposed alignment will not involve any in-stream construction as of the present design stage.

JOHN WAIHEE
GOVERNOR OF HAWAII

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EPHSD

January 18, 1989

Mr. N. L. Arthur
Assistant Division Administrator
U.S. Department of Transportation
Federal Highway Administration
Hawaii Division
Box 50206
Honolulu, Hawaii 96850

Dear Mr. Arthur:

Subject: FHWA-HI-EIS-88-02-D
Honoapilani Highway (FAP Route 30)
Puamana to Honokowai, County of Maui, State of Hawaii

In the previous informational meeting held in Lahaina on the proposed by-pass road, strong objections were expressed regarding alternatives B and C. Concerns for safety, air pollution, noise and just compensation were the major issues. The least disruptive alternative route would be alternative A since it is nearly abutting the present highway. Environmental concerns such as noise and air pollution are minimal because of existing background ambient levels at this alternative A site.

Sincerely yours,

Bruce S. Anderson

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

cc: DHO, Maui

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EVALUATION

Alternative B, Mauka Tier Variation has been selected as the preferred alternative. The DOH's comments on air pollution and noise impacts have been taken into consideration during selection of the preferred alternative and mitigation measures have been developed to address these concerns.

JOHN WAIHEE
GOVERNOR

JOSEPH K. CONANT
EXECUTIVE DIRECTOR

IN REPLY REFER

STATE OF HAWAII
DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT
HOUSING FINANCE AND DEVELOPMENT CORPORATION
P. O. BOX 23060
HONOLULU, HAWAII 96820-1760

89:PLNG/378B JT

February 2, 1989

MEMORANDUM

TO: The Honorable Edward Y. Hirata, Director
Department of Transportation

FROM: Joseph K. Conant

SUBJECT: Draft EIS for Honoapiilani Highway

We have reviewed the subject report and offer the following comments.

The Housing Finance and Development Corporation will soon be conducting an analysis to determine the feasibility of developing a master planned residential community on 1,122 acres of land near the Lahaina Civic Center. Conceptually, the project will consist of approximately 3,900 housing units and necessary support facilities and amenities.

The HFDC also administers the State's relocation program, and if Alternative B (Ikena Street realignment) is selected, up to 36 households may require assistance. HFDC can work closely, with the DOT and the families affected by the highway realignment to provide for their housing needs. In fact, the affected families would be given preference in HFDC's Lahaina master planned community.

As HFDC is impacted by all of the proposed Honoapiilani Highway realignment alternatives, we ask that we be kept informed of the Department's plans and proposed actions.

Thank you for the opportunity to comment.

JOSEPH K. CONANT
Executive Director

cc: Dr. Marvin Miura, OEQC
Mr. William Lake, Federal Highway Administration

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EVALUATION

Alternative B, Mauka Tier Variation has been selected as the preferred alternative. The proposing agency will continue to coordinate planning efforts in this area as requested.

Relocation will be required for families along the selected alignment and the Housing Finance and Development Corporation's assistance in this matter is greatly appreciated.

JOHN WAIHEE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD, HONOLULU, HAWAII 96816-4495

ALEXIS T. LUM
MAJOR GENERAL
ADJUTANT GENERAL

MYLES M. NAKAIDU
COLONEL
DEPUTY ADJUTANT GENERAL

DEC 20 1988

Engineering Office

Mr. Edward Y. Hirata, Director ✓
Hawaii Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Ofc of Environmental Quality Control
465 S. King St., Rm. 104
Honolulu, Hawaii 96813

Dear Gentlemen:

Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai, County of Maui, State of Hawaii

Thank you for providing us the opportunity to review the subject project.

We have no comments to offer at this time regarding this project.

Sincerely,

Jerry M. Matsuda

Jerry M. Matsuda
Major, Hawaii Air
National Guard
Contr & Engr Officer

Enclosures

cc: William R. Lake

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EVALUATION

No response required

JOHN WAIHEE
GOVERNOR OF HAWAII

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

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
LIBERT K. LANDGRAF
MANABU TAGOMORI
RUSSELL N. FUKUMOTO

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

FEB 7 1989

FILE NO.: 89-333
DOC. NO.: 5058E

Mr. William R. Lake
Division Administrator
U. S. Department of Transportation
Federal Highway Administration
Box 50206
Honolulu, Hawaii 96850

Dear Mr. Lake:

SUBJECT: FHWA-HI-EIS-88-02-D, Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai, County of Maui, State of Hawaii

Thank you for giving our Department the opportunity to comment on this matter. We have reviewed the materials you submitted and have the following comments.

Our Department's Historic Sites Section indicates that historic preservation concerns on this project are addressed in Section V - Item E; Section VI - Items E, D & H; Section VII - Item E and Section X - Item A of this document. These will be addressed separately.

Section V - Item E refers to a report (attached to the draft EIS as Appendix C) presenting the results of literature search and reconnaissance survey and identifies a total of 8 historic sites that will be impacted by the different alternative alignments. A map showing the location of the sites is also included.

In compliance with the National Historic Preservation Act (NHPA), a copy of the archaeological report was submitted to our Historic Sites Section office for review. In a June 2, 1988 letter to the Federal Highway Administration, we determined that several changes had to be made in order for the identification of historic sites to be completed and for significance to be evaluated, and the report needs to be revised and re-submitted to our Historic Sites office. We have not received the revised copy, and we note that the unrevised version is the one included as Appendix C. Until we receive an acceptable revised copy, we do not consider this project to be in compliance with the NHPA.

Furthermore, a field inspection conducted by Dr. Don Hibbard, Director of Historic Sites Section, of the areas near Pioneer Mill (Alternate A) and the subdivision along Alternate B indicates that old plantation camp houses may be present. Thus, we believe that identification of sites that will be affected by this project is not yet complete.

Of the 8 sites identified so far, 6 sites were previously recorded and 2 new sites were identified by the survey. The two new sites, an agricultural complex and a possible habitation terrace, were assessed to be significant and eligible for the National and Hawaii Registers of Historic Places for their information content. With the exception of the Lahaina Historic District being mentioned as on the National Register of Historic Places designated as Site #3001, significance assessments on the other 5 previously recorded sites were not made.

This section also contains inaccurate information on the six previously recorded sites. According to our records, the Pioneer Sugar Mill and Kaanapali Power Plant buildings are included in the Pioneer Mill District, designated as Site 1598 - not #1978 - in our inventory of historic places. Also, contrary to what this section states, this site was not previously listed on the Hawaii Register of Historic Places. The Hale Pa'i (Site 1596) is listed on both Hawaii and National Registers of Historic Places, Site 1207 is on the list of the Hawaii Register of Historic Places and Sites 1203 and 1208 are in our inventory of historic places. This information is lacking from this section and should be added.

Section VI, Item D: Appendix C (archaeological report) is again cited. However, we believe that the statement to stop work if sites are encountered is not an adequate mitigation approach to address the treatment of sites found during project construction. We suggest that this statement be re-written as follows: "Previously unidentified sites discovered during project construction will be treated according to a plan to be prepared in compliance with Section 106 of the National Historic Preservation Act."

Section VI, Items E.3, E.4 and E.5 are not adequate. We recommend that the avoidance alternatives, measures to minimize harm, and coordination be discussed in detail. What measures or alternatives are proposed to avoid or minimize harm to the historic sites? In terms of coordination, this item again refers to Section V, Item E. However, this section does not contain the names of agencies with which coordination was made.

Section VI, Item H: Because this is a federal undertaking, the project is required to undergo review under Section 106 of the National Historic Preservation Act. The Advisory Council on Historic Preservation must also be given an opportunity to comment on the project. As an initial step, FHWA submitted Appendix C to

our Historic Sites office for review. Again, we have requested that revisions be made for FHWA to complete the identification and significance evaluation step. Because the revised report has not been submitted to our Historic Sites office, Step 1 (identification and evaluation) of compliance still remains to be completed.

Section VII, Item E: This item is not consistent with Section V, Item E which identifies historic sites that will be affected by the project. Only six of the eight sites are included. Has the project been determined to have "no effect" on two sites not included in this item? A determination of the project's effect on all significant sites is required by using the criteria in the Advisory Council on Historic Preservation's 36 CFR Part 800. You must also have the State Historic Preservation Office's concurrence. This item should contain the assessment of the project's effects on identified historic sites. Also, this item does not indicate the different measures to be undertaken to mitigate the impacts of the project on historic sites. Although the possibility of finding subsurface cultural remains is pointed out, this section does not address how such finds will be treated. Again, pursuant to 36 CFR Part 800.11 a contingency plan for the treatment of such discoveries during project construction should be developed.

Section X, Item A: We concur with the recommendation that the Section 106 review process needs to be continued. However, as the federal agency involved in this undertaking is FHWA, it is this agency's responsibility to comply with the National Historic Preservation Act, not the Department of Transportation.

In sum, we believe that the identification and evaluation of historic sites, determination of effects and proposed mitigation measures are not adequately addressed in this document. Our letter of July 16, 1987 (page XII-11) also reached this conclusion. Therefore, we recommend that these sections of the draft EIS be revised to address historic preservation concerns.

Should you have any questions, please feel free to contact Ms. Annie Griffin, staff archaeologist handling the County of Maui, at 548-6408.

Our Recreation Section comment that the EIS Preparation Notice included an alternative that would widen the highway bordering Wahihuli State Wayside. This could have caused serious environmental impact, and we note the subject document (page VI-11) has dropped alternative "from further development and consideration." We therefore have no state park recreation concerns.

The Aquatic Resources Division points out that a survey was conducted by our Division staff on July 10, 1987, of all three streams; at the time, none exhibited running water. Native fauna like opae and oopu were not observed. Kauaula and Kahoma have been channelized where the present highway intersects them. Honokowai is not yet channelized at the highway's crossing, and its riverbed is occupied by rocks and trees. Tadpoles and unidentified minnows were observed in Honokowai; minnows were observed in Kahoma.

This document presents very little additional information on stream fauna that exist in the three streams as compared to the EIS preparation notice. As such, our previous comments remain applicable, and are re-stated below. The previous comments include the following:

> "It appears that because relatively little or no native stream fauna exists in these streams, turbidity-related impacts to such resources are expected to be minimal. To minimize the threat of sedimentation and turbidity to nearshore waters adjacent to each stream, construction should be conducted during periods of low rainfall and run-off, and areas graded or grubbed should be planted (or replanted) as soon as possible. Further, precautionary measures should include the prevention of construction materials, debris, wastes, petroleum products, and landscaping substances (herbicides, pesticides, fertilizers) from falling, flowing, or leaching into the sea."

Our Division of Water and Land Development states that a stream channel alteration permit will be required for any work done within the stream.

Please feel free to call me or Roy Schaefer of our Office of Conservation and Environmental Affairs, at 548-7837, if you have any questions.

Very truly yours,

WILLIAM W. PATY

EVALUATION

1. Section V - Item E

After research and discussions with DLNR, it has been concluded that there are not any old plantation style houses along the corridor alternative that the DOT intends to continue to develop.

The site number 1978 has been corrected to 1598.

2. Section VI, Item D

The statement to stop work if sites are encountered will be revised to read: In the event that any finds are uncovered during project construction, the memorandum of agreement resulting from the Section 106 process will be complied with or if such has not been executed, the State DOT's standard specification procedures for protection and preservation of these resources during construction will be followed.

3. Section VI, Items E.3, E.4, and E.5

For Item E.3, the alternatives have been described in detail in Section III on page 78 of the Final EIS.

For Item E.4 and E.5, the document has been revised to provide the requested information on pages 78 and 79 of the Final EIS..

4. Section VI, Item H

The revised Archaeological Report is attached and has been coordinated with the SHPO. The SHPO has concurred that the project will have "no effect" on significant historical and archaeological resources. This coordination and concurrence can be found in Appendices M and N of the FEIS.

5. Section VII, Item E

This section has been corrected to be consistent with Section V, Item E. The corridor selected will eliminate having an effect on all or most of the sites. This has been concurred by the SHPO as is documented in Appendices M and N.

Where there remains a possibility of finding subsurface cultural remains, we will address how such finds will be treated. Pursuant to 36 CFR Part 800.11, a contingency plan for the treatment of such discoveries during project construction will be developed during the design stage of the project development.

6. Section X, Item A

The Final EIS has been revised to address historic preservation concerns indicated.

The comments on stream fauna have been noted. In order to minimize the threat of sedimentation and turbidity to nearshore waters adjacent to each stream, the DOT will consider scheduling construction during periods of low rainfall and run off, and to plant (or replant) as soon as possible the areas that are graded or grubbed. The DOT will further, take precautionary measures including the prevention of construction materials, debris, wastes, petroleum products, and landscaping substances herbicides, pesticides, fertilizers, from falling, flowing, or leaching into the sea.

The DOT will obtain a stream channel alteration permit for any work done within the stream. As of this design stage, no in-stream work is planned.

JOHN WAIHEE
GOVERNOR
STATE OF HAWAII

ILIMA A. PIIANAIA
CHAIRMAN
HAWAIIAN HOMES COMMISSION

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96805

December 29, 1988

MEMORANDUM

TO: Honorable Edward Y. Hirata, Director
Department of Transportation

FROM: Ilima A. Piianaia, Chairman
Hawaiian Homes Commission

Subject: Draft Environmental Impact Statement
Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai, Lahaina, Maui

We have reviewed the subject document and have no comments to offer.

Thank you for the opportunity to participate in the process.

IAP:JC:eh

EVALUATION

No response required

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JOHN WAIHEE
GOVERNOR

YUKIO KITAGAWA
CHAIRPERSON, BOARD OF AGRICULTURE

SUZANNE D. PETERSON
DEPUTY TO THE CHAIRPERSON

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814-2512

Mailing Address:
P. O. Box 22159
Honolulu, Hawaii 96822-0159

February 6, 1989

Mr. Edward Y. Hirata, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Subject: Draft Environmental Impact Statement (DEIS)
Honoapiilani Highway (FAP Route 30)
Puamana to Honokawai
TMK: 4-4, 5 & 6
Lahaina, Maui

The Department of Agriculture has reviewed the subject document and offers the following comments.

The Department of Agriculture wishes to emphasize and reiterate its previous concerns as indicated in our response of June 25, 1987, to the EIS Preparation Notice. Section VII, "Anticipated Impacts And Mitigation Measures," item K, "Impact On Agricultural Lands and Land Uses," page VII-24 of the DEIS, states that "no significant agency comments regarding agricultural impacts have been received at this time." This is contrary to the issues raised by our comments of June 25, 1987 and by Pioneer Mill Company's comments of July 16, 1987. In particular, the DEIS does not adequately address the economic impact of the proposed highway construction on Pioneer Mill's facilities and operations.

The Department of Transportation response of July 30, 1987, that "it will not be possible for the DOT to provide replacement agricultural lands" is also not satisfactory. At a minimum, some compensation to Pioneer Mill Company should be provided for the adverse impacts which may be caused by the highway projects.

We concur with Pioneer Mill Company's comment of July 16, 1987, that the mauka alignment ("C") should be selected, to the extent that this will minimize impacts on the plantation and on prime agricultural lands.

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Section V, "The Affected Environment," item 3, "Soils," page V-2 of the DEIS report, describes some of the predominant soils in the project area. However, it fails to include information on the soils of the site in terms of the other soil classification systems referred to in our earlier comments of June 25, 1987 and June 27, 1985, namely:

1) Agricultural Lands of Importance to the State of Hawaii (ALISH) system.

2) Detailed Land Classification and Overall Productivity Rating by the Land Study Bureau (LSB).

Thank you for the opportunity to comment.

Sincerely,

Yukio Kitagawa
YUKIO KITAGAWA
Chairperson, Board of Agriculture

cc: Mr. William R. Lake
Division Administrator
Federal Highway Administration

Mr. J. C. Hance
President and Manager
Pioneer Mill Company

OEQC

EVALUATION

1. The economic impact of the proposed highway construction on Pioneer Mill's facilities and operations will be minimal since Alternative B has been selected. The anticipated effects with the appropriate mitigation measures will be minimal.

2. Compensation to Pioneer Mill Company will be provided for the adverse impacts which may be caused by the highway project as a part of the right-of-way acquisition process.

3. The comments on Alternative C have been considered along with the other input that the DOT received and data that the DOT has.

4. A description of the predominant soils in the project area in terms of your suggested classification systems has been included in the Final EIS on page 48.

STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
1600 KAPIOLANI BLVD., SUITE 1500
HONOLULU, HAWAII 96814
(808) 548-8960
(808) 946-2642

December 27, 1988

Dr. Marvin Miura, Director
Office of Environmental Quality Control
465 S. King St. Room 104
Honolulu, HI. 96813

Dear Dr. Miura:

Subject: Draft EIS: Honoapiilani Highway (FAP Route 30), Puamana to Honokowai, Lahaina, Maui. TMK:

Thank you for sending our office a copy of the Draft EIS for this project, and for the opportunity to comment.

An intensive archaeological survey should be conducted in the project area, and a copy of the written report should be sent to our office for review and comment. Please send our office copies of all archaeological reports generated by this project, including preliminary reports, research designs, excavation reports, and monitoring reports.

Sincerely,

Kamaki A. Kanahele III
Administrator

cc: Mr. Edward Hirata
Mr. William Lake

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EVALUATION

An archaeological study report was included in the Draft EIS as Appendix C. OHA will be included on the DOT's mailing list to receive other similar reports that may be generated by this project.

As mentioned in the EIS, the Federal Highway Administration (FHWA) has coordinated with the State Historic Preservation Officer following the procedures of Section 106 of the National Historic Preservation Act of 1966. The field reconnaissance for the project has been reviewed by DLNR and the State SHPO. Through consultation with these offices, the SHPO has concurred that the project will have "no effect" on significant historical and archaeological resources. This conclusion is referenced in Appendices M and N of the Final EIS.

Council Chairperson
Goro Hokama

Council Vice-Chairperson
Howard S. Kihune

Council Members
Linda Crockett Lingle
Pat S. Kawano
Alice L. Lee
Rick Medina
Wayne K. Nishiki
Velma M. Santos
Joe S. Tanaka

COUNTY COUNCIL
COUNTY OF MAUI
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

Gwen Yoshimi-Ohashi
Director of Council Services

February 8, 1989

Mr. Edward Y. Hirata, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

I am in receipt of a letter dated January 25, 1989, regarding the United States Environmental Protection Agency's (EPA) comments on the Draft Environmental Impact Statement (DEIS) titled Honoapiilani Highway (FAP Route 30), Puamana to Honokowai, Lahaina District, Maui County, Hawaii.

I have attached the above-mentioned letter, and request your comments on the EPA's recommendations as it relates to mass transit, water quality, and cumulative impacts. Also, could I receive a copy of the Final Environmental Impact Statement when it is completed.

Your assistance on this matter is greatly appreciated. Thank you for your time and cooperation.

Sincerely,

(Mrs.) VELMA M. SANTOS
Chairperson, Planning and
Land Use Committee

Attachment

deis:PLUb:wb

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EVALUATION

No response required

HANNIBAL M. TAVARES
Mayor

HENRY T. S. LAU
Director of Finance

GERALD S. MATSUI
Deputy Director of Finance

COUNTY OF MAUI
DEPARTMENT OF FINANCE
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

January 23, 1989

Mr. William R. Lake
Division Administrator
U. S. Department of Transportation
Federal Highway Administration, Region Nine
Box 50206
Honolulu, Hawaii 96850

Dear Mr. Lake:

Subject: FHWA-HI-EIS-88-02-D
Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai, County of Maui, State of Hawaii

Thank you for inviting us to comment on the proposed construction of Honoapiilani Highway between Puamana and Honokowai. The Department of Finance of the County of Maui has no comments to offer at this time.

Very truly yours,

Henry T. S. Lau

HENRY T. S. LAU
Director of Finance

HTSL:rt

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EVALUATION

No response required

Mayor
ALVIN K. FUKUNAGA
Director
BRIAN HASHIRO, P.E.
Deputy Director
GEORGE KAYA
Highways Division
FRED ARAKI, P.E.
Engineering Division
EASSIE MILLER, P.E.
Waste Management Division
AARON SHINMOTO, P.E.
Land Use and Codes Administration

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

February 7, 1989

Mr. Edward Y. Hirata, Director
Hawaii Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

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

Gentlemen:

SUBJECT: DRAFT EIS HONOAPIILANI HIGHWAY (FAP ROUTE 30)
PUAMANA TO HONOKOWAI

Thank you for the opportunity to comment on the above subject matter. Our staff has reviewed the Draft EIS and we offer the following comments for your consideration.

A. WASTE MANAGEMENT DIVISION COMMENTS

1. We recommend that the alignment be located such that there would be sufficient area to allow for future expansion of the Lahaina Wastewater Treatment Facility.

2. There should be a discussion on the affect each alternative has on the sewer collection system.

B. ENGINEERING DIVISION COMMENTS

1. We suggest that connector roads be a part of the by-pass highway plan and constructed by the State.

C. LAND USE AND CODES ADMINISTRATION DIVISION COMMENTS

1. Does the State plan to retain jurisdiction over the existing Honoapiilani Highway?

2. Portions of the highway within the flood hazard district should conform to the Flood Hazard District Ordinance.

3. A drainage analysis should be made on the impact of the project on the downstream properties.

D. DIRECTOR'S OFFICE COMMENTS

1. On Figure 3a:
   a. Lower Honoapiilani Highway is not located between Puukolii Road and Kaanapali Parkway/Halelo Road.
   b. The Honoapiilani Highway/Puukolii Road intersection is currently signalized.
   c. The Honoapiilani Highway/Civic Center Road (Lahaina side) intersection is currently signalized.

2. On Figure 3b:
   a. The Honoapiilani Highway/Kapunakea Street intersection is currently signalized.
   b. The Honoapiilani Highway/Kenui Street intersection is currently not signalized.
   c. The Honoapiilani Highway/Hinau Street intersection is currently signalized.

In conclusion, we are in support of the proposed project. Please feel free to contact us if we can be of further assistance.

Very truly yours,

Brian Hashiro

for ALVIN K. FUKUNAGA
Director of Public Works

cc: Mr. William R. Lake, Federal Highway Administration

EVALUATION

A. WASTE MANAGEMENT DIVISION COMMENTS

1. The proposed project will be coordinated with the plans for the Lahaina Wastewater Treatment Facility.

2. No significant adverse impacts to the sewer collection system are anticipated. The DOT will continue to coordinate with DPW as their plans are further developed in the design stage.

B. ENGINEERING DIVISION COMMENTS .

The DOT cannot provide connector roads (normally a county function) as part of the bypass highway project. However, assistance at the intersections can be provided.

C. LAND USE AND CODES ADMINISTRATION DIVISION COMMENTS

1. Bypassed portions of the existing highway would be turned over to the County when the new highway is opened.

2. The portion of the proposed highway that is within the flood hazard district will conform to the Flood Hazard District Ordinance.

3. During the design stage, a drainage analysis will be conducted to assure that downstream properties will not be affected.

D. DIRECTOR'S OFFICE COMMENTS

Figures 3a and 3b has been corrected on pages 13 and 14 of the Final EIS according to your comments.

HANNIBAL TAVARES
Mayor
TELEPHONE 244-7888
WH/ar

OFFICE OF THE MAYOR
COUNTY OF MAUI
WAILUKU, MAUI, HAWAII 96793

December 21, 1988

Mr. William R. Lake, Division Administrator
U. S. Department of Transportation
Federal Highway Administration
P. O. Box 50206
Honolulu, Hawaii 96850

Dear Mr. Lake:

SUBJECT: FHWA - HI-EIS-88-02-D
HONOAPIILANI HIGHWAY (FAP ROUTE 30)
PUAMANA TO HONOKOWAI, COUNTY OF MAUI, STATE OF HAWAII

Thank you for sending me a copy of the subject Draft Environmental Impact Statement for our review and comments.

We have reviewed the EIS and do not have any recommenddations for revisions.

This project, including both the widening of the existing highway and provision of a by-pass highway, is essential to the solution of the severe traffic congestion problem in West Maui. Therefore, I will very much appreciate your expediting the approval and implementation of the project as much as possible.

Please let me know if there is anything I can do to assist you in this matter.

Very truly yours,

Hannibal Tavares

HANNIBAL TAVARES
Mayor, County of Maui

cc: Director Department of Transportation, State of Hawaii
Managing Director
Planning Director
Public Works Director
W. S. Haines, Exec. Asst.

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EVALUATION

No response required

HANNIBAL TAMARES
Mayor
dc

FRED MATSUMOTO
Coordinator

COUNTY OF MAUI
OFFICE OF ECONOMIC DEVELOPMENT
WAILUKU, MAUI, HAWAII 96793
TELEPHONE 244-7710

December 19, 1988

MEMORANDUM

To: Mr. Edward Hirata
Director of Transportation

Mr. William Lake
Administrator of Federal Highway Administration

From: Fred Matsumoto Roshima for F.M.
Economic Development Coordinator

Subject: EIS on Honoapiilani Highway
(FAP Route 30) Puamana to Honokowai

We have reviewed the subject Environmental Impact Statement and offer the following comment:

1) The subject report should address the economic impact of the proposed project.

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EVALUATION

The economic impact of the project is basically beneficial overall and is indicated or covered throughout the Draft EIS as follows:

1. Chapter VII discusses the impacts on:

   a. Social Aspects
   b. Infrastructure and Utilities
   c. Public Facilities and Services
   d. Agricultural Lands and Land Uses

2. Chapter VIII discusses the relationships to long-term productivity and irreversible/irretrievable commitments of resources.

3. Chapter IX discusses short- and long-term environmental effects, some of which are related to economic activity.

4. Appendix F discusses the conceptual relocation plan and effects on residents and Pioneer Mill.

HANNIBAL TAVARES
Mayor

ROBERT AGRES, JR.
Director

MARLENE MANEHA
Deputy Director

County of Maui
Department of Human Concerns
HOUSING DIVISION
200 South High Street
Wailuku, Maui, Hawaii 96793
Telephone: 244-7752, 244-7849, 244-7822

January 31, 1989

Mr. William R. Lake
Division Administrator
U.S. Department of Transportation
Box 50206
Honolulu, Hawaii 96850

Dear Mr. Lake:

SUBJECT: FHWA-HI-EIS-88-02-D
Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai, County of Maui

We have reviewed the Draft Environmental Impact Statement for the subject project, and hereby recommend that alternative B or C be selected as the alignment for the project.

The area between the Kahoma Stream and the Lahaina Civic Center should be used for the development of housing, to address the critical housing shortage in West Maui. We believe that all of the lands in this area, that will be situated below the proposed by-pass highway, should be developed for housing as soon as possible.

The housing in the Civic Center-Kahoma Stream area, could also serve as the area for relocation housing, for those families that would have to be displaced if alternative B is selected as the alignment for the project.

Very truly yours,

ROBERT AGRES,
Director of Human Concerns

ETO:hs

cc: Housing Administrator

EVALUATION

Alternative B, Mauka Tier Variation has been selected as the preferred alternative. The preferred alternative will allow housing to be developed between the Kahoma Stream and the Lahaina Civic Center as suggested. Traffic related concerns for future development in this area should be considered for each specific project.

HANNIBAL TAVARES
Mayor

MARILYN M. MONIZ
Director

KENJI KAWAGUCHI
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PARKS AND RECREATION

1580 Kaahumanu Avenue
Wailuku, Maui, Hawaii 96793

January 4, 1989

Mr. N. L. Arthur
Assistant Division Administrator
U. S. Department of Transportation
Box 50206
Honolulu, Hawaii 96850

Dear Mr. Arthur:

Subject: FHWA-HI-EIS-88-02-D
Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai, County of Maui,
State of Hawaii

We have reviewed the Draft Environmental Impact Statement and have no comments.

Thank you for the opportunity to review this matter.

Very truly yours,

Marilyn Moniz Kahoohanohano

MARILYN MONIZ-KAHOOHANOHANO
Director

MMK:PM:jm

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EVALUATION

No response required

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P. O. BOX 1109
WAILUKU, MAUI, HAWAII 96793

December 20, 1988

Mr. William R. Lake
Division Administrator
Federal Highway Administration
U.S. Department of Transportation
Box 50206
Honolulu, Hi 96850

Dear Mr. Lake:

Subject: FHWA-HI-EIS 88-02-0
Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai, County of Maui
State of Hawaii
Draft EIS

Thank you for the opportunity to review the draft EIS for the subject project.

We have two concerns which are not addressed in this draft.

1. What corrective measures are planned for the county's water system that may be disturbed directly or indirectly by this project? Depending on the selection of the alternative routes corrections, replacements and relocation of the water system may be necessary.

2. Will the project require water supply during and after construction for construction and/or for irrigation? Since this is not addressed in the report, it must be implied that water supply will not be required.

   The county water source does not leave sufficient supply of water in the Lahaina area for use for this project and the development of additional groundwater source may have impact on the existing limited groundwater supply.

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"By Water All Things Find Life."

Thank you for the opportunity to provide comments on this draft EIS.

Sincerely,

Vince S. Raboyd, Jr., Director

VGB/CK/ao

cc: DWS Engr.

EVALUATION

1. The water system may need relocation and adjustments. The DOT will continue to coordinate with DWS as the project plans are further developed. The DOT will mitigate any impacts to your water supply facilities.

2. The DOT anticipates that water will be needed during construction of the proposed highway improvements and for irrigation of the highway landscaping. This is stated on page 95 in the Final Environmental Impact Statement. The DOT will coordinate its landscaping designs with the DWS.

...ui Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului Maui HI 96732-0398 • (808) 871-8461

February 1, 1989

Mr. Edward Hirata, Director
Hawaii Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Hirata;

Subject: Draft Environmental Impact Statement (EIS)
Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai

We have reviewed the subject draft EIS and provide the following comments:

1. As stated in Sections V. H. and VII. I., electrical line adjustments may be necessary for each of the three alternatives. Maui Electric has two transmission lines from our Maalaea Power Plant which run between Puamana and Lahainaluna Road, one of which runs along the Cane Haul Road. Also, two transmission lines run between Lahainaluna Road and our Napili Substation. In addition, we have numerous distribution systems between Puamana and Honokowai.

   Early coordination is required between MECO and the State to allow for timely relocation of our lines, if required.

   Please note that MECO requires approximately 6-8 months to finalize the relocation design and obtain materials.

2. In Section III. E., regarding the corridor alternatives from Kaanapali to Honokowai, the second extension alignment alternative crosses Puukolii Road just makai of the Puukolii reservoir. Located on the Kapalua side of Puukolii Road, at this intersection, is MECO's Puukolii Substation No. 23. This substation serves the Kaanapali resort area. Confirmation is required as to the necessity of relocating our substation. Relocation of this substation could require over a year to complete, considering permits, design, material and land acquisition, and construction.

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Thank you for the opportunity to comment on the subject EIS. Should you have any questions on this matter, please call Neal Shinyama of this office at 871-2341.

Sincerely,

Calvin A. Kuwanoe
Manager, Engineering

NS:rt
ns
cc: William R. Lake (Federal Highway Administration)
Marvin T. Miura (Office of Environmental Quality Control)

EVALUATION

1. The DOT will continue to coordinate with HEC as its plans are developed to assure early and timely relocation of your electric transmissions lines if required. MECO"s requirement of approximately 6-8 months to finalize the relocation design and obtain materials is noted.

2. If HEC's Puukolii Substation No. 23 needs relocation, the DOT will inform HEC as early as possible during the design stage.

MAUI CHAMBER
OF COMMERCE

February 6, 1989

Mr. William R. Lake
Division Administrator
U.S. Department of Transportation
Federal Highway Administration Region 9
Box 50206
Honolulu, HI 96850

Dear Mr. Lake:

SUBJECT: FHWA-HI-EIS-88-02-D
HONOAPIILANI HIGHWAY (FAP 30)
PUAMANA TO HONOKOWAI, COUNTY OF MAUI, STATE OF HAWAII

Thank you for your draft EIS on the above project. A copy of our testimony before your public hearing of January 19, 1989 is attached.

Subsequent to this hearing, our Government Affairs Committee, West Maui Committee and Board of Directors have further taken a position in support of alignment "B", the Ikena Street alignment with fair compensation to the 19 affected residents for condemnation and relocation with a preference toward the tunnel alternative to minimize impact to the remaining residents of this area.

It was felt that this was the most cost effective route which would impact the least number of people.

Alternate "A" was not considered as viable due to cost and since it would disrupt the lives and future of 345 employees and families of Pioneer Mill Co., Ltd., it would also cause impacts to indirect employment and create significant drainage and other environmental consequences if the sugar operation shut down without alternative crops to keep existing fields in cultivation. Also, the existing HHA Housing Project residents would be impacted and need relocation.

26 N. Puunene Avenue • P.O. Box 1677 • Kahului, Maui, HI 96732 • Phone: (808) 871-7711

Alternate "C" was considered less desirable due to cost, distance, and impacts to several hundred school children at Princess Nahienaena Elementary, Lahaina Intermediate and Lahainaluna High Schools.

In summary, it was felt that a safe, well-engineered project through Ikena Street with adequate right of way and a tunnel would be the least impacting while remaining the least costly of all alternatives studied.

Thank you for the opportunity to provide these comments.

Sincerely,

Sheila Ludwick

Sheila Ludwick
Executive Director

jnh

Enclosure

xc: Ed Hirata
Board of Directors
Government Affairs Committee

EVALUATION

Alternative B, Mauka Tier Variation has been selected as the preferred alternative. Reasons supporting this selection are as the Maui Chamber of Commerce have indicated. The tunnel variation was not selected due to the high construction and maintenance costs associated with this alternative.



RAILROADS OF HAWAII
dba
LAHAINA KAANAPALI & PACIFIC RR
P.O. Box 816
Lahaina, Maui, Hawaii 96761
Phone (808) 667-6851 — 661-0089

February 5, 1989

William R. Lake, Division Administrator
U.S. Department of Transportation
Fereral Highway Administration
P.O. Box 50206
Honolulu, HI 96850

Dear Mr. Lake:

Subject: Honoapiilani Hawaii (FAP Route 30)
Puamana to Honokowai, County of Maui, State of Hawaii

This letter will address the impact of the proposed highway construction on the Lahaina, Kaanapali and Pacific Railroad. Railroads of Hawaii owns and operates the Lahaina, Kaanapali and Pacific Railroad. The right-of-way and property is leased from AMFAC Property Management, Pioneer Mill and the State of Hawaii. The Lahaina, Kaanapali and Pacific Railroad was built in 1969 along the old right-of-way of Pioneer Mill's sugar cane hauling railroad. The Lahaina, Kaanapali and Pacific Railroad was conceived as a historical recreation of the old Railroads of Hawaii to carry passengers between Lahaina Town and the Kaanapali Resort area. Since it's inception, the Railroad has had a steady growth of passenger business. The Railroad has carried over 2.3 million passengers. This past year it carried over 285,000 passengers. Business has continued to grow and the prospect of continued growth is very likely to continue into the 1990's.

Railroads of Hawaii has reviewed the Draft Environmental Impact Statement and has found several areas of concern to our business operation. The Highway Alignments Alternatives A, B, and C all cross our right-of-way between Hanakaoo Beach and the Lahaina Civic Center. The re-alignment alternative of the highway through Kaanapali Resort on the present highway may take the cane haul road right-of-way. The Lahaina, Kaanapali and Pacific Railroad is presently occupy-

ing the shoulder of this road. We are also concerned with the Kaanapali Station which is accessed from the Resort by the Resorts Trolley Bus. This bus must cross over the current Honoapiilani highway on a bridge. This road and bridge must be maintained to the station in order to have public access to this station.

The area of most concern to the Lahaina, Kaanapali and Pacific Railroad is the crossing of the new highway alignment and the railroad near Hanakaoo Beach. The Railroad must have an uninterrupted track during construction and a safe divided crossing of the highway after construction is complete. The Lahaina, Kaanapali and Pacific Railroad business success is based on providing a scenic train ride on a reliable schedule. The train operates on a set schedule seven days a week all year around. Tour companies, at this time, are planning to use our train as part of their package tours of Maui throughout the 1990's.

The closing of the Railroad for construction work is viewed, by us, as a situation to be avoided. We fear that the tour business once lost to us will not come back to the Railroad for several years, if ever. The Railroad operated for many years on the patronage of just the average tourist visiting Maui. It took years to convince the tour companies that the Railroad had a reliable product that they could include in their packages. The closing of the Railroad for more than a day or two will have a long term impact on the survival of the Lahaina, Kaanapali and Pacific Railroad.

The short term impact to the railroad, assuming that a temporary track is built around the highway railroad crossing, would be the slowing down of running times between Lahaina and Kaanapali. The railroad believes that this extra time in transit can be workable and without a major change in our present schedule. We also foresee the repair of track damage caused by construction. The Kahoma Stream Flood Control project's construction has several times damaged our track. We have been forced to have emergency repairs made during business hours. The crossing of the tracks by large construction machines and many small vehicles also presents a grade crossing hazard that should not be ignored.

The Lahaina, Kaanapali and Pacific Railroad is not a public utility as defined by Hawaii law. However, the railroad is considered by many people in the tourist business to be much more than just another "T-Shirt" shop.

The railroad is a living connection with Lahaina's past. It brings together the sights and sounds of this past with the very real needs of Lahaina's transportation problems of today. Although the number of passengers moved to and from Lahaina on any given day is small today, the potential for contributions to the solution of West Maui's traffic problems should not be ignored. The imposition of constructing of this new road should not cause the abandonment of the Railroad, for the Railroad may hold the key to the true long range problems of moving people to and from the Resort and Lahaina Town.

Railroads of Hawaii is grateful to be able to respond to this environmental Impact Statement. We will be happy to answer any questions that you may wish to ask of us.

Sincerely,

Gary Getman
General Manager
LK&P RR

EVALUATION

In the area between Hanakoo Beach and the Lahaina Civic Center, the DOT may provide a grade separation structure for the crossing between the proposed highway and the railroad. For the widening alternative between Kaanapali and Honokowai, the DOT will provide for the realignment of the railroad as well as the cane haul road. The DOT will maintain the existing overpass crossing to enable public access to the railroad station.

During our construction of the proposed highway improvements, the DOT will consider the need to maintain the operating schedules and provide the appropriate detours.

The DOT will also coordinate with your company to minimize the potential damages that may result from construction vehicles crossing the railroad tracks.

AMFAC PROPERTY INVESTMENT CORP.
P. O. BOX 10279
2530 KEKAA DRIVE
LAHAINA, MAUI, HAWAII 96761
TELEPHONE (808) 667-7411

AN Amfac COMPANY

February 6, 1989

Mr. William R. Lake
Division Administrator
Federal Highway Administration
U.S. Department of Transportation
P.O. Box 50206
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

Dear Mr. Lake:

Subject: Report No. FHWA-HI-EIS-88-02-D
Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai Drafts EIS

Thank you for the opportunity to comment on the above subject document.

Amfac/JMB Hawaii, Inc., as an affected landowner, has participated in the numerous meetings and hearings relative to this project. We realize that corridor selection is difficult at best and encourage your efforts to conclude this project process with the utmost expediency.

We wish to offer two comments relative to the draft EIS as follows:

1. Relocation Assistance to Residents

It has been noted that substantial uncertainty and fear exists among residents of Ikena Street which may need relocation in the event Alternative Corridor "B" is selected. If this corridor is selected, Amfac/JMB Hawaii, Inc. is prepared to mitigate the adverse effect of relocation by contributing to the project sufficient lands to provide equivalent replacement lots to those residents affected. It is our understanding that 19 homes may need condemnation for Alternative "B", ranging in lot size from 6,951 sq. ft. to 10,547 sq. ft. constituting approximately 3.43 acres of land. We are prepared to donate approximately 6 acres of undeveloped land for the construction of homes in the Kahoma Stream area to replace the loss of lands at Ikena. If alternate lands in other areas are preferred, we are also open to assist the State in negotiating trades of

lands to accommodate a satisfactory and fair relocation.

2. We are prepared to mitigate the land component cost between Honokowai to Kaanapali widening vs. extension alternatives in the second phase of highway construction. We favor a mauka alignment and are prepared to donate mauka lands necessary to accommodate the right-of-way over Amfac/JMB Hawaii owned property, provided the right-of-way can be aligned to reduce or minimize adverse impact to our master planned project at Kaanapali Beach Resort and the Pioneer Mill Co.

We appreciate the opportunity to provide comment and remain open to discussion relative to any of the above items.

Sincerely,

David H. Gleason
Vice President

xc: ✓Edward Y. Hirata, Director, Hawaii Dept. of Transportation
Mayor Hannibal Tavares, County of Maui
Councilman Goro Hokama, Chairman, Maui County Council
Robert Siarot, District Engineer, Dept. of Transportation
George Sano, Commissioner on Transportation

EVALUATION

1. The DOT appreciates Amfac's offer to donate about 6 acres of lands and to assist the State in negotiating trades to accommodate a satisfactory and fair relocation of residents that may be affected by the proposed highway improvements.

2. The DOT also appreciate Amfac's offer to donate the mauka lands necessary to accommodate the right-of-way over Amfac/JMB Hawaii, Inc. owned property, provided the right-of-way can be aligned to reduce or minimize adverse impact to Amfac's master planned project at the Kaanapali Beach Resort and the Pioneer Mill Co.

AMFAC PROPERTY
DEVELOPMENT CORP

700 Bishop Street
P.O. Box 3140
Honolulu, Hawaii 96802
(808) 945-8144

Amfac

February 6, 1989

Mr. William R. Lake
Division Administrator
Federal Highway Administration
U.S. Department of Transportation
Box 50206
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

Dear Mr. Lake:

Re: Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai

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Thank you for the opportunity to offer supplemental comments on the above-stated document.

We encourage and support the State of Hawaii's and the Federal Highway Administration's farsighted and thoughtful consideration of various alignments for the bypass corridor through Lahaina. However, much of the testimony and comments have centered on the Lahainaluna Road intersection, and little on the portion of the bypass corridor through Kaanapali. We believe the choice of a Kaanapali corridor will have as much long-range impact on West Maui as the Lahaina section.

We have carefully reviewed the Kaanapali corridors and have the following concerns:

1. HIGHWAY CAPACITY

The widening alternatives for Honoapiilani Highway between Kaanapali and Honokowai should consider a broader planning perspective of the bypass alignment and the issues it will address.

We must assume that the traffic assessment for the Year 2007 at Kaanapali Parkway includes future traffic from the Kaanapali North Beach Resort as well as the existing South Beach Resort and other West Maui areas designated for development in the Lahaina Community Plan. Widening Honoapiilani Highway to four lanes would not accommodate the projected traffic demand at

the Halelo-Kaanapali Parkway intersection. In Table 5 of the Draft EIS, the maximum sum of critical volumes, during the PM peak period for the Year 1997 at Halelo-Kaanapali Parkway intersection, is projected to be 2,254 vehicles per hour (vph), which exceeds the 1,400 vph capacity level for intersections indicated on Page II-6. By the Year 2007 this traffic demand figure increases to 2,475 vehicles per hour, 1.77 times the intersection capacity.

Based on this analysis presented in the Draft EIS, the widening of Honoapiilani Highway through Kaanapali to four lanes is not a feasible alternative to accommodate the projected traffic demands, since the proposed four lane facility would be over capacity before the Year 1997. The Draft EIS should consider these environmental impacts and the cost of further improvements.

Consideration should also be given to the mauka alignment's ability to provide opportunities for expansion into the Year 2007 and beyond, without incurring future impacts.

2. ACCESS

A route through Kaanapali should alleviate the severely restricted access to areas north of the Lahaina Civic Center and provide an alternative route to the other areas of Maui for those motorists and residents who are located north of Kaanapali.

According to the Lahaina Community Plan, most of the growth potential for West maui is located in Kaanapali, Napili and Kapalua. Any road blockage along Honoapiilani Highway, such as road construction, traffic accident or flooding would isolate the entire region north of Kaanapali. Emergency services, such as police, fire protection, civil defense and ambulance would be prevented from serving these areas during these situations.

The provision of an alternative route is necessary for the area.

3. COSTS

As stated earlier, the widening alternative through the Kaanapali area as proposed will not accommodate the

near future traffic demand. The costs for the proposed widening do not consider or provide for future widening through this built-up area. It is questionable whether it is cost-effective to compare the estimated $7,700,000 versus the $11,100,000 costs (if the right-of-way were donated by Amfac as indicated in the February 6 letter from David Gleason), when another lane in each direction will be required through Kaanapali immediately after the widening alternative is completed. Additional cost savings could result from careful selection and design of the route, which avoids the gulches. The cost to add the additional lane by widening at that time appears to exceed the $3,400,000 difference. We, therefore, suggest that further study be conducted in reviewing the merits of the widening alternative through Kaanapali and the mauka alternative.

We believe that a mauka alignment of the bypass around Kaanapali is a better and longer-term solution to West Maui's traffic issues.

Sincerely,

R. Brian Tsujimura

RBT:cym

cc: Edward Y. Hirata, Director of Transportation, State of Hawaii
Mayor Hannibal Tavares
Councilman Goro Hokama
Robert Siarot, District Engineer, Dept. of Transportation
George Sano, Commissioner on Transportation

EVALUATION

1. The Kaanapali Parkway-Halelo Street intersection under the proposed widening alternative will have sufficient capacity to accommodate the project design year traffic. The DOT will widen the intersection and its approaches to provide the necessary capacity. The maximum sum of the critical volumes during the controlling P.M. peak hour at the Kaanapali Parkway-Halelo Street intersection will not be over the capacity level of the proposed intersection.

   The DOT recognizes that the mauka alignment would be easier to expand beyond the design year.

2. The need for an alternative access route to the areas north of Kaanapali has been considered along with the other data that the DOT has.

3. The comments relating to project costs and Amfac's suggestion that further study be conducted on the merits of the widening alternative through Kaanapali and the realignment alternative will be considered. The DOT's traffic analyses and projections currently show that the capacity provided by the widening alternative will not be exceeded by the design year 2007 and accordingly the additional lanes which Amfac noted, would not be needed.

Andrea Heath-Blundell
810 Ikena Avenue
Lahaina, Hi. 96761

Mr. William Lake
Federal Highway Administration
Box 50206
Honolulu, Hi. 96750

January 5, 1988

Dear Mr. Lake,

I appreciate the chance to comment on the EIS for the Lahaina Bypass proposal. I am a resident of Ikena Avenue and for over two years I have lived with the knowledge that my house may be destroyed "for the good of the community." I have several comments that I would like to make concerning the decision soon to be made.

1. Very little has been said at the public hearings regarding the use of the Pioneer Mill yard, yet in the State of Hawaii several of these old sugar mills have closed down in the past few years because they were unprofitable. I read in the EIS that the mill would have to shut down operations and lay off approximately 370 people if the bypass were to be built in their yard, yet nothing was asked or said about how viable sugar production will be say 5 years from now. I would appreciate more information about the future of the Pioneer Mill sugar production. If there is a chance the mill would close in the future then this route for the bypass should be the one given the most consideration.

I also question the fact that the mill would have to close if the bypass were to go through the yard. Perhaps some relocations would have to be made, but further research should be given to the viability of this route. Possibly a new design concept could overcome the obstacles along this route.

2. I have to disagree with the logic behind dropping Alternate E, Kelawea-Kalena, and keeping Alternate B, Ikena Avenue. The reason given for dropping Alternate E as stated on page IV-3 was that it would require acquisition of at least 20 homes and that there was significant opposition by the residents. Alternate B, Ikena Avenue, would require acquisition of at least 18, possibly 36 homes, and there is also significant opposition by the residents, yet this alternative has not been dropped. Why not?

3. Because cost seems to play such an important role in decision making of this kind I would like to see a realistic cost estimate given for Alternate B if the 36 homes were all relocated. I know that the 22 million estimated for this Alternative would rise, but I would like to know by how much and then compare this cost to the other two routes proposed.

4. New road construction should take into consideration future growth and expansion needs. The partial acquisition proposal for Ikena Avenue does not provide for future expansion. If a bypass is to be built along this route then by all means do it right the first time and allow for the possibility of future growth.

Having physically measured the existing street and homes I know that taking property from both sides of the street is impossible. County codes and setback requirements would be violated. The proposed walls would be constructed within inches of some of the homes.

It appears then that the alternative for B is to relocate at least the 18 homes mauka of Ikena Avenue. Keeping future growth in mind might it not be wisest to take the 36 homes and have the space available for expansion should the need arise?

5. In comparing the three routes on the basis of least impact for noise and emissions the mill route would provide the least impact because they themselves contribute to the noise and air pollution. Schools would be adversely affected in choosing Alternate C, but only for school hours whereby Alternate B residents would be affected day and night. Noise mitigation measures such as tall walls would diminish the quality of the residential neighborhood.

6. Alternate C displaces ag land, a baseball field, parking, and a playground. Land acquired for replacement would not need extensive development whereas replacement land for Alternate B would require extensive development and most likely substantially more land.

Obviously I am very much opposed to residential land being acquired for the Lahaina bypass, but if this were to happen there are certain requirements for relocation that I feel must be met. One is the replacement land must be as desirable or more desirable than what we already have. Mr. Hirata in a news article from the Honolulu Advertiser dated September 23, 1988 stated that the State is planning housing next to the Lahaina Civic Center and that would be a good area for relocating Ikena Avenue residents. Let me say that this is NOT desirable land. What we require is land with the same view and same mountain breezes. In other words, land up Lahainaluna road, away from the new bypass, but in the same general area. This relocation issue must be addressed. I feel it should have been included in the EIS as one of the unresolved issues.

I would plead with those who are to make this crucial

decision not to take land out of residential use. Because housing is in such short supply in Hawaii and particularly in West Maui it seems criminal to even consider the taking of homes.

Thank you for this opportunity to respond to this issue.

Sincerely,

Andrea Heath-Blundell

Andrea Heath-Blundell

EVALUATION

1. At the recent public hearing, Pioneer Mill's testimony acknowledged that sugar faces an indefinite future. However they testified that they are committed to the long-term maintenance of agriculture. Pioneer Mill opposes Alternative A because they contend it would force the closure of the Mill. They requested more consideration be given to Alternative B and C. Their parent Company recognizes the impacts on the homes at Ikena Street and has offered some of their lands to relocate the residents. The Mill contends that Alternative A and the the Mill cannot co-exit even with the proposed very high-cost viaduct structure.

2. Alternative E was dropped because of the severe social impact. Most of the people are retirees on fixed incomes. Additionally, the intersection with Lahainaluna Road would be difficult to resolve.

For Alternative B, there is the existing Ikena Avenue right-of-way width of 66 feet wide with only four driveways fronting the road.

Alternative B, mauka tier design variation, proposes the full acquisition of 18 parcels. North Hakau Place and South Hakau Place would provide an additional buffer for the homes mauka of these subdivisions roadways.

Early in the studies it seemed logical to evaluate possibility of reducing the social impact by using a reduced roadway section and possibly constructing a tunnel or using a depressed section and retaining walls. These designs would require the partial take of 36 parcels but no full acquisition. There has been feedback from the residents that this concept would have severe impacts because the acquisition would involve not only taking/reducing the affected parcels' yard area, but would include portions of the houses and additionally subject the residents to a continuous and long-term degraded noise/air environment.

In comparison, Alternative E would require full acquisition of at least 20 parcels and partial acquisition of 3 parcels. Although one of the subdivision streets would provide an additional buffer, it is in a flatter area where noise mitigation would be more difficult and the overall right-of-way width available would be slightly less.

3. At the maximum, Alternative B proposes the full

acquisition of 18 parcels plus the related relocation for the occupants. Alternative design variations consist of the partial acquisition of 36 parcels where there would be no relocation. Alternative B does not propose the full acquisition of 36 homes.

4. Although the DOT have not selected the alternative, all of the alternatives are designed to accommodate the future traffic traffic with four through lanes. Further widening will be possible for a minimum 150-feet wide right-of-way width. Any of the alternatives on a reduced width of 80 feet would face higher construction costs, lower geometrics standards and limited widening capabilities.

It appears a reduced right-of-way width would be very costly and not as cost effective as the full section.

5. The DOT will consider the comments on noise impacts and noise mitigation measures.

6. In general, the DOT agrees with the observations except that "substantially more land" is not likely to be required.

The DOT is cognizant that Alternative B will require a workable plan for relocation of the people who will be displaced. Ms. Heatlh Blundells' comments will be considered in developing a workable solution. The DOT recognizes the need not to reduce the amount of housing which is in short supply in West Maui.

Brian K. Blundell
810 Ikena Avenue
Lahaina, Hi. 96761

Mr. William Lake
Federal Highway Administration
Box 50206
Honolulu, Hi. 96750

January 21, 1989

Dear Mr. Lake,

After reading the draft EIS report #FHWA-HI-EIS-88-02-D and attending the public meeting held in Lahaina January 19, 1989 I wish to offer the following observations and comments.

I am a 15 year resident of Lahaina and I have watched the traffic problems increase to its present day gridlocks. I, along with most of the community, agree with the need for an immediate solution which looks as if it will be the construction of a bypass road.

I am also a homeowner on one of the three alternatives proposed, Alternate B, so I will be directly affected if this route is chosen. Over the past 2 years my family and I have not been able to live a normal life because of the possibility of losing our home. We have not been able to do any major improvements and the worst part is if we had to sell this house for any reason we probably could not have as nobody would buy it knowing of the possibility of a highway coming through.

This brings me to a point that must be raised. On page IV-3 paragraph 2 of the EIS it states "Alternate E would run through the Kelawea-Kalena subdivision and would require the acquisition of at least 20 homes. Preliminary assessment and comments received at the public informational meeting indicate significant opposition by the residents to this alternative." This alternative was subsequently dropped. This alternative, in my opinion, must be put back into consideration. Eliminating it because of the opposition of the residents is grossly discriminatory and I, along with the other Ikena Avenue residents, which number 36 homes and have continuously opposed Alternate B, feel that if Alternate E was dropped because of 20 homes in opposition then Alternate B should be dropped for the same reason. If "E" is not brought back as an alternative or "B" is not dropped I, along with the rest of the Ikena Avenue residents, would be inclined to let a judge rule on what we all feel is discrimination against us.

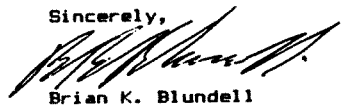
Next I would like to ask why the same tunnel concept that was proposed for Alternate B could not be used for Alternate C? It appears that the main objection that the Department of Education has is that it will lose land for playing fields and agriculture. These objections could be overcome by building a tunnel and then the schools could still have their playing fields and agriculture on top. This would also overcome their other objection to the noise. I realize the cost of a tunnel is high, but Alternate B includes a tunnel and both tunnels would be about the same length and would have similar engineering problems.

This tunnel concept of "C" would not displace any homes. In fact, it would not change anything on the surface so, out of all alternatives, this would have the least impact.

Finally, the EIS stated in various places that fair and equitable compensation would be forthcoming for the displaced families. We do not want to be paid money. We want comparable housing. We want a replacement house with the same size lot and the same view, at the same elevation. I have researched the projects that are due to be started and completed within the next 10 years on the West Side and I have not been able to find any evidence of any comparable housing projects. Everything slated for construction are at lower elevations and most are State or County low cost housing with homes of 1100 square feet on lots of 5000 square feet or less. Our present house is 1600 square feet on a 7600 square foot lot at an elevation of approximately 250 feet above sea level with an unobstructed view from Kahoolawe to Molokai. There is nothing in the planning stages that can offer this. With this in mind I do not see how the State can say that they can find comparable housing even under "Last Resort Housing". We cannot accept, nor should we be expected to accept, anything less than what we have now. And how can that State fairly compensate the families for the anguish that we have all suffered over the past two years?

Thank you for this opportunity to voice my opinions and look forward to your answers to my questions.

Sincerely,



Brian K. Blundell

EVALUATION

Alternative E would require full acquisition of at least 20 parcels and partial acquisition of 3 parcels. Although one of the subdivision streets would provide an additional buffer, it is in a flatter area where noise mitigation would be more difficult and the overall right-of-way width available would be slightly less.

Alternative E was dropped because of its severe social impact. Most of the people are retirees on fixed incomes. Additionally, the intersection with Lahainaluna Road would be difficult to resolve.

For Alternative B, there is the existing Ikena Avenue right-of-way width of 66 feet wide with only four driveways fronting the road. For the mauka tier design variation, which proposes the full acquisition of 18 parcels, North Hakau Place and South Hakau Place would provide an additional buffer for the homes mauka of these subdivisions roadways.

At the maximum, Alternative B proposes the full acquisition of 18 parcels plus the related relocation for the occupants. Alternative design variations consist of the partial acquisition of 36 parcels where there would be no relocation. Alternative B does not propose the full acquisition of 36 homes.

Early in the studies it seemed logical to evaluate possibility of reducing the social impact by using a reduced roadway section and possibly constructing a tunnel or using a depressed section and retaining walls. These designs would require the partial take of 36 parcels but no full acquisition. There has been feedback from the residents that this concept would have severe impacts because the acquisition would involve not only taking/reducing the affected parcels' yard area, but would include portions of the houses and additionally subject the residents to a continuous and long-term degraded noise/air environment.

2. The tunnel concept was later considered for Alternative C, but was not recommended because its estimated construction cost greatly exceeds the cost of all of the Alternative B alternatives.

The DOT recognizes Mr. Blundell's desire and need for comparable replacement housing of the same dimensions, in the same location and elevation and with the same unobstructed view; and that because of the lack of availability of such, compensation in money is not preferable. The DOT is cognizant that Alternative B will require a workable plan for relocation of the people who will be displaced. Mr. Blundell's comments will be considered in developing a workable solution.

D.G.Malcolm
69 Hale Malia Place
Lahaina, Maui, Hawaii 96761

29 January 1989

Mr Edward Hirata
Director
Department of Transportation
State of Hawaii
Honolulu,Hawaii

Subject: Comments on the Environmental Impact Statement (EIS) for the Lahaina Bypass

214

Dear Ed:

I had reviewed the the subject EIS and had planned to attend the Public Hearing on the EIS on January 19 but unfortunately became ill and was unable to attend. Thus I am forwarding a few comments for consideration.

However, first let me state that actions to get on with this project by the DOT are forthright and most commendable. As one who drives from Napili to Kahului most every working day I greatly appreciate the effort and priority being given this project. I really have only three principal observations to make.

Preferred Alternative

It seems to me that Alternative C - between the Lahaina Intermediate and High Schools should be selected. First, the land is not now in use and when necessary a trade-off location can be obtained. This would be much less divisive in separating the community. Secondly, the furthur the by-pass is located away from the Honoapiilani highway, the larger and more cohesive a Lahaina Community can be achieved over the years.

Termini Connections to the Honoapiilani Highway

The EIS is silent on the impact of these connections and the nature in which they would be made. While these may be considered in some future EIS it seems useful to comment at this time relative to some problems that the connections as shown seem to present.

Northerly Terminus at the Kaanapali Parkway

It is suggested that the northerly initial terminus at the Kaanapali Parkway has several impacts that need addressing. First, as shown in the EIS, the new highway fairs into the Honoapiilani after going around the Lahaina Civic Center. This will become a new additional major intersection and require yet another traffic light in all probability.

Secondly, The traffic coming from the north will be presented with the same or greater build up and wait. The proposed by-pass does not alleviate any of the current wait experienced.

Thirdly, it does seem that the connection of the two roads needs to be made at right angles - a very difficult intersection to plan, design and build in such a way as to help the flow of traffic.

As a suggestion, it would seem that the connection might best be made by having the by-pass come in directly to the current signalized intersection at the Kaanapali Parkway. This would mean coming in at right angles and might mean taking of a few homes in the process, but it would eliminate one additional signal.

Or, an even better solution, would be to erect an overpass at this intersection. This could conceivably reduce or eliminate the need for the future extension of the by-pass to Honokowai.

Southerly Terminus

The map in the EIS seems to indicate the southerly connection is to be made close to the Front Street entrance to the Honoapiilani or perhaps a little further south. The EIS is silent on any potential impact.

Front Street would be a poor point at which to make a connection for the obvious reasons of confusion, congestion and perhaps the need for two new signals. It would appear that an obvious place to make the connection is about one half-mile north of the entrance to Launiopoko Park(ie just where the roads turns toward the Puamana Park). This is about 1.2 to 1.3 miles south frm the entrance to Front Street.

This approach would allow the bypass traffic to move on a more less straight line and avoid having first to dip in toward Puamana and then quickly turn back in a mauka direction. This modification would also permit a more cohesive and larger Lahaina Community to develop over the years.

Number of Accesses to the By-Pass

At present only one access is discussed - Dickinson. It seems that a least one other should be contemplated.

I hope these comments are of some use and I thank you for the opportunity to comment.

Sincerely,

Don Malcolm

D G Malcolm

EVALUATION

1. Preferred Alternative

   The DOT will consider the reasons why Alternative C should be selected along with the other data and input we have on the project.

2. Termini Connections to the Honoapiilani Highway, Northerly Terminus at Kaanapali Parkway

   The proposed bypass highway alternatives will connect to Honoapiilani Highway after passing around the Lahaina Civic Center. The DOT will realign the bypassed portion of the existing Honoapiilani Highway to meet the new highway at a new T-intersection. If necessary, the DOT will signalize this new intersection. Although traffic from the north may need to stop at this new intersection, it is anticipated that there will be an overall improvement in the traffic flow.

   The DOT feels Mr. Malcolm's' proposal to have the new bypass come in directly and at right angles to the current signalized intersection at Kaanapali will overload the existing intersection and will impact homes in the subdivision mauka of the intersection. The DOT is not proposing the construction of a new overpass for the highway traffic. The DOT will, however, replace or renovate the existing pedestrian/golf cart overpass which will be affected by the proposed new highway.

3. Termini Connection to Honoapiilani Highway, Southerly Terminus

   The southerly terminus will be located south of Front Street. No significant impacts are anticipated. The bypass highway will be the main highway and will be designed for smooth traffic flow operations. The existing highway, like the northern terminus, will be realigned to a T-intersection at the new highway alignment.

4. Number of Accesses to the Bypass

   Only one access is proposed between the termini of the proposed bypass. The need for additional access points will be addressed in the study of Lahaina Town, which we will be doing for the County of Maui, by adding it to our contract with Austin, Tsutsumi and Associates under the Countywide Transportation Planning Process. In any case, the number and spacing of any additional access will need to follow the DOT's design standards and not adversely affect the capacity and smooth traffic operations on the new highway.

P. O. Box 544
Lahaina, Maui, HI 96767

January 21, 1989

Department of Transportation
Ed Hirata, Director
869 Punchbowl
Honolulu, HI 96813

Subject: Proposed Site of Lahaina By-Pass
Island of Maui

Dear Mr. Hirata:

I want to urge your department to thoroughly examine just what is going to happen to Amfac's Pioneer Mill property now that JMB Realty Co. of Chicago has purchased Amfac.

I seriously doubt that JMB will continue sugar operations using Pioneer Mill facilities. It would be a great tragedy to condemn property through Ikena Street only to find out in a few years that the Pioneer Mill property would have been available or will become available after all.

Please, as a state entity, put pressure on Amfac/JMB to make public their plans for this area so we can truly have the best possible location for the by-pass with the least adverse impact.

Yours truly,

Mary Lou Kunkel

Mary Lou Kunkel

PS - I am not a resident of the area to be directly affected, but I am a concerned citizen of West Maui.

EVALUATION

The Pioneer Mill Company testified at the public hearing that they intend to maintain the Mill at the optimum level of production as long as possible despite sugar's indefinite future. They belive that Alternative A would force the closure of Pioneer Mill.

Jan Bailey

P.O. Box 1191
Lahaina, HI 96767
661-7672

DIRECTOR'S OFFICE

FEB 22 3 50 PM '89

DEPT OF TRANSPORTATION

February 10, 1989

Ed Hirata, Director
Department of Trnasportation
State of Hawaii
869 Punchbowl St.
Honolulu, HI 96813

Dear Mr. Hirata,

I can't be quiet any longer. I have been driving the "Highways and Byways" of the fair island of Maui five to seven days a week, 10 to 12 hours a day, for two years.

The three proposed Lahaina By-pass routes do not take care of the major problems. Turning right at Puamana is out of the question as it will only put the bottleneck in another place. The large trucks will not make the turn, shifting for the steep grade only to return to Lahaina within a mile for deliveries and trash pickup. The turn must be farther South than Puamana, nearer Olowalu.

We need another way into Lahaina from farther South because, when we have another flood after many millions of dollars spent, we will continue to have the same problem: a flooded highway near the Pali and stopped traffic.

I'm finally sick and tired of constantly reading in the papers about the three proposed routes that do not take care of the present problems which are:

1. Congested traffic,
2. Flooding which leaves no way to get to or from the Other Side,
3. Finding more convenient, faster and safer ways to get past Lahaina.

There are alternatives to the suggested by-pass routes:

1. Through the hills to Wailuku. I hear it can't be done but it was done in Honolulu and it could be done here, cutting through South of Olowalu.
2. Around the North end of the Island. Improve the road and build a couple of bridges. While expensive, it would be cheaper than re-locating the families along the Ikena route which would cost millions before the ground is even broken for a by-pass.
3. Cut across behind Olowalu and behind Lahainaluna High School.

I only hope the "Powers that Be" will finally see the folly of the officially proposed routes, stop passing the buck, and get on with the only solutions which I have mentioned above.

Thank you and Aloha,

Jan Bailey — Resident of Hawaii 14 years

Copies to: William Lake, Federal Highway Administration; Dave DeLeon, Maui News; Bill Worth, Lahaina News; Bob Kelsey, Lahaina Sun; Brian & Andrea Blundell.

(47)

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EVALUATION

The proposed alternatives will bypass Lahaina Town but there will be a T-connection to the existing Honoapiilani Highway at the beginning and at the end of the new highway. A right-turn will not be necessary for traffic moving from Olowalu onto the new highway since the new highway will be designed to carry the through traffic. Motorists bound for Lahaina Town have two choices: either make a left-turn at Puamana or at the connector road at the middle of Lahaina Town. The connector road would either be Lahainaluna Road or a new road to be built by the County of Maui.

The flooding problems that you have indicated are many miles away from the proposed highway improvement.

The alternative routes suggested by Ms. Bailey are not justifiable or acceptable as alternatives to the proposed bypass corridors because of the high cost and they do not provide service for the local traffic between the Lahaina-Kaanapali areas. However, her suggested alternatives are valid considerations for future improvements to the highway system. The DOT is conducting an island-wide traffic study which should provide us with more information on the need for highway improvements such as the routes that Ms. Kunkel has suggested.

14 January, 1989

Director
Department of Transportation
869 Punchbowl St.
Honolulu, Hawaii 96813

Dear Sir - Re: Honoapiilani Highway - Lahaina, Maui

I Support any decision you make, and implement, to improve the West Maui traffic situation.

Please - make a decision, and get on with it. Please.

Sincerely,

Kent Simon

Susan Simon

(Taxpayers & voters on maui - 20 years)

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DEPT OF TRANSPORTATION
HIGHWAYS DIVISION

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JAN 23 12 50 PM '89
HIGHWAYS DIVISION
PLANNING BRANCH

RECEIVED
STATE DEPARTMENT
OF TRANSPORTATION

Kent & Susan Simon
29 Hale Malia Place
Lahaina, Maui
Hawaii 96761

EVALUATION

No response required

February 5, 1989

Mr. Edward Y. Hirata
Director
Hawaii Department of
Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Subject: Project Nos. 30 AB-01-85 and 30 AB-01-87
Honoapiilani Highway (FAP Route 30)
Puamana to Honokowai, County of Maui, Hawaii

Concerns for safety, air and noise pollution, re-routing of local traffic and just compensation have not been satisfactorily addressed regarding Alternative "B". As such, I am strongly opposed to Alternative "B" (Ikena Street) being selected as the by-pass road for the above subject matter.

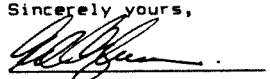
The selection of a by-pass route is a process which should be based on visionary rather than reactionary planning. Because of its permanent nature, its impact on affected businesses, residential subdivisions, and schools should be addressed accordingly.

New residential subdivisions and schools are supposed to be part of this planning process. My parents and I have just completed our residence this past year on land bought from Amfac Properties in 1983. When we purchased this parcel, no by-pass road was indicated through this subdivision. The schools that would be impacted by Alternative "C" were also recently built. As for Alternative "A", Pioneer Mill cannot be counted on to be viable for the next 10-20 years. The State Housing Development Branch has a proposed residential planned community which will affect approximately 2,500 acres of prime agricultural land above Wahikuli, Lahaina. This proposal is estimated to begin in 1990. What impact will this have on the Mill operations? To alleviate the current traffic problems by creating new ones is not good planning.

I would be greatly disappointed to see the by-pass road permanently in place 10-20 years from now at either Alternatives "B" or "C" while the most logical and rational Alternative "A" is utilized for light industrial or business use upon the demise of the Mill.

Again, selection of Alternative "B" should not be considered as the by-pass route.

Sincerely yours,



ED MIYABARA
Resident
730 Kumukahi Street
Lahaina, Hawaii

EVALUATION

We will consider your concerns for safety, air and noise pollution. Air and noise pollution studies were conducted and included in the Draft Environmental Impact Statement.

The proposed alternatives will result in some re-routing of local traffic which would improve the overall corridor capacity and its impacts are accounted for in the air and noise studies.

For the residents that are affected by acquisition and/or relocation, the State will compensate them at fair market value and offer relocation assistance.

The DOT will consider Mr. Miyabara's comments in evaluating the corridor alternatives. It should be noted that Pioneer Mill has testified that they intend to maintain the Mill at the optimum level of production albeit the indefinite future of sugar.

February 11, 1989
1462 Fleming Road
Lahaina, HI 96761

Director
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Ed Hirata:

I know this letter is past it's deadline, but if you accept my comment I would greatly appreciate it. About the new highway I would prefer to have it on the Ikena Street route. Because of the following reasons:

1. At the present time I live on the corner of Fleming road and Front street. I do not appreciate the noise and pollution but something was done to improve the traffic situation; temporarily. We can't all have everything. Therefore, I hope for the benefit of all the people's concern, we get on with the new project. Enough studies, meetings, delays, while cost is rising due to labor, material and inflation.

2. I Do Not Agree with the mill yard route as so many people have said in the past that this would disrupt the mill yard and eventually would affect the community. Developing this route so close to the old highway, does not make too much sense. People would only be racing back and forth to find the fastest and shortest route.

3. Above the Lahainaluna High School route - just too far out of the way and to build a bridge for the gully it has to cross; TOO Costly.

4. Between Lahainaluna High School and the Lahainaluna Intermediate would be too distracting for the students and faculty.

5. I would Agree on the Ikena road because of it's route.
a. Not too far from the town or too close.
b. include a few scenic spots and/or perhaps to include a small picnic ground because of the view it has to offer.
c. preferably to have a tunnel to go through the residential area to cut down on noise and pollution.
d. finally, perhaps to make the residents happier, over the tunnel section. Have more park space. Tennis courts, basketball court, or play ground area for smaller children who reside in the area.

I believe we need to have a choice of a low road/highway and a high road/highway for other reasons.
1. On Dec.31, 1988-Jan. 1, part of West Maui was cut off because of high winds blowing down 13 electrical poles for about 12 hours plus diverting traffic for days after while repair work was being done.

2. Another example: For emergency use. Tidal wave alert of 1986. People were scrambling for higher grounds in the canefield. Safer for people to be on a higher roadway.

3. Perhaps, but not necessary for sports event as a marathon.
People would have a choice of using an alternate routes.

We can't all be greedy. Some sacrifices have to be made. Some homes will be taken away and families disrupted. Some mistakes were made in the past. Poor planning on the part of the state or county, Yes. But progress and improvements must be made; Now because it will get worse before it gets better.

Now, for the non-professional drawings I have included, I have a few comments for each drawing. I realize that you people at the department of transportation planning, the police or signs cannot resolve all the problems. But I hope some improvements can be made and certain traffic situations can be resolved.

Please note: I have not seen your plans of the four lane Honoapiilani Highway.

Diagram #1

1. In this diagram indicated in blue. I would like to see a right hand lane added to improve the traffic flow heading north. I think if it were not for a traffic light control box people would drive on the shoulder.

2. At present since I live on this street, I noticed a everyday problem. Currently drivers who are driving North red #1 on front street are crossing over in the wrong lane to drive on to Honoapiilani highway, which at times create a problem when cars crossing the highway Yellow #2. Also at times car #1 red and car #3 green are side by side, both turning north.

Diagram #2 & #3

Again with most of my drawings with the shaded light blue areas I would like to see a right hand lane for a better flow of traffic rather than see driver, drive on the shoulder and create more hazard.

In this diagram with the traffic being so bad heading north. Drivers (a) tend to pull off into the recently built fourth lane which presently is striped off. And drive 20-40mph make a right turn onto Kapunakea and a left into Ainakea street driving at 20-40mph in a residential area which creates another problem. I believe maybe a concrete barrier (b) green be put up so drivers will get discouraged from doing this.

With the traffic being bad heading north and the traffic being bottle neck at Honoapiilani highway and Front/Fleming, Honoapiilani and Kapunakea. I believe another traffic light should be put in at the cannery shopping center exit /entrance (c). Presently, drivers who get discouraged on Front street, drive onto Kapunakea street to the highway. Drivers from the shopping center always get stuck because of impatient drivers from Front Street/Kapunakea (d) At times some drivers get real gutsy in trying to exit from the cannery exit number two and cross two lanes (e)

Diagram #4

Light blue area, I would like to see a right hand lane to improve traffic flow. Presently many drivers are using the shoulder.

a. Is a problem with drainage. Seems to me a lot of water is being accumulated here when there is over watering from the Pizza Hut people. But whenever there is a rainfall this corner seems to pool up with water. When we have a heavy down pour, the water tends to shut down as many as 2-3 lanes. And because of the water problem, it seems the pavement is very poor here.

b. and c., whether the traffic heading north be bad or drivers thinking to find a short cut; drivers to make these illegal turns crossing causing a hazard and at times stopping or slowing down traffic.

Diagram #5

Shaded light blue areas right hand lanes to be added to improve traffic flow because of drivers using shoulders which creates dust and gravel to be kicked up for the drivers following.

Diagram #6

Shaded light blue areas right hand lanes to be added. One of these lanes to be improved by expansion. Lanes are too short.

Diagram #7

I believe a right hand lane should be added. But there is a hollow-tile wall on the Sacred hearts school property which is too close to the roadway. I don't know if the state can do anything about this, or if the county of Maui can do anything. Dickenson street in this area is very narrow. When drivers make the turn off of the highway onto Dickenson street; whenever there is another vehicle you would almost have to make a sudden stop to accommodate for one of the vehicle.

Diagram #8

Shade light blue area right hand lane to be added. Again drivers attempt to make illegal left turns. Perhaps make island bigger and place No Left Turn signs further back rather than right at the intersection. Drivers tend to concentrate on the traffic rather than to look out for signs.

Diagram #9

Shaded light blue areas right hand lane to be added to improve traffic flow.

Not included is a drawing of the Lahaina Civic center intersection. This is a heavily used intersection and I believe a right hand lane should be added heading north. I also notice because of the wide paved shoulder; drivers are already using this as a right lane turn but in which it endangers people who jog or ride their ten speed bikes. I can testify to this because I almost had a head on collision with a driver who decided to use this shoulder for a right turn when it was not designated as such.

I hope your department also consider to develop bike paths and bike paths that are wide enough on both sides of the highway. Presently, There are certain sections where there is No bike paths or the path is too narrow. Drivers who tend to make their own roads, being tentative or inattentive create a problem with joggers or bike riders. Let's plan for a safe roadway.

Finally. I hope with all this construction, repainting, repaving, starting and ending of sections of the highway that this highway will be repaved. Driving on a rainy night or just driving at nights at times, we cannot tell if it's a paved line, painted line or a removed line, some markings have faded where we driver cannot tell one line from another. I hope you people would come over to see all these considerations day and night. Traffic during the morning, mid day, afternoons and nights.

We the tax payers are spending big bucks. I hope you people plan it right and do it right the first time.

I THANK YOU for your time. If there is any questions feel free to call me. My home phone is 661-5490. Work 667-6611 5:30 am -2:00 pm.

Sincerely,

Reuben N. Aotaki

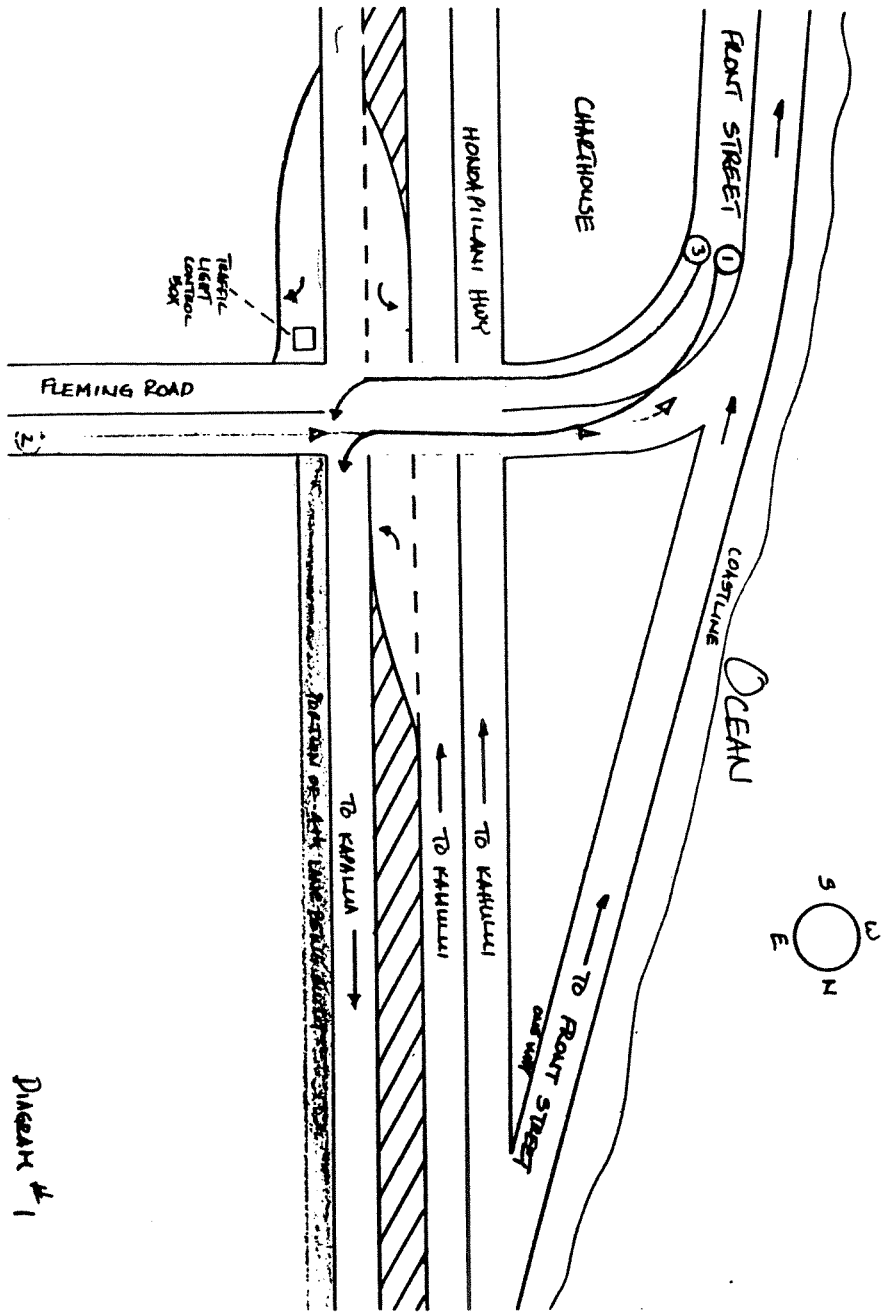


DIAGRAM #1

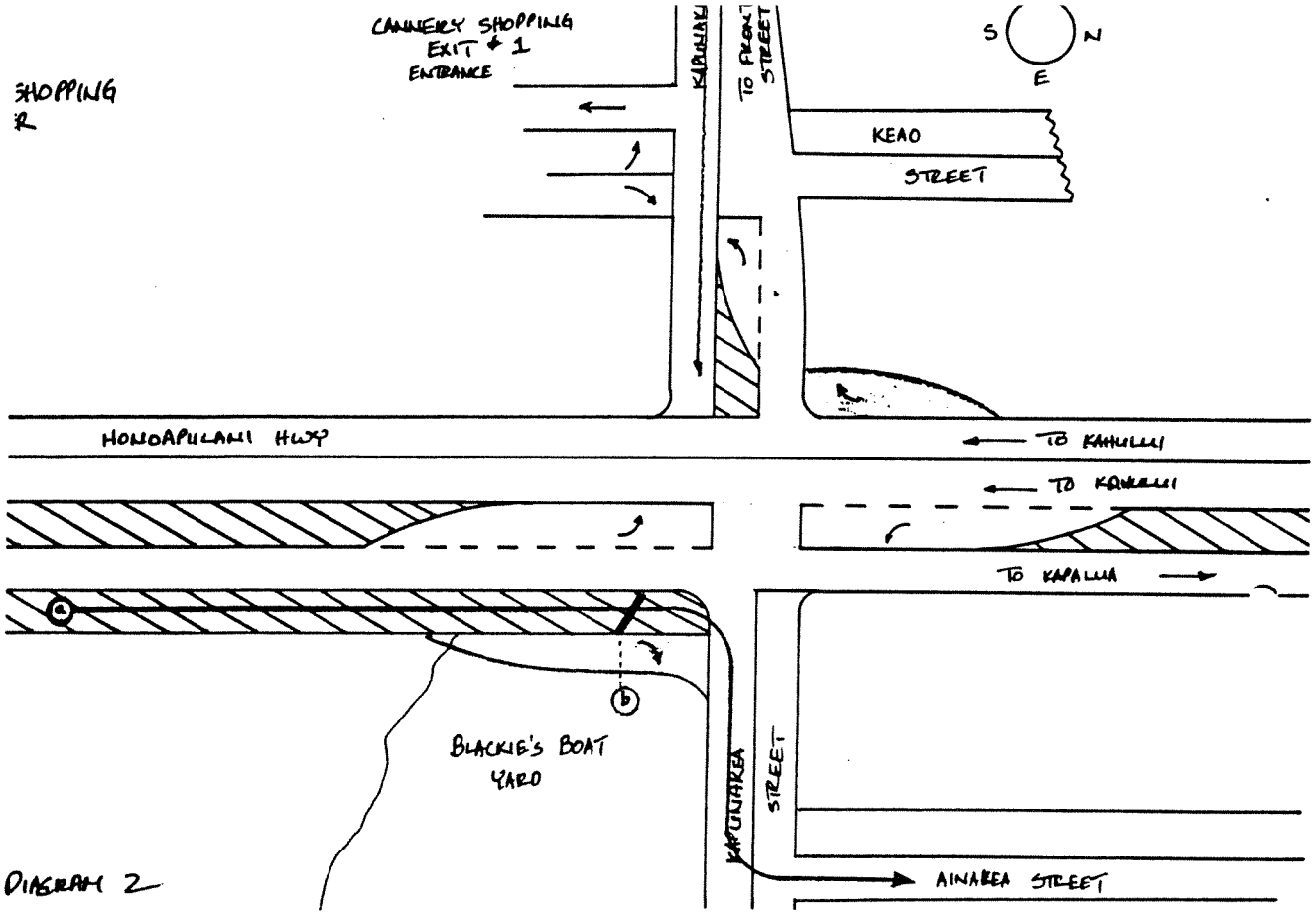


DIAGRAM 2

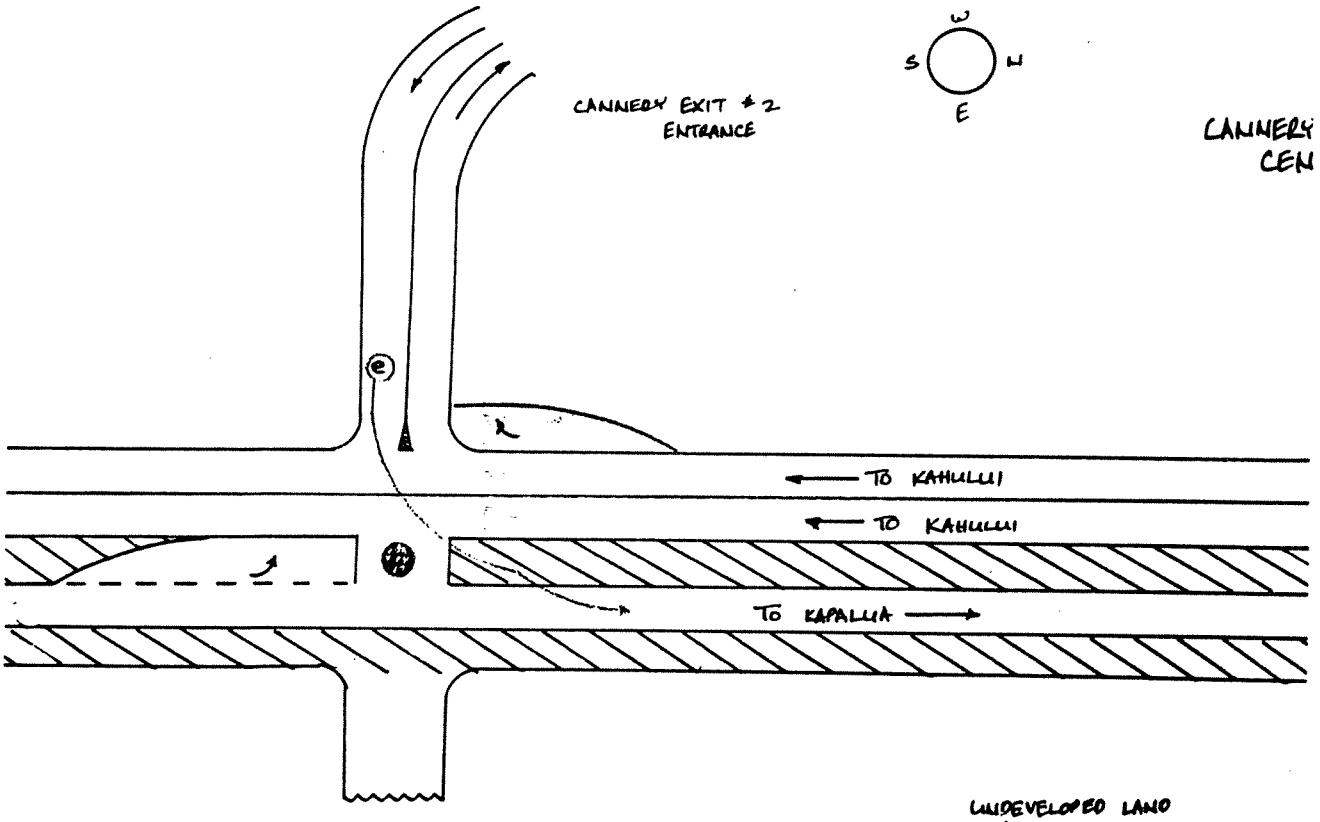


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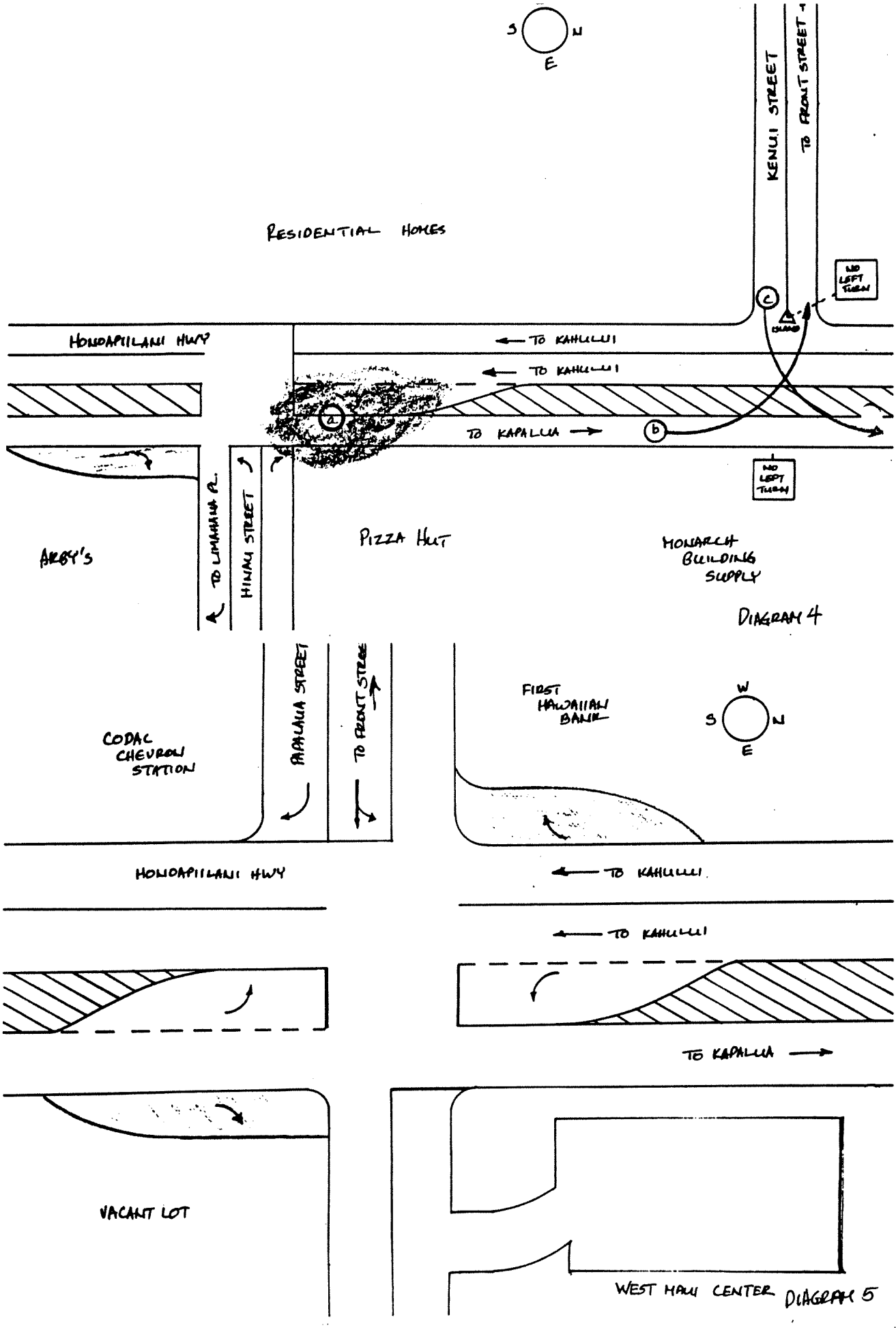
DIAGRAM 3


S
N
E
KENUI STREET
TO FRONT STREET
RESIDENTIAL HOMES
NO LEFT TURN
HONOAPIILANI HWY
TO KAHULUI
TO KAHULUI
a
TO KAPALUA
b
c
ISLAND
NO LEFT TURN
ARBY'S
TO LIMAHANA PL.
HINAU STREET
PIZZA HUT
MONARCH BUILDING SUPPLY
DIAGRAM 4
CODAC CHEVRON STATION
AHAKUA STREET
TO FRONT STREET
FIRST HAWAIIAN BANK
W
S
N
E
HONOAPIILANI HWY
TO KAHULUI
TO KAHULUI
TO KAPALUA
VACANT LOT
WEST MAUI CENTER
DIAGRAM 5

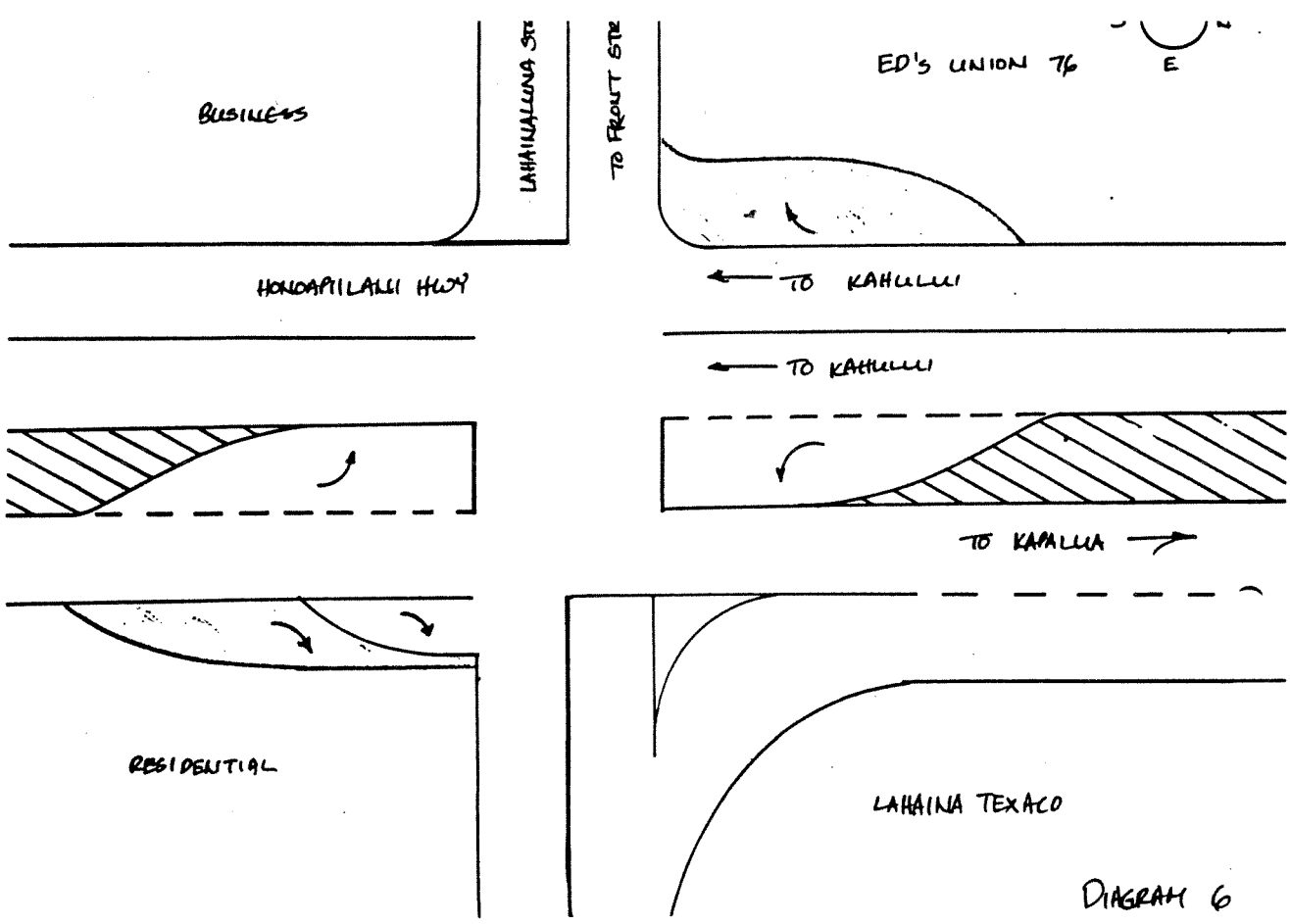


DIAGRAM 6

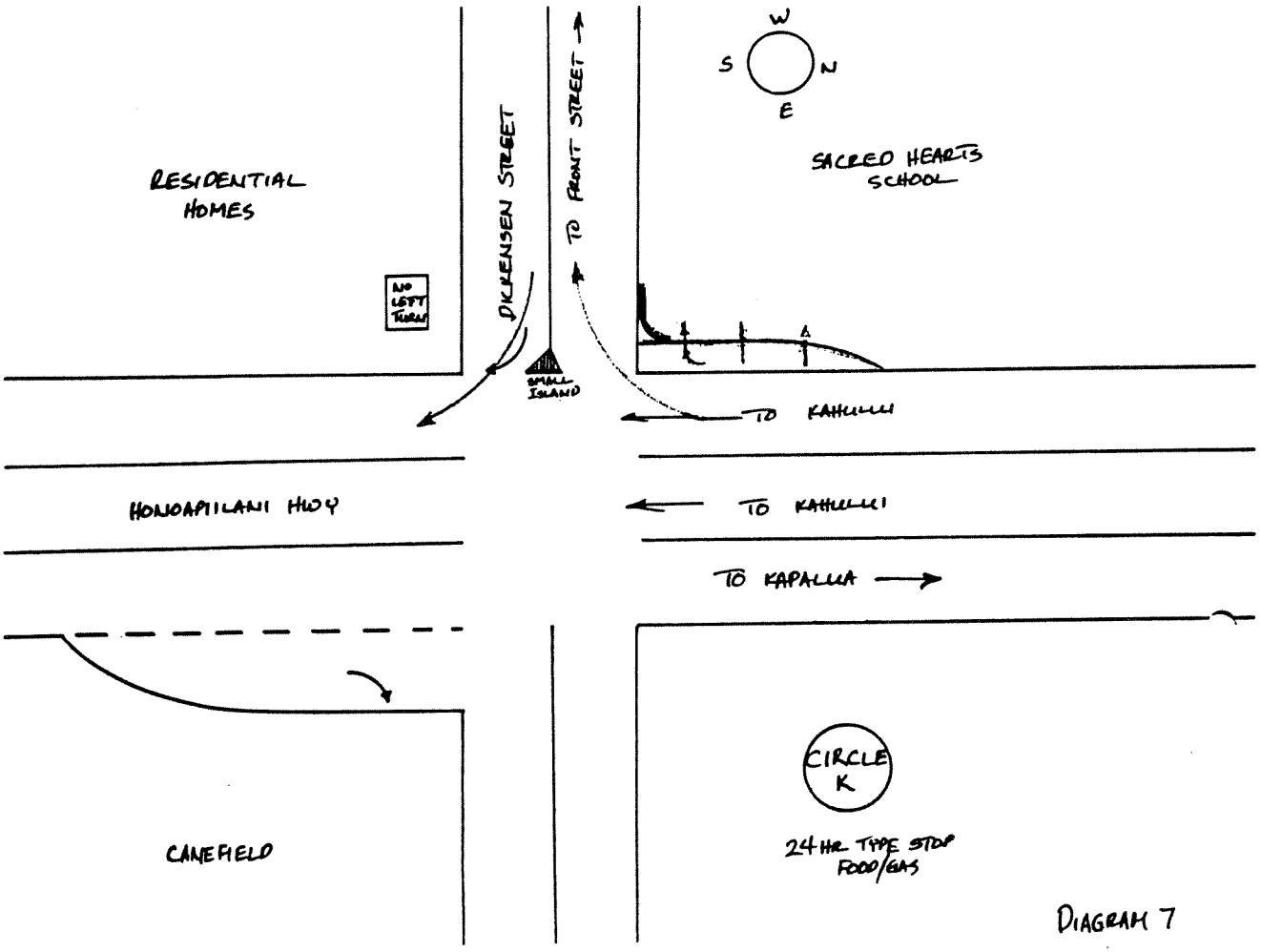
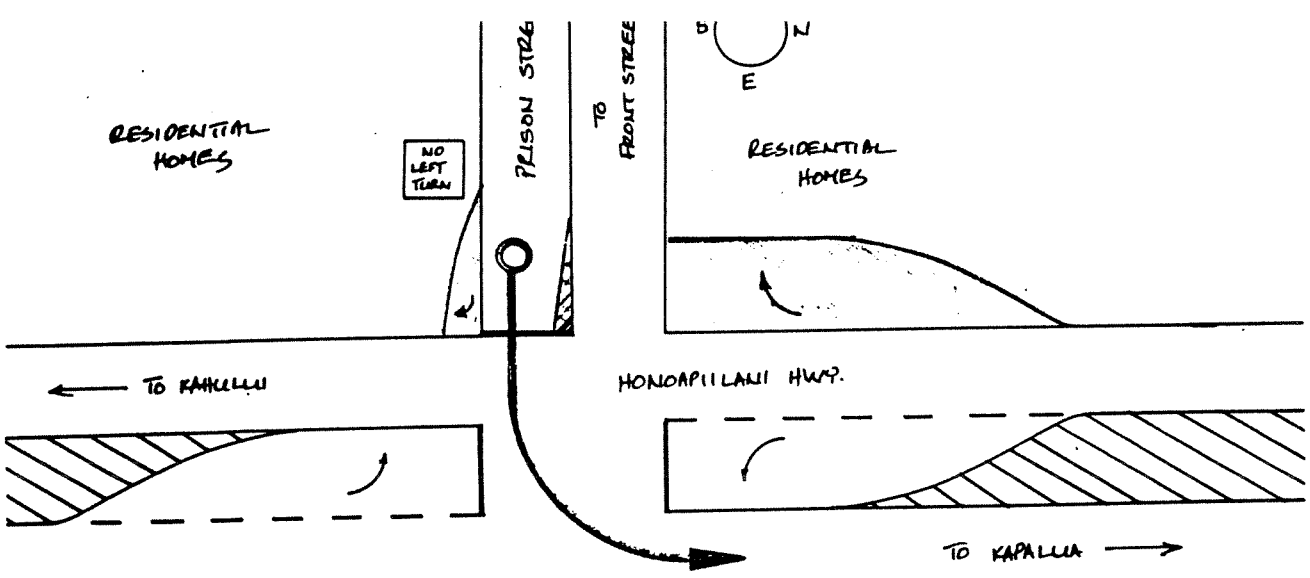


DIAGRAM 7



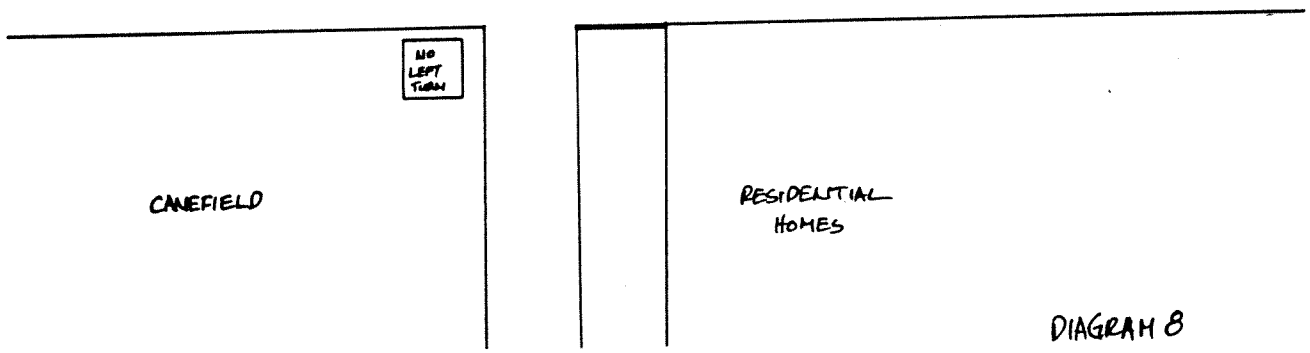


DIAGRAM 8

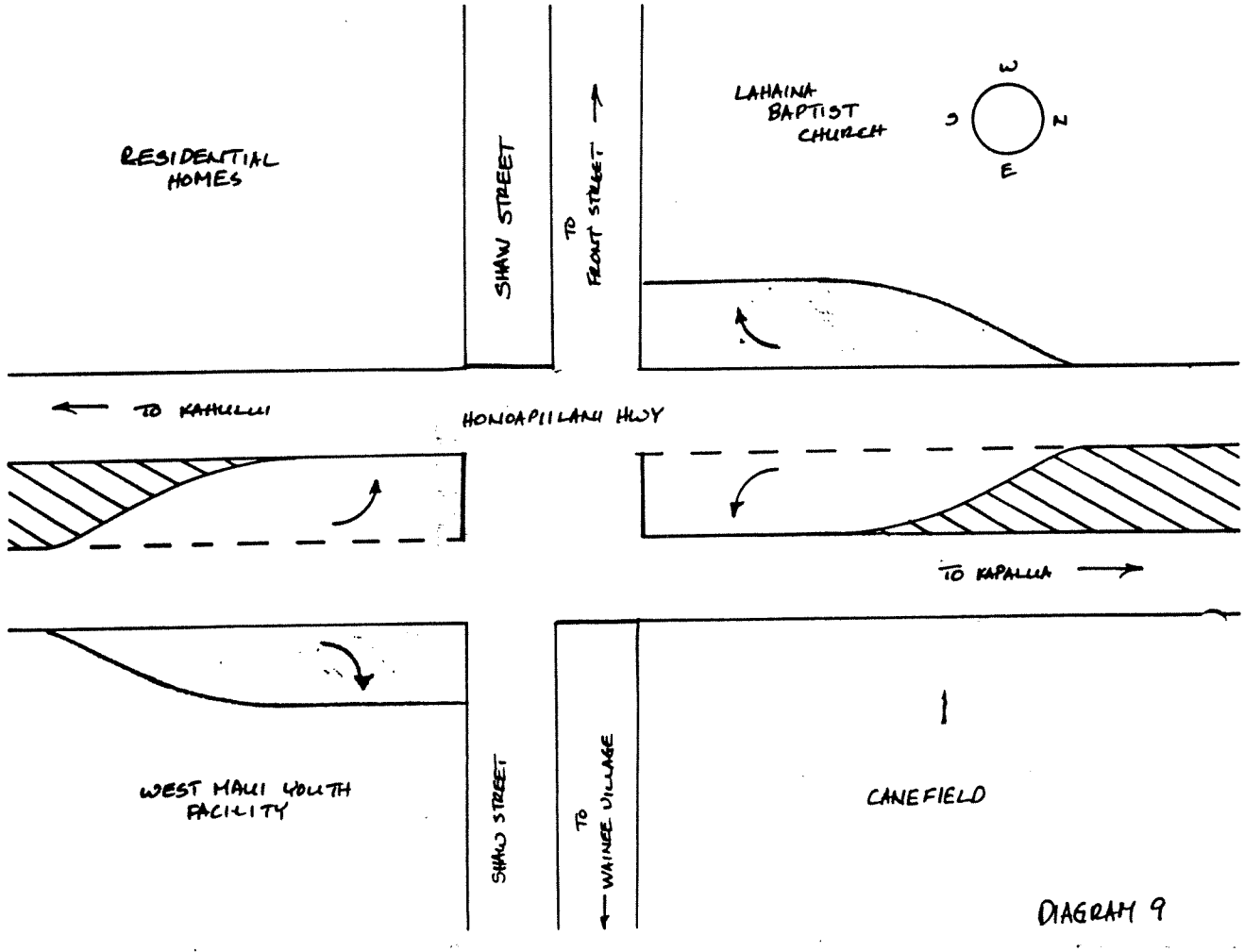


DIAGRAM 9

EVALUATION

Alternative B, Mauka Tier Variation has been selected as the preferred alternative. Some reasons supporting this selection are as Mr. Aotaki has mentioned. The tunnel variation was not selected due to the high construction and maintenance costs associated with this alternative.

7/24/89

Mr. William R. Lake, Division Administrator
Fed. Hwys Administration, US Dept. of Trans.
P.O. Box 50206, 300 Alamoana Blvd.
Honolulu, HI 96850 Ph:541-2700

RE: EIR & THE LAHAINA BYPASS

Dear Mr. Lake,

Please enter the following points regarding the environmental impact of the Lahaina bypass on the record and officially consider them in the EIR:

- as is appropriate, the impact evaluations have been centered on Lahaina as the decision of which route to take has been evaluated and debated,

- regardless of which route is chosen the impact of the presently planned 1st phase exit in Kaanapali will be extremely negative to that area as all northbound traffic is dumped into Kaanapali (see enclosed map). This includes the numerous 20 wheelers, etc. trucks necessary for construction of 4 more north beach hotels, 800 new units at Kapalua in addition to the present development which is ongoing,

- due to the negative impact of this planned 1st exit, it would be more appropriate to, at first, make all traffic go to Puukolii Road and after exiting the bypass motorists would, upon reaching Honoapiilani Hwy., go left 1 mile if their destination was a Kaanapali resort/residence or they would turn right if they were going to one of the dozens of hotels/condos north of this area (Honokowai, Kahana, Napili, Kapalua, etc.),

- subsequent to the full bypass being connected to Honoapiilani Hwy. north of Puukolii the Kaanapali exit could be opened and it would only see Kaanapali traffic vs. all northbound traffic,

- the noise levels at our home in the Kaanapali Vista residential area since the four lane development has been finished are extremely high and eliminate sleep after the early morning trucks start their trips north & south, usually at 5:30 to 6AM. This is true even though we have central AC and have all windows and doors closed. It is extremely aggravating.

- Kapalua's attorney, Mr. Luna, has in public admitted the traffic problem is between Lahaina & Kaanapali. Why should the hotels/condos and residence owners in Kaanapali be subjected to all the traffic going north, including that traffic necessary to expand the Kapalua development to two more hotels and 300 more residences to say nothing about the ones already being built?! No construction at Kapalua or N. Beach should be even started until this environmental impact at Kaanapali is addressed and solved.

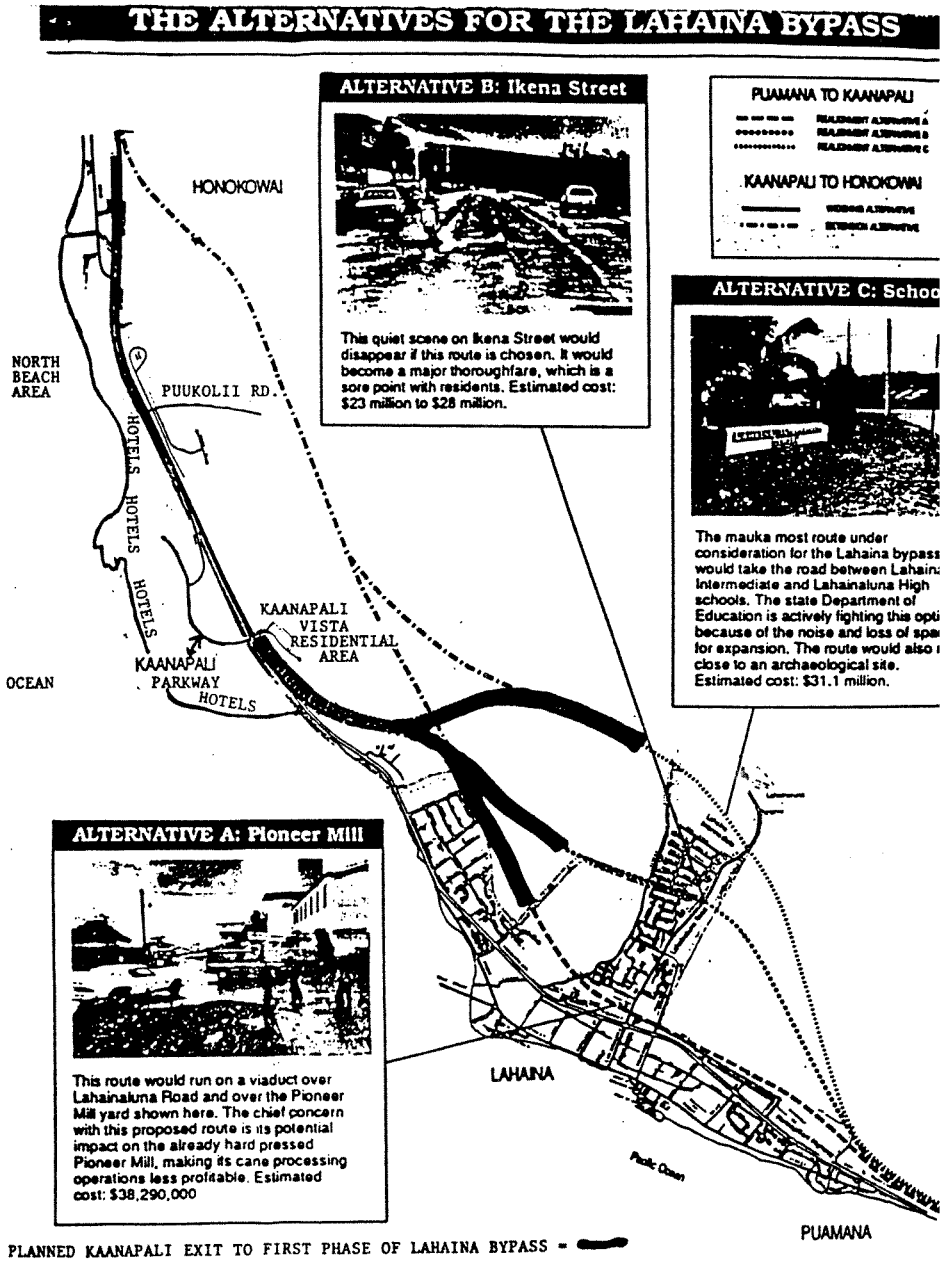
Thank you for entering my letter into the public record and I look forward to expressing my views at future public forums on the bypass.

Sincerely yours,

Richard Darling

Richard Darling

cc: Mrs. Linda Lingle, Lahaina City Council



THIS ARTICLE IS AN EXCERPT FROM THE MAUI NEWS AND IS PRESENTED BY RICHARD DARLING, K. V. HOME

EVALUATION

The proposed improvement corridor will continue past the Kaanapali Parkway which is a major destination for the traffic on Honoapillani Highway. Your proposal for a route that would bypass the Kaanapali Parkway intersection and connect at or in the vicinity of Puukolii Road would be indirect and higher in cost besides not being able to provide the desired traffic service. A mauka alignment may be justifiable as an additional alignment in the future.

Our traffic noise studies show that there will not be significant noise impacts to the residences in the Kaanapali Vista subdivision. This information has been confirmed by the project noise impact consultant and is supported by data in Appendix G and H. It is anticipated that FHWA noise abatement criteria will not be exceeded at the subdivision.

Several public informational meetings and a public hearing have been held on the project. Also, the DOT has circulated the Draft Environmental Impact statement and we have evaluated the comments received together with the public hearing testimonies and the other data that it has. Currently, the DOT is preparing the Final Environmental Impact Statement based on the preferred Alternative B and the Widening Alternative.

XV. COMMENTS AND COORDINATION

Early coordination included:

Informational meetings
December 18, 1984 at the Lahaina Civic and Recreational Center
October 29, 1987 at the Lahaina Civic and Recreational Center
September 21, 1988 at the Lahaina Civic and Recreational Center

Public Hearing
January 19, 1989 at the Lahaina Civic and Recreational Center

Notice of Intent
Issued January 10, 1985
Issued May 12, 1987

Environmental Impact Statement Preparation Notice
Circulated May 30, 1985 to governmental agencies, public and private organizations.
Circulated June 10, 1987 to governmental agencies, public and private organizations.

Meetings with community groups and individuals:

Meeting with Residents of Ikena Avenue
January 5, 1989 at the Lahaina Intermediate School Cafeteria
Ad Hoc Committee on Traffic in West Maui - DOT Representative attends monthly meetings from about July 1986 to Present

The key issues and pertinent information received are:

Informational Meeting on December 18, 1984

Two alternatives were presented: The Widening Alternative and Alternative A.

Generally the comments received were favorable except that the residents near Puamana requested that the proposed realignment be moved farther east to lessen noise impacts. There was a request for left-turn sacs on the existing highway. A Council member pointed out there was a right-of-way reserved for an inland bypass at Ikena Avenue.

Informational Meeting on October 29, 1987

There was opposition to the Ikena Avenue bypass alternative plan. There were complaints of noise impacts. The Kelawea-Kalena Community

Association and residents of that community were against the bypass route (Alternative E) through their neighborhood and came to the meeting with signs and posters to save their homes. The West Maui Taxpayers Transportation Committee favored Alternative B (Ikena Avenue option), and pointed out the disadvantages of the other routes: the existing highway route would have many traffic lights, and the Mill corridor would be prohibitively expensive and would have negative community impacts. The Kelawea-Kalena option displaces too many homes.

There were comments that the alternative bypass should be between the intermediate school and the high school. There also was a comment that the bypass should be located above the high school.

Informational on September 21, 1988

The Ikena Avenue residents were against the bypass in their area. They said the route through Pioneer Mill or other routes would be better. They commented that Alternative B would severely impact their homes, and that no land for relocation is being provided and that many will face great social impacts the loss of their homes, the beauty of their environment and their view of the ocean, all so precious, enjoyable, and peaceful.

Public Hearing on January 19, 1989

There was a mixture of favorable and unfavorable testimonies regarding the different alternatives considered. Each alternative seemed to have its own interest group. Amfac (Pioneer Mill) spoke out against Alternative A since this alignment would go through Pioneer Mill and would, according to Amfac, force the complete closure of the mill.

Alternative B received opposition from the residents of and near Ikena Avenue and their friends. Their main concern over this alternative was that they would be losing their homes and many felt that the relocation homes were inadequate.

The school officials and several students from the Lahainaluna High School complex expressed their displeasure for Alternative C since that alignment would go through the school grounds.

Smaller interest groups who voiced their opinions included the West Maui Taxpayers Association, Maui Chamber of Commerce, Hawaii Housing Authority, Hawaii Hotel Association, political leaders, and other independent individuals. The West Maui Chamber of Commerce was in favor of the project but offered no preference in the alternatives. The Hawaii Housing Authority representative spoke out against Alternative A because this

alignment would affect the David Malo Housing Project. The Maui Hotel Association favored Alternative B.

The political leaders had differing opinions. Representative Rosalind Baker was in support of the project but did not favor an alternative. Maui Councilman Wayne Nishiki displayed support for Alternative A and opposed both Alternative B and Alternative C. Individuals from the public also had differing opinions depending on their interests.

Environmental Impact Statement Preparation Notice Circulated on May 30, 1985:

1. HAWAII STATE DEPARTMENT OF LAND AND NATURAL RESOURCES - There is need to maximize positive effects on recreation and scenic resources for residents and tourists, and need for more information on specific measures to prevent adverse effects to coastal waters, effects on access to parks, need for an inventory cultural resources and mitigation measures. A qualified archaeologist should monitor all ground disturbing activities.

2. AMFAC - Supports immediate expansion of the capacity of the existing highway as an interim solution, supports the realignment proposal, and recommends a land exchange with Pioneer Mill.

3. HAWAII STATE DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT - Kahoma Stream is within a flood area under the Coastal Zone Management district.

4. US DEPARTMENT OF ARMY - The crossing at Kahoma and Kauaula Streams may need Department of Army permits. Project crosses the Kahoma flood hazard area and the Kauaula flood plains area.

5. HAWAII STATE DEPARTMENT OF AGRICULTURE - Concern for decrease in agricultural lands.

6. WEST MAUI TAXPAYERS ASSOCIATION - Supports DOT's efforts. Between Puamana and Kaanapali, favors 4-lanes on the existing highway and 4-lanes for a mauka bypass.

7. US DEPARTMENT OF INTERIOR, FISH AND WILDLIFE SERVICE - Recommends heavy machinery work/construction in the stream beds be limited.

8. US DEPARTMENT OF ENERGY - The project should save energy.

9. ROTARY CLUB - expedite the project.

10. HAWAII STATE DEPARTMENT OF HOME LANDS - Provide the landowners along the route with more information.

11. NATIONAL ADVISORY COUNCIL OF HISTORIC PRESERVATION - The Section 106 requirements of the NHPA should be included in the EIS.

12. COUNTY OF MAUI DEPARTMENT OF WATER SUPPLY - The County would like to have future pipeline crossing connection at Fleming Road and Lahainaluna Road.

13. MAYOR HANNIBAL TAVARES - The implementation of the project will have very beneficial impact.

14. COUNTY OF MAUI DEPARTMENT OF HUMAN CONCERNS - Favors project. Limit access (close some intersections) for safety and efficiency. Construct safe/accessible pedestrian/bicycle path between Lahainaluna Road and Shaw Street. Construct signalized pedestrian cross walk at Shaw Street.

15. US DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT - The project could adversely affect two existing developments: Puamana PUD and Kapuna-Kea Subdivision. Noise mitigation measures are recommended where noise levels exceed 65 LDN.

16. HAWAIIAN TELEPHONE - Poles may be affected. Request being informed of future development of the project.

17. COUNTY OF MAUI PLANNING DEPARTMENT - Part of the project between Kauaula Road and Kenui Street is located in Lahaina National Historic District Landmark Boundary. Area #4 of the Lahaina Historic District #1 may be impacted. Portions of the project are within the County of Maui Special Management Area.

Environmental Impact Statement Preparation Notice Circulated on June 10, 1987:

1. COUNTY OF MAUI DEPARTMENT OF HUMAN CONCERNS, HOUSING DIVISION - The County's Komohana Hale Subdivision is proposed for development on a 7.5 acre parcel between Honoapiilani Highway and Mill Street from the Aholo Road extension to the Kauaula Road extension. Widening Honoapiilani Highway would have an adverse effect on proposed housing project.

2. MAYOR HANNIBAL TAVARES, COUNTY OF MAUI - The widening existing highway or constructing a by-pass is essential to the solution of the traffic congestion problem in West Maui. Request expediting approval and implementation.

3. U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT - Recommends that the draft EIS discuss existing and projected noise levels from vehicular traffic. Noise should be evaluated in terms of day-night sound level at several locations.

4. HAWAII STATE DEPARTMENT OF EDUCATION -There would be negligible impact on the schools.

5. COUNTY OF MAUI, COUNTY COUNCIL, PLANNING AND LAND USE COMMITTEE - The committee would like to be part of the consulted party during EIS review phase.

6. MANAGER, ENGINEERING HAWAIIAN ELECTRIC INDUSTRIES - Approximately 7 miles of overhead electric facilities would need to be relocated and extensive use of engineering and construction manpower. The estimated cost of relocation of electric facilities is $1.3 million with 1/2 to be borne by Maui Electric Co.

7. STATE OF HAWAII, DEPARTMENT OF AGRICULTURE - The Soil Conservation Service survey found Wahikuli Stony Silty Clay (WbB and WcC) (3 to 15% slopes), Pulehu Clay Loam (PsA) (0 to 3% slopes). Soils were used for sugarcane, truck crops, and pasture. Soil capability classification ranges I to IIIe. The northern segment is adjacent to "Prime" and "Other Important" lands.

8. COUNTY OF MAUI, DEPARTMENT OF PARKS AND RECREATION - Would the widening of the highway have an impact on the Lahaina Civic Center, Lahaina Recreation Center and the Puamana Beach Park.

9. U.S. DEPARTMENT OF INTERIOR, FISH AND WILDLIFE SERVICES, PACIFIC ISLANDS OFFICE, ENVIRONMENTAL SERVICES - It is suggested that the Draft EIS should include a description of freshwater species that inhabits the Kauaula, Kahoma, and Honokowai Streams that may be affected by the replacement of bridge crossings, a description of nearshore marine fishery resources that may be affected by highway and bridge improvements, and a description of mitigation measures to protect freshwater and marine habitats from degradation associated with construction activities.

10. STATE OF HAWAII, DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT - The EIS should discuss relevant objectives and policies of the Hawaii CZM program, the relationship of the proposed project to the Hawaii State Plan. Plan should be reviewed to identify objectives, policies, and priority guidelines which have a strong relationship to or are impacted by the proposed project. Important relationships should be discussed in EIS.

State functional plans should be reviewed to determine relevance to the project.

11. US DEPARTMENT OF THE ARMY - The need for Department of the Army permit will be addressed when more information is available for the stream crossing. The planning and construction plans should be coordinated with Mr. Clarence Lee since the highway will cross Kahoma Stream. Flood insurance rate maps are included, since no TMK were provided.

12. STATE OF HAWAII, DEPARTMENT OF LAND AND NATURAL RESOURCES - Lahaina Recreational Center is located in close proximity of the project. If the Lahaina Recreational Center is impacted, approval of the Secretary of the Interior and equivalent land are required. There are also historic preservation concerns. The Wahikuli State Wayside park is impacted.

13. HAWAIIAN TELEPHONE CO. - Assuming that the joint pole-lines along the mauka side of Honoapiilani Highway will be affected in some areas because of widening, any forced relocation of pole-lines would have an adverse effect on the overall construction schedule.

14. COUNTY OF MAUI DEPARTMENT OF PUBLIC WORKS - Supports the proposed project. Widening should include the adjustment of water valves and sewer manholes to final finish grade. There should be a discussion on impact to force mains and gravity sewer lines.

15. COUNTY OF MAUI PLANNING DEPARTMENT - The EIS should address effects of proposed action on the cemeteries at Aholo Road and Honoapiilani Highway, and the effects on state and county parks and other facilities. The EIS should contain adequate social, environmental, and economic information and discussion on each alignment studied and comparative analysis between them.

16. PIONEER MILL CO.,LTD. -Pioneer Mill, Ltd. must be consulted during the planning of the project. There are impacts to Pioneer Mill, no matter of which alignment. Minimizes impact. The actual work is unclear. Pioneer Mill does not support alignment going through mill yard, agrees that a bypass is needed, and prefers state choose the mauka alignment that was recommended by the ad-hoc committee.

17. STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES - The proposed alignment has major impact on significant historic sites. The EIS should adequately study all sites to be impacted. The road widening would encroach on the park and on the egress and ingress to the park.

18. UNIVERSITY OF HAWAII, ENVIRONMENTAL CENTER - The project will produce some degradation of stream and coastal waters

19. COUNTY OF MAUI, POLICE DEPARTMENT - There would be construction impacts. Main concern is the re-routing of traffic control. The should be at least three lanes available for vehicular travel.

20. STATE OF HAWAII, DEPARTMENT OF LAND AND NATURAL RESOURCES - Little or no native stream fauna exist in streams. Turbidity related impacts to resources are expected to be minimal. Precautionary measures include prevention of construction materials, debris, wastes, petroleum products, and landscaping substances from falling, flowing, or leaching into the sea.

21. U.S. DEPARTMENT OF INTERIOR, GEOLOGICAL SURVEY - The prep notice did not mention the project's impact on flooding, but feels that this information should be included in the EIS.

Meetings with community groups and individuals:

Meeting with Residents of Ikena Avenue January 5, 1989

Explained the right-of-way relocation assistance payments program and the entitlements in general only. Residents wanted specific information on an individual basis on the exact location of the right-of-way take and the assistance payments. The State Housing and Finance Development Corporation (HFDC) explained their development housing program and provide information on their housing projects. The residents favored any of the other alternatives other than Alternative B. The residents that would be near or adjacent the to proposed highway right-of-way expressed concerns on noise air circulation and dust.

West Maui Ad Hoc Traffic Committee - The State DOT participates in their monthly meetings.

The committee favors Alternative B. They also favor the tunnel variation with a 70-feet right-of-way (requiring a 4 feet take on the makai side of Ikena Avenue). They object to Alternative A because it would disrupt the Mill, cause a loss of jobs at the Mill, would disrupt the County's community plans and would be through an unsightly industrial area versus a more scenic route of Alternative B that would be better for the tourist. If houses are needed, the committee feels that the residents can be relocated to the other side of Lahainaluna Road.

Informational Meetings to Inform of the Department of Transportation's Preference and the Reasons for the Preference

Mayor of Maui County - August 4, 1989

County Council and Maui Legislators - August 4, 1989

Residents of Ikena Avenue - August 4, 1989

XVI. LIST OF PREPARERS

The following private consultants have contributed to the development of this EIS document:

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Berna Cabacungan	Earthplan Community planner and communications specialist Principal social impact report preparer B.A. Modern English
William Barrera, Jr.	Chiniago, Inc. Archaeologist Principal archaeological report preparer M.A. Anthropology
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Yoichi Ebisu, P. E.	Y. Ebisu & Associates Acoustical Engineers
	M.S. Electrical Engineering

The following governmental personnel have contributed to the preparation and/or review of the subject EIS.

State Department of Transportation:	Kenneth Au Albert Ng Wayne Kawahara
Federal Highway Administration:	Alfonso Benet

APPENDIX A

BOTANICAL SURVEY
Char & Associates

BOTANICAL SURVEY

HONO-A-PI'ILANI HIGHWAY, ISLAND OF MAUI

PROPOSED WIDENING AND REALIGNMENT ALTERNATIVES

by

Winona P. Char

CHAR & ASSOCIATES
Botanical/Environmental Consultants
Honolulu, Hawaii

Prepared for: ENVIRONMENTAL COMMUNICATIONS, INC.

March 1988

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APPENDIX A

BOTANICAL SURVEY
HONO-A-PI'ILANI HIGHWAY, ISLAND OF MAUI
PROPOSED WIDENING AND REALIGNMENT ALTERNATIVES

INTRODUCTION

The following botanical survey covers Phase II, Ka'anapali to Honokowai, of the proposed Hono-a-Pi'ilani Highway widening and realignment project. In addition, Phase I (Puamana to Ka'anapali) Alignment C, part of which will cut between Lahaina Intermediate and Lahainaluna High schools, was also surveyed. An earlier flora survey (Char 1986) covered Alternatives A, Pioneer Mill alignment, and B, Ikena Street alignment.

The botanical survey to inventory and assess the plant resources along the proposed alignments and the present highway route was conducted on 19 March 1988. The primary objectives of the survey were to 1) provide a general description of the major vegetation types; 2) inventory the terrestrial, vascular plant species; and 3) search for rare, threatened or endangered plant species along the proposed routes.

SURVEY METHODS

Prior to undertaking the field studies, a search was made of the pertinent literature to familiarize the principal investigator with other biological studies conducted in the general area. Existing topograhic maps were examined to determine access, terrain characteristics, boundaries, and reference points.

Access along points of the proposed alignment routes was primarily by a number of cane-haul roads. From these points, a walk-through survey was made. Where the alignment routes or widening project passed through areas which were less disturbed, as along gulch and stream areas, a more intensive field survey was conducted. Actively cultivated sugar cane fields were not as intensively surveyed as such areas are not likely to support native plant communities.

Notes were made on plant associations and distribution, substrate types, topography, exposure, etc. Species were identified in the field; plants which could not be positively identified were collected for later determination in the herbarium (U.H., Manoa) and comparison with the botanical literature. The species recorded are indicative of the season ("rainy" vs. "dry") and environmental conditions under which this survey was made. Surveys taken at different times of the year and under varying environmental conditions would no doubt yield slight variations in the species list, especially of the weedy, annual taxa.

A total of two botanists was employed to gather the technical data contained in this report.

DESCRIPTION OF THE VEGETATION

Previous botanical and biological surveys have included portions of the proposed alignment areas and the Hono-a-Pi'ilani Highway. The previous survey by Char (1986) along Alignments A and B, Paumana to Ka'anapali, covers more or less the same types of vegetation as in Alignment C, between the two schools. A large portion of the area from Pu'u-Koli'i Road to Honokowai Stream was surveyed by Whistler (1982). The vegetation along the highway was included in the surveys by Whistler (1982) and Char and Whistler (1986). In all of the botanical and biological studies, fields of sugar cane comprised the primary plant cover. Scrub vegetation, usually koa-haole and buffel grass, occurred in uncultivated areas, while gulch and stream areas supported mixed forests of kiawe, 'opiuma, and Java plum and koa-haole thickets. No plants considered rare, threatened or endangered were encountered during these surveys.

In this report, vegetation along the alignments and the highway is described from three areas: 1) roadsides and canefields; 2) gulch areas; and 3) the area between the two schools. Species inventoried during the survey are presented in Appendix A.

1. Roadsides and Canefields

A weedy assortment of grasses and herbs as well as shrubs characterize the vegetation along the highway and paved and unpaved roads. In general, roadside vegetation is composed primarily of buffel grass (Cenchrus ciliaris), although, in places, various sized patches of swollen fingergrass (Chloris inflata), Bermuda grass (Cynodon dactylon), Guinea grass (Panicum maximum), and pitted beardgrass (Andropogon pertusus) may be locally abundant. Among the weedy herbaceous and smaller subshrub species are spiny amaranth (Amaranthus spinosus), two species of pua-lele (Emilia sonchifolia, Emilia fosbergii), beggar's tick (Bidens pilosa), sowthistle (Sonchus oleraceus), hi'aloa (Waltheria indica var. americana), false mallow (Malvastrum coromandelianum), and 'ilima (Sida fallax).

Most of these roadside areas are mowed or occasionally treated with herbicide to keep the vegetation low. In some areas, as along the parcel containing the old airstrip, a koa-haole (Leucaena leucocephala) scrub can be found. Where the scrub is open and the koa-haole plants widely spaced, buffel grass forms a dense ground cover; where the plants are closely spaced, the ground cover is a mixture of Guinea grass, lion's ear (Leonotis nepetaefolia), and spiny amaranth. Vines of the wild bitter melon (Momordica charantia var. pavel) and hairy merremia (Merremia aegyptia) often can be found climbing up and onto the shrubs.

The canefields and their associated network of irrigation ditches and canehaul roads, reservoirs, and rock piles cover the largest area along the proposed alignments. The fields occur on deep and well-drained soils of the Pulehu-'Ewa-Jaucus association near the

highway and the Waiakoa-Keahua-Molokai association on the low uplands (Foote et al. 1972). Sugar cane (Saccharum officinarum) forms monodominant stands which grow rapidly and quickly shade out many of the weedy species below. Usually only nutgrass (Cyperus rotundus) is found in the heart of the canefields. Other weedy species survive on the margins of the fields where there is more available light and include most of the species found associated with the roadsides.

Scattered throughout the fields are piles of boulders and rocks which were placed there when the fields were first cultivated. On such places, a koa-haole scrub often developes. Occasionally small trees of Java plum (Eugenia cuminii), 'opiuma (Pithecellobium dulce) or kiawe (Prosopis pallida) may be found. Larger trees, some as tall as 45 ft., of the same species as well as silk oak (Grevillea robusta), monkeypod (Samanea saman), mango (Mangifera indica), Chinese banyan (Ficus microcarpa), and Siris tree (Albizia lebbeck) can be found as small, scattered stands near reservoirs, on hillside areas, and the site of a former plantation village.

2. Gulch Areas

Realignment Alternative C of Phase I crosses over two gulches, Kaua'ula and Kahoma gulches. The vegetation in these two gulch systems have been described in detail in the earlier report (Char 1986) for Realignment Alternatives A and B. Kaua'ula Gulch supports low-stature (6 to 9 ft. tall) koa-haole scrub with Guinea grass ground cover. Scattered trees of Java plum occur on the gulch slopes and bottom. Kahoma Gulch is densely vegetated especially on the gulch floor due to water from Kahoma Stream. The gulch bottom supports large stands of trees such as mango, Java plum, tamarind (Tamarindus indica), kiawe, and kukui (Aleurites moluccana). Generally, the slopes of Kahoma Gulch are steep and rocky outcroppings predominate.

The realignment alternatives between Ka'anapali and Honokowai cross over Hahakea, Wahikuli, and Honokowai gulches as well as a few, smaller, unnamed gulches. Again, rock outcroppings and rough broken and stony lands (Foote et al. 1972) define the substrate. The Honokowai Stream, a perennial stream, meanders along the floor of Honokowai Gulch. Drainage construction work on the stream channel is currently in progress.

Vegetation in these gulch areas is similiar to that found in the neighboring Kahoma and Kaua'ula gulches. Rocky outcroppings predominate on the steeper slopes, while koa-haole scrub occurs on the more gentle slopes. Buffel grass and two species of Panicum (Panicum maximum and its smaller variety trichoglume) are abundant. Along the bottom of Honokawai Gulch, a rather dense Java plum forest, 30 to 45 ft. tall, lines the stream. Scattered trees of 'opiuma and monkeypod are occasionally observed. There is little ground cover along the stream as the shade from the canopy above is dense. Bare soil, water-worn boulders and rocks, and litter and branches typify the stream side.
In a few areas where the canopy is less dense, many seedlings of Java plum can be found.

3. Area Between Schools

Grasslands characterize the vegetation between Lahaina Intermediate and Lahainaluna High schools. On the makai side of the realignment, behind Lahaina Intermediate, Guinea grass forms almost 90 to 95% cover on an old field. Scattered plants of lion's ear, spiny amaranth, swollen fingergrass, and hi'aloa are usually found along the margins of the old field.

The rest of the vegetation on the corridor is composed of buffel grass with scattered shrubs and trees. Koa-haole, kolomona (Cassia surattensis), and klu (Acacia farnesiana) form small clumps here and there. Scattered along an old barbed-wire fence are trees of 'opiuma, Java plum, and monkeypod.

Student gardens are found adjacent to the proposed realignment alternative. One recently harvested garden, now overgrown with weeds, lies within the realignment corridor.

Three plants of the native 'anunu vine (Sicyos aff. hispidus), a member of the squash family, are found in koa-haole bordering the proposed corridor.

DISCUSSION AND RECOMMENDATIONS

Vegetation along the proposed realignment alternatives and Hono-a-Pi'ilani Highway consists largely of introduced or exotic species. Sugar cane is cultivated on most of the lands which will be impacted by the proposed project. Of a total of 98 species inventoried during this survey, 86 (87.8%) are introduced; 2 (2%) are endemic (i.e., native only to the islands); 7 (7.1%) are indigenous (i.e., native to the islands and elsewhere); and 3 (3.1%) are originally of early Polynesian introduction.

The two endemic species, wiliwili (Erythrina sandwicensis) and 'anunu, are found in similiar lowland, leeward environments. The wiliwili occurs throughout all the main islands; the 'anunu is found essentially in the area from Kihei to Makena in koa-haole scrub and open kiawe forest. The seven indigenous species are widely distributed throughout the Pacific and some, such as the hi'aloa and hairy merremia, are considered "weedy" as they prefer disturbed areas. None of these native species is considered rare, threatened or endangered by the federal and/or state governments (Fosberg and Herbst 1975, U.S. Fish and Wildlife Service 1985, Herbst 1987).

There is little of botanical interest or concern on the realignment corridors and Hono-a-Pi'ilani Highway. However, areas along the stream are of some concern. The roots of the Java plum forest bind the stream banks and prevent excessive soil loss and

stream bank erosion during periods of heavy rain and flash-flooding. It is recommended that these areas be revegetated as soon as possible to prevent discharge of sediments into the stream and ocean.

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APPENDIX A. PLANT SPECIES CHECKLIST.

Proposed Widening and Realignment Alternatives
Hono-a-Pi'ilani Highway, Island of Maui

The flowering plant families are arranged alphabetically within each of two groups: Monocots and Dicots. Within each family, genera and species are also listed alphabetically. Although a more recent treatment of the Hawaiian flora (Wagner et al. in prep.) is available in manuscript form, the taxonomy and nomenclature in this checklist follows St. John (1973) so that it may be more easily cross-referenced with the earlier survey by Char (1986) of the Paumana to Ka'anapali sections of the highway. Hawaiian names used are in accordance with Porter (1972) or St. John (1973).

For each species the following information is provided:

1. Scientific name with author citation.
2. Common English or Hawaiian name, when known.
3. Biogeographic status of the species. The following symbols are used
   - E = endemic = native to the Hawaiian Islands only, not occurring naturally elsewhere
   - I = indigenous = native to the islands and also to one or more other geographic areas
   - P = Polynesian = plants of Polynesian introduction prior to Western contact (1778); not native
   - X = introduced or exotic = brought here by later human immigrants either intentionally or accidentally after Western contact; not native.
4. Presence (+) or absence (-) of a species within the each of three vegetation areas described in text.
   - 1 = Roadsides and canefields
   - 2 = Gulch areas
   - 3 = Area between schools

Scientific name	Common name	Status	Vegetation distribution 1	2	3
MONOCOTS					
AGAVACEAE (Sisal Family)					
Agave sisalana Perrine ex Englem.	sisal	X	-	+	-
Furcraea foetida (L.) Haw.	Mauritius hemp	X	-	+	-
CYPERACEAE (Sedge Family)					
Cyperus rotundus L.	nutgrass	X	+	-	-
GRAMINEAE (Grass Family)					
Andropogon pertusus (L.) Willd.	pitted beardgrass	X	+	-	+
Brachiaria mutica (Forsk.) Stapf.	California grass	X	+	-	-
Brachiaria reptans (L.) Gard. & C.E. Hubb.		X	+	+	+
Cenchrus ciliaris L.	buffel grass	X	+	+	+
Cenchrus echinatus L.	common sandbur, 'ume'alu	X	+	-	+
Chloris inflata Link	swollen fingergrass, mau'u lei	X	+	+	+
Chloris virgata Sw.	feather fingergrass	X	+	+	+
Cynodon dactylon (L.) Pers.	Bermuda grass, manienie	X	+	-	-
Digitaria sanguinalis (L.) Heist.	large crabgrass	X	-	-	+
Echinochloa colona (L.) Link	jungle rice	X	+	-	+
Echinochloa crusgalli (L.) Beauv.	barnyard grass	X	+	-	-
Eleusine indica (L.) Gaertn.	wiregrass, goosegrass	X	+	-	+
Eragrostis tenella (L.) Beauv. ex R. & S.	lovegrass	X	-	+	-
Leptochloa uninervia (Presl.) Hitchc. & Chase	leptochloa	X	+	-	-
Panicum maximum Jacq. var. maximum	Guinea grass	X	+	+	+
Panicum maximum var. trichoglume Eyles ex Robyns	green panic grass	X	-	+	+
Rhynchelytrum repens (Willd.) C.E. Hubb.	Natal redtop	X	-	+	+
Saccharum officinarum L.	sugar cane, ko	P/X	+	-	-
Saccharum robustum Brandes & Jesw. ex Gras.	wild cane	X	-	-	+
Setaria verticillata (L.) Beauv.	bristly foxtail	X	-	+	+
Sorghum halepensis (L.) Pers.	Johnsongrass	X	-	-	+
Tricachne insularis (L.) Nees	sourgrass	X	+	+	-

Scientific name	Common name	Status	Vegetation distribution 1	2	3
DICOTS					
AMARANTHACEAE (Amaranth Family)					
Amaranthus spinosus L.	spiny amaranth	X	+	-	+
Amaranthus viridis L.	slender amaranth, pakai	X	+	-	-
ANACARDIACEAE (Mango Family)					
Mangifera indica L.	mango, manako	X	+	+	-
Schinus terebinthifolius Raddi	Christmas berry	X	+	+	-
CARICACEAE (Papaya Family)					
Carica papaya L.	papaya, mikana	X	-	+	-
CARYOPHYLLACEAE (Carnation Family)					
Drymaria cordata (L.) Willd. ex R. & S.	drymaria, pipili	X	-	+	-
CHENOPODIACEAE (Goosefoot Family)					
Atriplex muelleri Benth.		X	+	-	-
COMPOSITAE (Daisy Family)					
Ageratum conyzoides L.	ageratum, maile-hohono	X	-	+	-
Bidens pilosa L.	beggar's tick, ko'oko'olau	X	+	+	+
Calyptocarpus vialis Less.	hierba del cabello	X	+	-	-
Crassocephalum crepidiodes (Benth.) S. Moore	crassocephalum	X	+	-	-
Eclipta alba (L.) Hassk.	false daisy	X	+	+	-
Emilia fosbergii Nicol.	red pua-lele	X	+	+	+
Emilia sonchifolia (L.) DC.	lilac pua-lele	X	+	-	-
Erigeron bonariensis L.	hairy horseweed	X	+	-	-
Lactuca scariola L.	wild lettuce	X	+	-	-
Sonchus oleraceus L.	sowthistle	X	+	+	+
Tridax procumbens L.	coatbuttons	X	+	-	+
Xanthium saccharatum Wallr.	cocklebur	X	-	+	+
Zinnia pauciflora L.	wild zinnia	X	-	-	+

Scientific name	Common name	Status	Vegetation distribution 1	2	3
CONVOLVULACEAE (Morning-glory Family)					
Ipomoea batatas (L.) Poir.	sweet potato, 'uala	P	-	+	-
Ipomoea indica (J. Burm.) Merr.	koali-'awania	I	+	+	+
Ipomoea triloba L.	little bell	X	-	+	+
Merremia aegyptia (L.) Urban	hairy merremia, koali-kua-hulu	I	+	+	+
CUCURBITACEAE (Squash Family)					
Momordica charantia var. pavel Crantz	wild bitter melon	X	+	+	-
Sicyos aff. hispidus Hbd.	'anunu	E	-	-	+
EUPHORBIACEAE (Spurge Family)					
Aleurites moluccana (L.) Willd.	kukui	P	-	+	-
Euphorbia geniculata Ortega	wild spurge	X	-	-	+
Euphorbia glomerifera (Millsp.) L.C. Wheeler		X	-	-	+
Euphorbia heterophylla var. cyathophora (Merr.) Griseb.	Mexican fire plant	X	+	-	-
Euphorbia hirta L.	garden spurge, koko-kahiki	X	-	-	+
Euphorbia prostrata Ait.	prostrate spurge	X	-	-	+
Euphorbia thymifolia L.	thyme-leaved spurge	X	+	-	-
Ricinus communis L.	castor bean, koli	X	+	+	-
LABIATAE (Mint Family)					
Leonotis nepetaefolia (L.) Ait. f.	lions-ear	X	+	+	+
LEGUMINOSAE (Pea Family)					
Acacia farnesiana (L.) Willd.	klu	X	-	+	+
Albizia lebbeck (L.) Benth.	Siris tree	X	+	+	-
Canavalia cathartica Thouars	mauna-loa	X	-	+	-
Cassia lechenaultiana DC.	partridge pea, lauki	X	-	-	+
Cassia surattensis Burm. f.	kolomona	X	-	+	+
Crotalaria incana L.	fuzzy rattlepod, kukae-hoki	X	-	-	+
Crotalaria pallida Aiton	mucronate crotalaria	X	+	+	+

Scientific name	Common name	Status	Vegetation distribution 1	2	3
Desmanthus virgatus (L.) Willd.	virgate mimosa	X	-	+	+
Desmodium tortuosum (Sw.) DC.	Florida beggarweed	X	-	-	+
Erythrina sandwicensis Deg.	wiliwili	E	-	+	-
Indigofera suffruticosa Mill.	indigo, iniko	X	-	-	+
Leucaena leucocephala (Lam.) de Wit	koa-haole, ekoa	X	+	+	+
Phaseolus lathyroides L.	cow pea	X	+	-	-
Pithecellobium dulce (Roxb.) Benth.	'opiuma	X	+	+	+
Prosopis pallida (Hump. & Bonpl. ex Willd.) HBK.	kiawe	X	+	+	+
Samanea saman (Jacq.) Merr.	monkeypod	X	+	+	+
LOGANIACEAE (Strychnine Family)					
Buddleja asiatica Lour.	butterfly bush, dog-tail, huelo-ilio	X	+	+	-
MALVACEAE (Hibiscus Family)					
Abutilon grandifolium (Willd.) Sweet	hairy abutilon	X	-	+	+
Abutilon incanum (Link) Sweet	hoary abutilon	I	-	+	+
Malva parviflora L.	little mallow	X	+	-	+
Malvastrum coromandelianum (L.) Garcke.	false mallow, hauuoi	X	+	+	+
Sida fallax Walp.	'ilima	I	+	+	+
Sida rhombifolia L.	Cuba jute	X	-	-	+
MORACEAE (Fig Family)					
Ficus microcarpa L. f.	Chinese banyan	X	-	+	-
MYRTACEAE (Myrtle Family)					
Eugenia cuminii (L.) Druce	Java plum, palama	X	+	+	+
NYCTAGINACEAE (Four O'clock Family)					
Boerhavia coccinea Mill.		X	-	-	+
Mirabilis jalapa L.	common four o'clock, pua-ahiahi	X	-	+	+

Scientific name	Common name	Status	Vegetation distribution 1	2	3
PLANTAGINACEAE (Plantain Family)					
Plantago major L.	broad-leaved plantain, ʻrau-kahi	X	+	-	-
PORTULACACEAE (Purslane Family)					
Portulaca oleracea L.	common purslane, ʻihi	X	+	+	-
PROTEACEAE (Protea Family)					
Grevillea robusta A. Cunn.	silk oak, ʻoka-kalika	X	+	+	+
SAPINDACEAE (Litchi Family)					
Dodonaea viscosa Jacq.	aʻaliʻi	I	-	-	+
SOLANACEAE (Tomato Family)					
Lycopersicon esculentum Mill.	tomato	X	-	-	+
Lycopersicon pimpinellifolium Mill.	wild tomato	X	-	+	+
Nicandra physalodes (L.) Gaertn.	apple-of-Peru	X	-	+	+
Nicotiana glauca Grah.	wild tobacco	X	+	-	-
Solanum nigrum L.	popolo	I?	+	+	+
STERCULIACEAE (Cocoa Family)					
Waltheria indica var. americana (L.) R. Br. ex Hosaka	hiʻaloa, ʻuhaloa	I	+	+	+
VERBENACEAE (Verbena Family)					
Lantana camara L.	lantana, lakana	X	-	+	-

APPENDIX B

SOCIAL IMPACT
Earthplan

SOCIAL IMPACT ASSESSMENT

ON RESIDENTIAL DISPLACEMENT

RESULTING FROM

ALTERNATIVE B OF HONOAPIILANI HIGHWAY BYPASS

Prepared by Earthplan

for the Hawaii State Department of Transportation,
Highways Division

April 1988

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SUMMARY

The Hawaii State Department of Transportation, hereby referred to as DOT, is proposing three alternatives for a Lahaina bypass to Honoapiilani Highway on the island of Maui. This Social Impact Assessment was conducted primarily to study the potential displacement of residential uses. Given the three current alternatives, it is understood that only Alternative B would entail the displacement of existing homes.

Three sources were used in conducting research for this report.

- interviews with DOT representatives to understand the existing context of the three bypass options and some of the considerations in weighing on alternative against the other,
- a review of DOT files for information on (1) what has transpired prior to the determination of these three options, (2) how the community has reacted to previous and current options, and (3) how DOT has responded to community input, and
- interviews with a cross-section of Ikena Avenue residents.

Although the West Maui community generally supports a Lahaina bypass at this point in time (April 1988), there is strong concern as to where this bypass occurs. Each of the current and previous alternatives has received some form of reservation or opposition because of its impact on existing uses.

Residential displacement is only one of the bases for opposing an alternative. Other concerns include the effects of Alternative A on the operations of Pioneer Mill, Alternative C's potential impacts on the nearby schools and their students, engineering aspects and major cost factors of all three alternatives, and the proximity of any of the alternatives to existing residential projects.

The findings and recommendations of this study comprise only one factor in the decision-making process for choosing a bypass alternative. Impacts on agricultural operations, nearby residents and school activities also need to be weighed, as well as engineering feasibility and related costs.

Profile of Existing Community

Description of the Lahaina Community

Lahaina had over 6,000 people in 1980. At that time, the Lahaina CDP comprised almost nine percent of Maui County's population of 71,000.

The Lahaina CDP population has been increasing at a rate higher than the State and Maui County. With a 34 percent population increase between 1980 and 1986, the community had 13,700 people. Based on that estimate, the Lahaina CDP now comprises almost 16 percent of Maui County's population.

Census information shows that Lahaina has smaller households than Maui County and the State. There was a higher degree of stability with a high proportion of Lahaina's population having lived in the same house five years previous. Both Lahaina and Maui County tended to have proportionally more Filipinos, Hawaiians and part-Hawaiians, and less Japanese and Chinese people than State averages.

Lahaina tended to have less people in families, and the family median income was slightly lower than that of Maui County and the State. Lahaina's unemployment rate was low at almost half that of Maui County and the State.

In 1980, Maui County had a high housing vacancy of 31 percent, compared to 17 percent in Lahaina and 11 percent throughout the State. The County also had proportionally more rental vacancies (12 percent) than Lahaina (6 percent) and the State (5 percent).

Further, housing costs in both Lahaina CDP and the overall County were higher than the State, as reflected in the median cash rents, the median values of owner-occupied units and the proportion of rental and mortgage payments of a median family income.

Profile of Existing Ikena Avenue Residents

Thirty-six residential lots are located along Ikena Avenue. The 18 single-family lots located below, or makai, of Ikena Avenue are part of Kelawea Mauka Subdivision, Phase II. Many of the "makai" residents are or were employees of the Pioneer Sugar Mill or other Amfac companies. In the early 1970s, these lots were offered to employees and people began moving in around 1972 and 1973. Many of the original residents, who are now mostly retired, still live there.

Mauka of Ikena Avenue are another 18 homes. These are part of Phase III of the Kelawea Mauka Subdivision. Many of these residents are also Amfac employees, though they tend to work in resort-related jobs. Most began moving in around 1982.

Four of the mauka 18 lots are unique in two ways -- they were sold within the last three and four years, and their accesses are located directly on Ikena Avenue.

The makai lots are approximately a 1,000 square feet smaller than those mauka of Ikena Avenue. Many of the houses are relatively large, with recent and ongoing improvements. Based on interviews

with representatives of 18 households, it is estimated that there are an average of 4.2 bedrooms per unit. The estimated large households (6.9 persons) are consistent with the large units.

It is therefore possible that over 240 people (based on 6.9 persons per household) live in the 36 houses along Ikena Avenue.

Overall, Ikena Avenue residents tended to be older than the Lahaina community because of a high proportion of senior citizens. Mauka residents tended to be younger than the makai residents.

Almost all of the houses along Ikena Avenue are owner-occupied. Although there are occasional family and social ties, the mauka and makai families reportedly do not identify much

Potential Residential Displacement of Alternative B

Ikena Avenue currently has a 66-foot right-of-way. If Alternative B were selected, the DOT would need an 80-foot right-of-way along Ikena Avenue. DOT would therefore need to acquire 14 feet from adjacent residential lots to establish an 80-foot right-of-way.

The extent of residential displacement depends on whether DOT acquires the entire 14 feet from one side or acquires only a portion from either side to total 14 feet.

Potential Residential Displacement of "One-Side" Acquisition

One of the DOT's options is to acquire the 14 feet from either the mauka or makai side of Ikena Avenue. If this occurred, Alternative B would result in residential displacement ranging from 18 to 22 homes.

Effects of "Partial Acquisition"

Another acquisition option is to acquire only portions of the mauka and makai lots to establish an 80-foot right-of-way. The DOT has not yet determined the actual boundaries of the desired right-of-way (since Alternative B is only one of the options). The extent of land needed from either side is therefore undetermined at this time.

With this partial acquisition option, the DOT hopes to reduce potential residential displacement to the four mauka Ikena houses.

The remaining 32 lots would experience the following impacts:

1. Lot sizes would be reduced, although the actual extent depends on DOT engineering and right-of-way studies.

2. All lot frontages to the bypass would be walled sufficiently to minimize noise and visual impacts. This means that the makai lots would have a wall bordering their backyards; walls of the mauka lots would form their front-yard boundaries.

Note that the potential for additional displacement still exists. For some lots -- particularly the makai lots which already average 6,000 square feet -- a further reduction in lot size may not support the existing residential structure because of improvements very close to the property line.

It is stressed that the actual displacement impacts of partial acquisition cannot be determined until the DOT completes its engineering and right-of-way studies, as well as cost analyses.

Issues Raised by Ikena Avenue Residents

Interviews with a cross-section of Ikena Avenue households were held to gather information about current families, understand the extent of their awareness of the DOT project, and identify issues or concerns they may have about the project's effect on them (displacement or otherwise).

Thirty-four people, representing 22 households (56 percent of the 36 households), were interviewed during this study. Each person was informed that input would be summarized in the Social Impact Assessment and that individual conversations would remain confidential. Project information was provided by DOT representatives and no written project descriptions were provided for the interviews.

Except for one person, those interviewed agreed with the wider West Maui community on the need for a Lahaina Honoapiilani bypass. All of those interviewed knew that Ikena Avenue was part of one of the bypass alternatives; all felt that the State should not displace any families to accommodate traffic. They felt that Alternative C would have less impacts on residents in general, and that the State should protect residents first and foremost.

The majority felt frustrated because they suspected that their desire to remain at their present location could easily be superseded either by the needs of the wider community or by possibly favorable Alternative B costs. There was also resentment and suspicion about being sold this land and being allowed to build homes here "if this was coming."

They were therefore willing to be relocated providing certain conditions -- which they feel are fair and just -- are met. These conditions included

- total relocation (not just compensation for the current house),
- relocation in Lahaina,

- at a site with comparable views and quiet,
- reimbursement of moving expenses, and,
- for a few, compensation for the non-tangible impacts, such as the stress and the "sacrifice" for the wider community.

They also had concerns about their ability to find comparable housing they could afford; financing; the quality of the new homes and neighborhood; and timing.

Ikena Avenue residents only learned of possible "partial acquisition" in April 1988. Both makai and mauka residents opposed this option. People did not approve of the "high wall" which would be built by the DOT to buffer noise and visual impacts. For the mauka residents, the wall would block their views; the makai residents feared that their mountain breezes would be cut off.

Both mauka and makai residents preferred relocation to partial acquisition. Further all wanted to be relocated if Ikena Avenue were part of the bypass because of possible noise, visual, safety and construction impacts.

1. BACKGROUND AND PURPOSE

1.1 Project Description

The Hawaii State Department of Transportation, hereby referred to as DOT, is proposing a number of alternatives for a Lahaina bypass to Honoapiilani Highway on the island of Maui. The current alternatives are as follows:

Alternative A is located closest to the shoreline and would be the nearest to the existing alignment of Honoapiilani Highway. This alternative calls for an overpass in the vicinity makai of the Pioneer Sugar Mill.

Alternative B would be located at a higher elevation than Alternative A, between Phases 2 and 3 of Kelawea Subdivision, a residential development. This alternative would run through the existing Ikena Avenue.

Alternative C is the most recently considered option. It would run at the highest elevation, between Lahainaluna High School and Lahaina Intermediate School.

Figure A shows these alternatives.

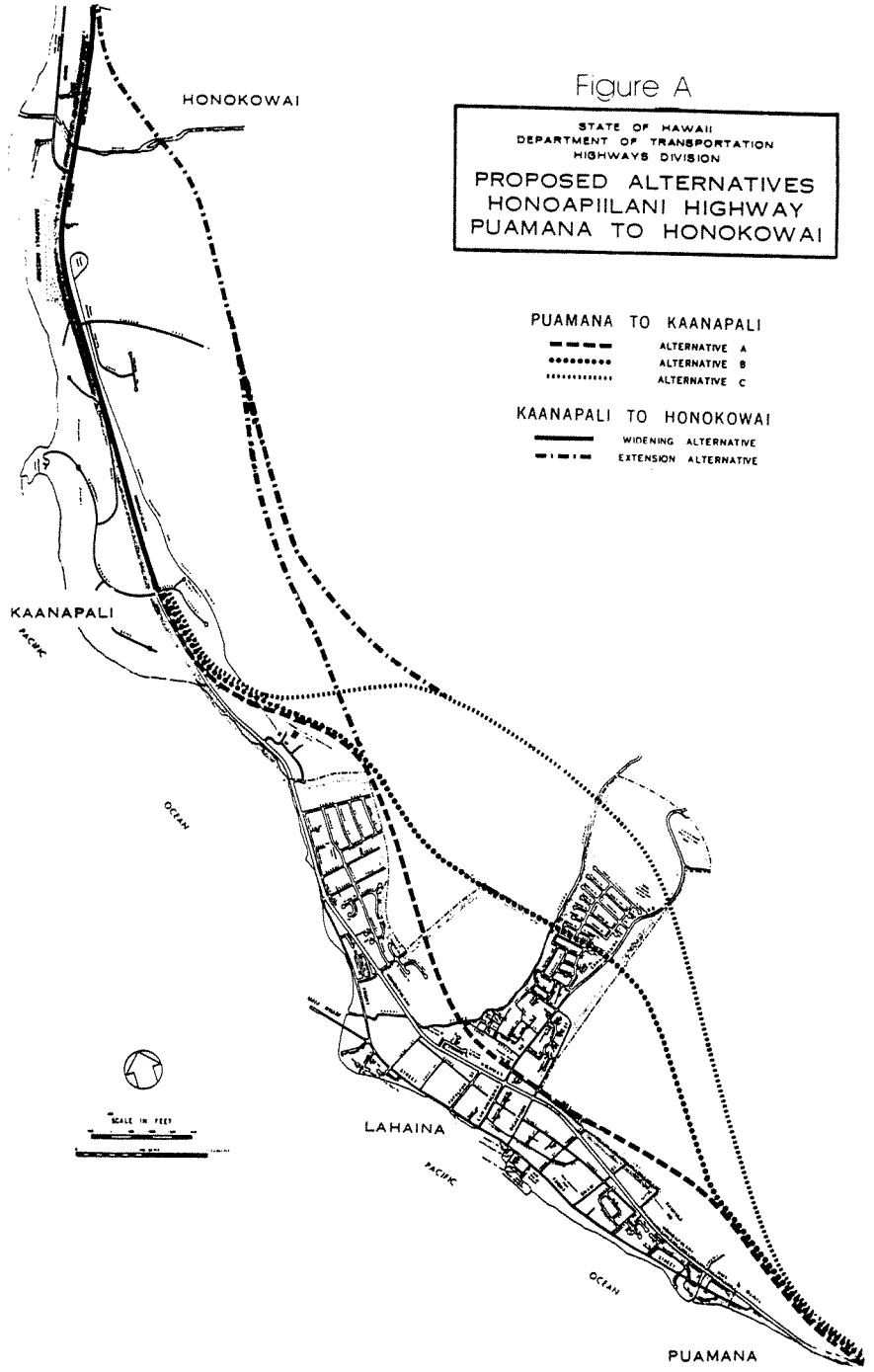
1.2 Report Purpose

This Social Impact Assessment was conducted primarily to study the potential displacement of residential uses. Given the three current alternatives, it is understood that only Alternative B would entail the displacement of existing homes.

This report is to be included in the Environmental Impact Statement which discloses and analyzes the various impacts of all three alternatives. Note that the scope of this report does not include:

- an evaluation of the overall socio-economic impacts of the Lahaina bypass,
- a determination of specific relocation sites or the method of acquisition,
- the economic impacts of such displacement on either the individual homeowner, the surrounding property values, or the State, and
- the social and economic impacts of potential non-residential displacement.

Figure A



APPENDIX B

A secondary purpose of this report is to examine potential displacement of school-related activities which would occur if Alternative C were implemented.

1.3 Sources of Information Used in This Report

Three major sources were used in conducting research for this report. First, Earthplan conducted interviews with DOT representatives to understand the existing context of the three bypass options and some of the considerations in weighing on alternative against the other.

Second, Earthplan reviewed DOT files for information on (1) what has transpired prior to the determination of these three options, (2) how the community has reacted to previous and current options, and (3) how DOT has responded to community input. Part of the research also included census information to understand how the Ikena Avenue residents "fit in" with the general community.

Third, Earthplan conducted interviews with a cross-section of Ikena Avenue residents. The information from these interviews was used primarily to (1) understand how many and who was living on this street, (2) the residents' knowledge of the project and their perception of how the implementation of Alternative B might impact them and (3) the residents' own expectations and needs if they were relocated. The process of these interviews and their results are further discussed in subsequent sections of this report.

1.4 Context of Residential Displacement in the Decision-Making Process

At this point in time (April 1988), community reaction to the Lahaina bypass is generally one of support. In transcripts of public hearings and news articles, community testimony and letters often ask that DOT expedite the bypass.

There is strong concern, however, as to <u>where</u> this bypass occurs. Each of the current and previous alternatives has received some form of reservation or opposition because of its impact on existing uses. Residential displacement is only one of the bases for opposing an alternative.

Alternative A is criticized because of potential impact on the operations of Pioneer Mill, and corresponding employment impacts.

Alternative C is of concern because of potential impacts on the nearby schools and their students.

Engineering aspects of all three alternatives are major cost factors.

The proximity of any of the alternatives to existing residential projects is a concern because of noise and air quality impacts.

These current alternatives, however, were largely, though not solely, based on previous community concern about other alternatives. At one time, an alignment just mauka of the Pioneer Mill was proposed, but this was dropped because of the potential impacts on nearby electrical transformers. Also, the Kelawea - Kalena alternative, which would have passed through an older residential subdivision and would have displaced families along that route, was dropped after strong opposition from the Kelawea Community Association.

Further, at the October 1987 DOT informational meeting, Alternative C was not in consideration because of opposition by the State Department of Education. Many who testified at the meeting, however, expressed their concern about any residential displacement, and suggested an alignment further mauka. Alternative C was subsequently reinstated as an alternative.

The findings and recommendations of this study, then, comprise only one factor in the decision-making process for choosing a bypass alternative. Impacts on agricultural operations, nearby residents and school activities also need to be weighed, as well as engineering feasibility and related costs.

2. PROFILE OF EXISTING COMMUNITY

2.1 Description of the Lahaina Community

This section provides an overview of certain characteristics of the Lahaina community. Note that, as stated in Section 1.2, the scope of this report does not include the effects of the bypass on the overall community. Selected information on population and demographic characteristics is nevertheless helpful in making limited comparisons between the affected Ikena Avenue residents and the surrounding community.

As shown on Table 1, the Lahaina Census Designated Place (CDP) had over 6,000 people in 1980. At that time, the Lahaina CDP comprised almost nine percent of Maui County's population of 71,000. Figure B illustrates the boundaries of the Lahaina CDP.

More recent information indicates that Maui County and Lahaina CDP have experienced relatively higher population growth between 1980 and 1986 than the State of Hawaii. While the State's population is estimated to have grown over 10 percent, Maui County's population increased by almost 24 percent to 87,500.

The Lahaina CDP population increased even more. With a 34 percent population increase between 1980 and 1986, the community had 13,700 people. Based on that estimate, the Lahaina CDP now comprises almost 16 percent of Maui County's population.

The following summarizes other information provided in Table 1:

1. In 1980, the Lahaina CDP had smaller households than Maui County and the State.

2. There was a higher degree of stability with 61 percent of Lahaina's population having lived in the same house five years previous. Maui County had 52 percent in this situation; the State, 49 percent.

3. Lahaina's ethnicity was similar to that of Maui County, and both Lahaina and Maui County tended to have proportionally more Filipinos, Hawaiians and part-Hawaiians, and less Japanese and Chinese people.

4. Lahaina CDP tended to have less people in families, and the family median income was slightly lower than that of Maui County and the State.

5. The unemployment rate was low at almost half that of Maui County and the State.

6. More than a third of Lahaina CDP employed labor force were in service occupations, which was much higher than the 20 percent in Maui County and the 17 percent in the State.

Table 1
Total Population and Demographic Characteristics:
State of Hawaii, County of Maui and Lahaina Area, 1980

	STATE OF HAWAII	MAUI COUNTY	LAHAINA CENSUS DESIGNATED PLACE
TOTAL POPULATION	964,691	70,847	6,095
	%	%	%
HOUSEHOLDS	294,052	22,510	1,978
Average Household Size	3.28 persons	3.15 persons	3.08 persons
Median Age	28.4 years of age	29.6 years of age	30.3 years of age
RESIDENCE 5 YRS. PREVIOUS (people aged 5 years and older)			
Same house	49.3	52.0	61.2
Same island	25.2	22.7	15.4
Different island	2.8	8.9	4.9
Different state	16.9	12.7	14.7
Different country	5.9	3.7	3.8
ETHNICITY			
Caucasian	33.0	31.8	37.9
Hawaiian/Part-Hawaiian	11.9	18.3	18.1
Filipino	13.9	18.3	18.6
Japanese	24.9	21.8	22.8
Chinese	5.8	2.0	0.8
Other	10.5	7.8	7.2
POPULATION IN FAMILIES	814,983	60,713	4,877
as % of total population	84.5%	85.7%	80.0%
MEDIAN FAMILY INCOME	$22,750	$22,579	$21,909
TOTAL EMPLOYED CIVILIAN LABOR FORCE	415,181	34,613	3,645
% unemployed	4.7%	4.0%	2.3%
OCCUPATION			
Service	17.9%	20.7%	35.4%
Managerial/professional	23.5%	18.8%	14.9%
technical, sales & administration	32.0%	24.9%	24.6%
farm/fish/forest	3.4%	8.3%	5.4%
precision, craft, repair	11.6%	12.8%	8.4%
operators, fabricators, laborers	11.7%	14.5%	11.2%

Notes: *Figures based on 15% sample; hence, numbers represent estimate.

Sources: U.S. Bureau of the Census, 1980 Census of Population and Housing -- Census Tracts -- Honolulu, Hawaii, PHC80-2-183, and 1980 Summary Tape Files 1-A and 3-A.

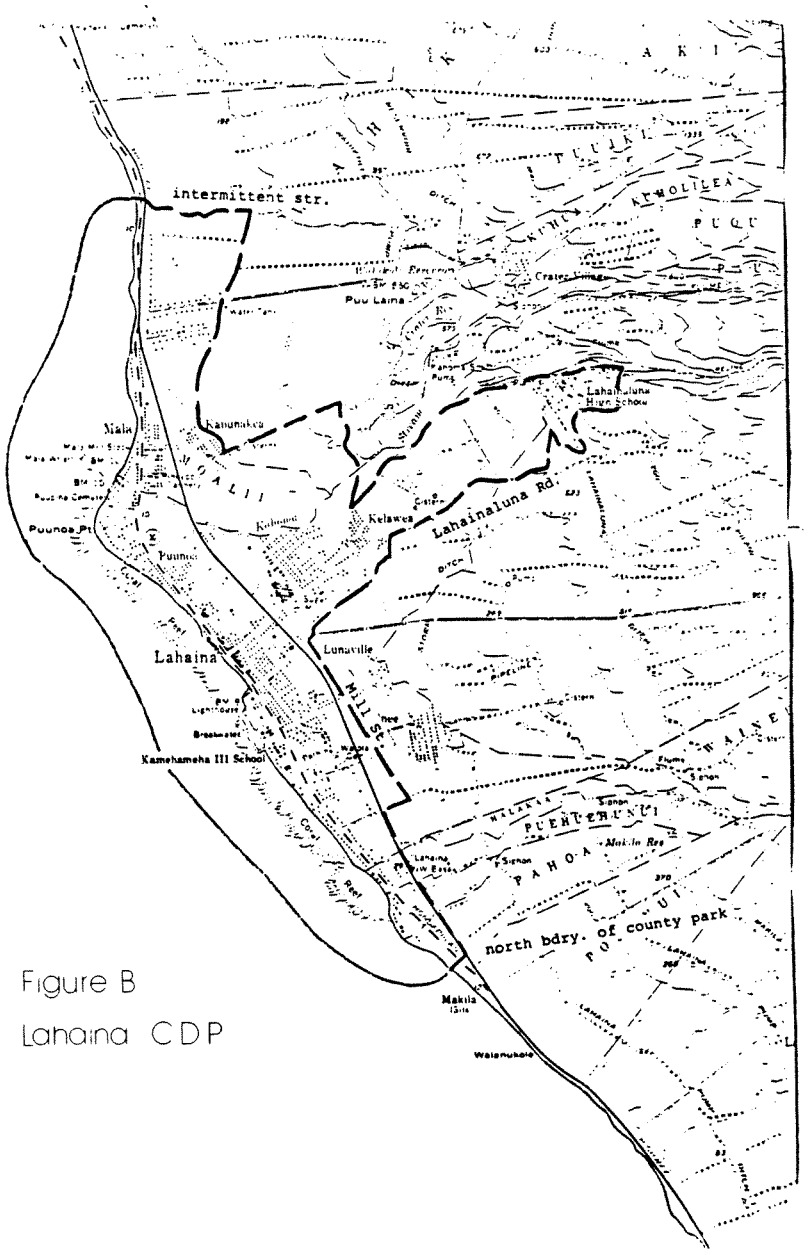


Figure B

Lahaina CDP

Table 2 contains housing information, which shows that:

1. In 1980, Maui County had a high housing vacancy of 31 percent, compared to 17 percent in Lahaina and 11 percent throughout the State. The County also had proportionally more rental vacancies (12 percent) than Lahaina CDP (6 percent) and the State (5 percent).

2. Housing costs in both Lahaina CDP and the overall County were higher than the State, as reflected in the median cash rents, the median values of owner-occupied units and the proportion of rental and mortgage payments of a median family income.

2.2 Profile of Existing Ikena Avenue Residents

This section provides an overview of characteristics of households along Ikena Avenue. The information was primarily from interviews with representatives of 18 Ikena Avenue households, the process of which is described in Section 3.3.1. Note that representatives of 22 households were interviewed; three provided information on issues only.

Thirty-six residential lots are located along Ikena Avenue. The following is an overview of the existing situation:

General Background

Eighteen single-family lots are located below, or makai, of Ikena Avenue. These units are part of Kelawea Mauka Subdivision, Phase II.

Many of the "makai" residents were employees of the Pioneer Sugar Mill or other Amfac companies. They formerly lived in plantation camps such as Wainee Village, Pukoli and Mahinahina. In the early 1970s, Amfac offered the subject lots to employees. People paid contractors to build their houses and began moving in around 1972 and 1973. Many of the original residents, who are now mostly retired, still live there. For the purposes of this report, these residents are hereby referred to as makai residents.

Mauka of Ikena Avenue are another 18 homes. These are part of Phase III of the Kelawea Mauka Subdivision. Many of these residents are also Amfac employees, though they tend to work in resort-related jobs.

Table 2:
Housing Stock and Characteristics:
State of Hawaii, County of Maui and Lahaina Area, 1980

	STATE OF HAWAII	MAUI COUNTY	LAHAINA CENSUS DESIGNATED PLACE
TOTAL_YEAR-ROUND HOUSING UNITS	332,213	32,728	2,377
vacant (total)	11.4%	31.1%	16.7%
vacant forsale	0.6%	0.8%	0.5%
vacant for rent	4.9%	11.9%	6.1%
held for occassional use	1.3%	2.8%	0.9%
other	4.6%	15.6%	9.2%
TOTAL_YEAR-ROUND OCCUPIED UNITS	294,052	22,510	1,978
TENURE			
owner-occupied	51.7%	57.6%	53.1%
renter-occupied	48.3%	42.4%	46.9%
SELECTED CONDITIONS			
lacking some or all plumbing	2.2%	3.4%	3.1%
1.51 or more persons/room	7.0%	7.3%	7.6%
MEDIAN CASH RENT			
renter-occupied	$273	$305	$321
as % of median family income	14.4%	16.2%	17.6%
MEDIAN_VALUE*			
owner-occupied	$119,400	$113,600	$138,000
MEDIAN MONTHLY MORTGAGE*			
owner-occupied **	$383	$383	$438
as % of median family income	20.2%	20.4%	23.9%

Notes: *Median values are for non-condominium housing units.
**Figures based on 15% sample; hence, numbers represent estimates.

Sources: U.S. Bureau of the Census, 1970 Census of Population and Housing -- Census Tracts -- Honolulu, Hawaii, PHC(1)-88; 1980 Summary Tape Files 1-A and 3-A; State of Hawaii, 1973, Community Profiles for Hawaii.

Like the Phase II residents, the Phase III residents purchased their lots from Amfac and had their own houses built. Most began moving in around 1982. For the purposes of this report, these residents are hereby referred to as mauka residents.

Four of the mauka 18 lots are unique in two ways -- they were sold within the last three and four years, and their accesses are located directly on Ikena Avenue. These latter four are the southernmost, located at the entrance of Ikena Avenue. For the purposes of this report, these residents are hereby referred to as mauka Ikena residents.

Lot and House Sizes

The makai lots are smaller than those mauka of Ikena Avenue. The makai lots average 6,000 square feet; the mauka lots average around 7,500 square feet (Real Estate Data, Inc., 1987).

Many of the houses are relatively large, with recent and ongoing improvements. In interviews with representatives of 18 households, it was found that the cumulative number of bedrooms in their houses was 77, which averages 4.2 bedrooms per unit.

Population

Information from interviews indicated that Ikena Avenue has larger-than-average households which can be directly correlated to the large units. Many of the units house extended families, including retired parents and other relatives.

Representatives of 18 households indicated a total of 124 people, which points to an average household size of 6.9 persons. This household size is more than twice the 1980 Lahaina household size of 3.08 persons.

The interviewed households represent over 50 percent of the total 36 Ikena Avenue households. Based on observations of the other houses and discussions with the interviewees, it is likely that the other 18 households are similar in size and composition.

It is therefore possible that over 240 people (based on 6.9 persons per household) live in the 36 houses along Ikena Avenue.

It appeared that, overall, Ikena Avenue residents tended to be older than the Lahaina community because of a high proportion of senior citizens. Mauka residents tended to be younger than the makai residents.

Accesses

Of the 18 makai lots, 14 have accesses on Kanakea Loop, and 4 on Kanakea Place. Of the 18 mauka lots, four have their accesses on Ikena Avenue. Seven of the others have accesses on North Hakau Place; seven on South Hakau Place.

Tenure

Almost all of the houses along Ikena Avenue are owner-occupied. In some cases, the owners lived in the same unit with renters. At least two of the four "mauka Ikena" lots are renter-occupied.

Community Identity

Although there are occasional family and social ties, the mauka and makai families reportedly do not identify with each other. This is probably because many of the makai residents have worked together, lived there longer and already established strong ties among themselves. To them, the mauka residents are newer and have different employment ties.

In the last couple of years, the mauka families were very aware of Alternative B and had organized because they would have been displaced. Reportedly, there was a feeling that the makai families did not join in this effort because they believed they would not have been affected.

3. POTENTIAL RESIDENTIAL DISPLACEMENT OF ALTERNATIVE B

Ikena Avenue currently has a 66-foot right-of-way. If Alternative B were selected, the DOT would need an 80-foot right-of-way along Ikena Avenue.

As shown in Figure C, the DOT would therefore need to acquire 14 feet from adjacent residential lots to establish an 80-foot right-of-way.

As discussed in Section 2.2, 36 homes are situated along Ikena Avenue. Eighteen of these are makai of Ikena Avenue; 18, makai. The extent of residential displacement depends on whether DOT acquires the entire 14 feet from one side or acquires only a portion from either side to total 14 feet.

3.1 Potential Residential Displacement of "One-Side" Acquisition

One of the DOT's options is to acquire the 14 feet from either the mauka or makai side of Ikena Avenue. The following summarizes the potential residential displacement impacts of Alternative B.

1. All four "mauka Ikena" households would be displaced -- regardless of how the required 14 feet is acquired -- because their access is on Ikena Avenue and no private accesses will be allowed directly from the bypass.

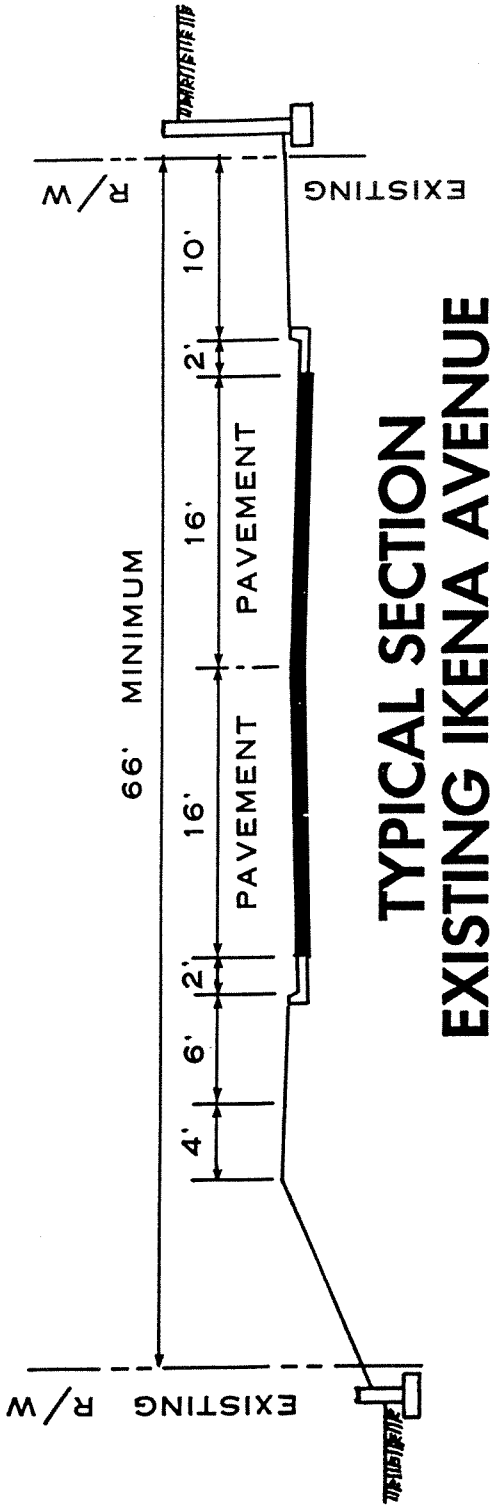
2. If the DOT were to acquire the entire 14 feet from the mauka side of Ikena, then the other 14 households on that side of the street will also be displaced. The total displacement would be 18 households.

3. If the DOT were to acquire the entire 14 feet from the makai side of Ikena, then the 18 makai homes plus the four mauka Ikena houses would be displaced, for a total of 22 homes.

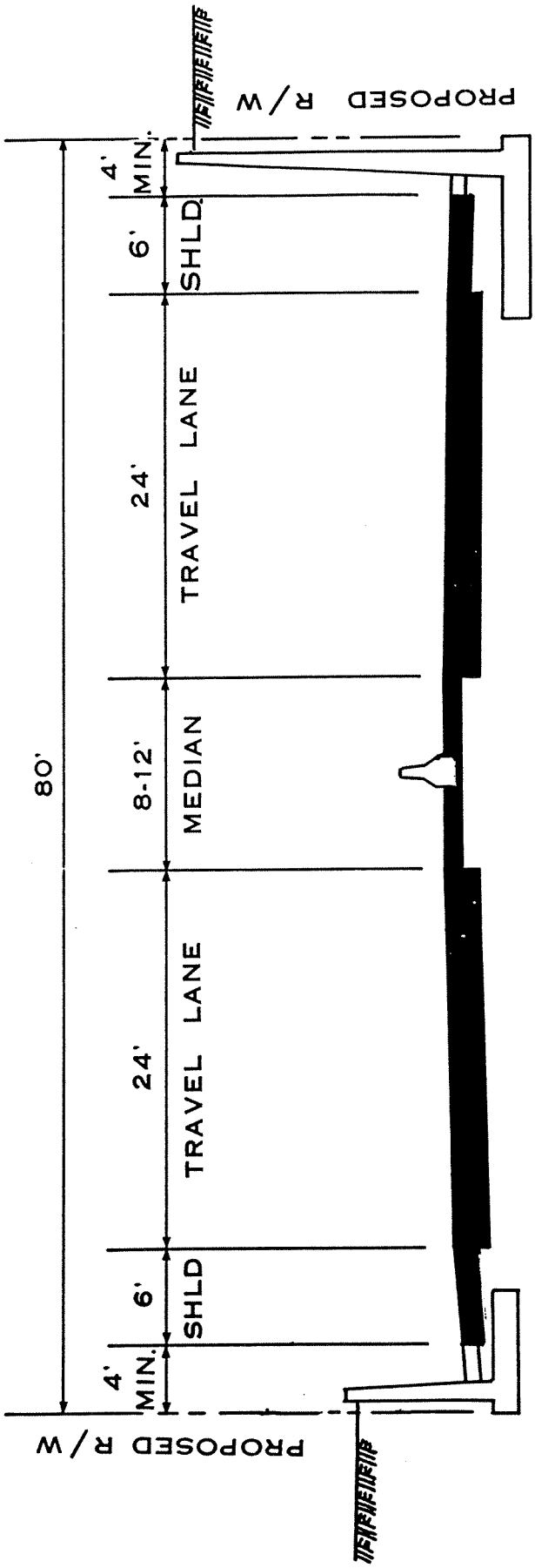
Based on the aforementioned scenarios, Alternative B would result in residential displacement ranging from 18 to 22 homes, if the DOT were to acquire the 14 feet from one side of the street.

3.2 Effects of "Partial Acquisition"

Another acquisition option is to acquire only portions of the mauka and makai lots to establish an 80-foot right-of-way. The DOT has not yet determined the actual boundaries of the desired right-of-way (since Alternative B is only one of the options). The extent of land needed from either side is therefore undetermined at this time.



TYPICAL SECTION
EXISTING IKENA AVENUE



TYPICAL SECTION
ALTERNATIVE B, WITH RETAINING WALLS
AT IKENA AVENUE

This option has only recently been raised for consideration. Prior to this option, the sole method of right-of-way acquisition was full acquisition of the mauka homes, and only the 18 mauka homes would have been displaced.

With this partial acquisition option, the DOT hopes to reduce potential residential displacement to the four mauka Ikena houses.

The remaining 32 lots would experience the following impacts:

1. Lot sizes would be reduced, although the actual extent depends on DOT engineering and right-of-way studies.

2. All lot frontages to the bypass would be walled sufficiently to minimize noise and visual impacts. This means that the makai lots would have a wall bordering their backyards; walls of the mauka lots would form their front-yard boundaries.

Note, however, that the potential for additional displacement still exists.

For some lots -- particularly the makai lots which already average 6,000 square feet -- a further reduction in lot size may not support the existing residential structure. In some instances, it was observed that homeowners built improvements very close to the property line. Stairways, parking areas, and gate access have been built directly on or right up to the property line fronting Ikena Avenue.

It is stressed, however, that the actual displacement impacts of partial acquisition cannot be determined until the DOT completes its engineering and right-of-way studies, as well as cost analyses.

3.3 Issues Raised by Ikena Avenue Residents

3.3.1 Description of the Informant Interviews

Interviews with a cross-section of Ikena Avenue households were held to

- gather information about current families,
- understand the extent of their awareness of the DOT project, and
- identify issues or concerns they may have about the project's effect on them (displacement or otherwise).

Thirty-four people, representing 22 households (56 percent of the 36 households), were interviewed during this study and the list of people is presented in Table 3. Almost all of the interviews were conducted in person -- either through small group meetings coordinated by the residents, or private family meetings, or separate conversations with different individuals in a household.

Each person was informed that input would be summarized in the Social Impact Assessment and that individual conversations would remain confidential. Project information was provided by DOT representatives and no written project descriptions were provided for the interviews. Informants were not asked to "take a position," nor were they asked to predict their position if one were not yet taken.

3.3.2 Overview of Issues and Concerns

This section summarizes the various issues raised during the interviews. These issues are further discussed in subsequent sections.

Except for one person, those interviewed agreed with the wider West Maui community on the need for a Lahaina Honoapiilani bypass. All of those interviewed knew that Ikena Avenue was part of one of the bypass alternatives; all felt that the State should not displace any families to accommodate traffic. They felt that Alternative C would have less impacts on residents in general, and that the State should protect residents first and foremost.

The majority felt frustrated because they suspected that their desire to remain at their present location could easily be superseded either by the needs of the wider community or by possibly favorable Alternative B costs. There was also resentment and suspicion about being sold this land and being allowed to build homes here "if this was coming."

Table 3

LIST OF IKENA AVENUE RESIDENTS INTERVIEWED

Marino Agapay
Catherine Asami
Deytyn Asami
Seichi Asami
Alfredo Baraoidan
Brian Blundell
Andrea Blundell
Germaine Buckner
Felix Cabanillan
Florencion Cabanillan
Michael Cabingas
Randy Clarke
Robin Clarke
Teresa Delos Reyes
Helene Encarnacion
Perfecto Encarnacion
Josephine Gazmen
Marybud Kobatake
Tadaki Kobatake
Bienvenido Manlansing
Angeles Manlansing
Juan Mamuad
Marcelo Molina
Richard Oura
Bunny Panis
Eleuterio Perlas
Consolacion Perlas
John Rzonca
Patricio Sensano
Domingo Serna
Herbert Vierra
B. Versola
Andres Viernes
Masayuki Watanabe

They were therefore willing to be relocated providing certain conditions -- which they feel are fair and just -- are met. These conditions included

- total relocation (not just compensation for the current house),
- relocation in Lahaina,
- at a site with comparable views and quiet,
- reimbursement of moving expenses, and,
- for a few, compensation for the non-tangible impacts, such as the stress and the "sacrifice" for the wider community.

They also had concerns about their ability to find comparable housing they could afford; financing; the quality of the new homes and neighborhood; and timing.

Ikena Avenue residents only learned of possible "partial acquisition" in April 1988. Both makai and mauka residents opposed this option. People did not approve of the "high wall" which would be built by the DOT to buffer noise and visual impacts. For the mauka residents, the wall would block their views; the makai residents feared that their mountain breezes would be cut off.

Both mauka and makai residents preferred relocation to partial acquisition. Further all wanted to be relocated <u>if Ikena Avenue were part of the bypass</u> because of possible noise, visual, safety and construction impacts.

<u>3.3.3 First Preference -- No Ikena Avenue Bypass, Thus No Relocation</u>

Virtually all informants acknowledged the need for a bypass. They did not challenge the reasons for a bypass, and, in fact, some cited their own experiences with traffic as reasons for the State to act quickly.

As may be expected, however, no one wanted to move. Many pointed out that they have invested life earnings and time in making their present homes comfortable for their individual lifestyles. They felt that Alternative C would have the least impact on any residents and strongly preferred that option.

Makai informants also pointed out that, over the last ten to 15 years, they have established themselves as a small neighborhood and view each other as family. Many of the makai informants were very apprehensive about starting again because they are retirees and feel they have earned an opportunity to relax in a quiet, stress-free environment.

Many of the mauka informants felt frustrated because, having moved in within the last six years, they have just reached a point of settling in. Some are ready to improve the original structure, but hesitate because of the uncertainty of the situation.

As they expressed their apprehensions, some of the informants were suspicious about the development of this subdivision in light of DOT plans. The mauka residents, especially the most recent (those with accesses on Ikena Avenue), were sold their lots and given building permits within the last few years. They felt that there should have been a moratorium on building in the area if Ikena Avenue was under consideration for a highway.

Although a few indicated that they will "fight" the bypass, most said that they were willing to be relocated in the interest of the wider community. This willingness is based solely on their expectation that the needs of the wider community will supersede 36 families, and that they may be "forced" to move anyway.

The willingness to relocate is qualified, however, and their relocation preferences are further described in Section 3.3.5.

3.3.4 Second Preference -- Relocation OVER Partial Acquisition and with ANY Ikena Avenue Bypass

Initially, the DOT was considering acquisition of only the mauka lots to establish the 80-foot right-of-way. The 18 mauka households knew of this and have testified and have written letters to express their opposition to Alternative B. Very few of the makai residents participated in this, presumably because they did not feel impacted.

More recently, DOT representatives indicated that, to minimize residential displacement, the agency is now exploring the option of acquiring portions of parcels on both sides of Ikena Avenue.

Mauka and makai residents were informed of this more recent option by a DOT representative in April 1988 at a community-initiated meeting. They were further informed that the DOT would construct a high wall on all properties fronting Ikena Avenue to buffer the residents from noise and visual impacts (personal communication with informants and Robert Siarot, Maui District Engineer, Highways Division, Hawaii State Department of Transportation).

Earthplan held the interviews for this study after the residents met with the DOT representatives. Their reaction to partial acquisition is summarized as follows:

1. They fear that the reduction in lot size, the high wall, and possible dust, noise and vibration would reduce the tangible value of the property. They felt that "nobody wants a highway near them."

2. If they were to remain on Ikena Avenue and Alternative B is implemented, they are were wary of construction impacts, since they were informed that the DOT would have to blast during site preparation.

3. If they were to remain on Ikena Avenue and Alternative B is implemented, they are afraid they would be subject to the stress of noise, visual, and air quality impacts. They pointed out that many residents are retirees and would be subject to these impacts all day.

4. They are not confident that the wall will accomplish its objectives.

   The mauka residents feel that their view of the ocean is one of their property's greatest asset. They fear that the wall would totally eliminate this asset.

   The makai residents valued the mountain breezes and noted that the wall may block ventilation.

5. Some were apprehensive about the effects of a lot size reduction. For some lots -- particularly the makai lots which already average 6,000 square feet -- a further reduction in lot size may not support the existing residential structure. They were afraid the some of their improvements may be too close to the property line and would have to be removed.

6. Informants were aware that other portions of the Alternative B alignment would need a 150-foot right-of-way, and that the bypass would be reduced to an 80-foot right-of-way at Ikena Avenue. Informants cited the possibility that the DOT may need the full 150 feet at some later date, and that the remaining residents would again be imposed upon.

Based on these concerns, the informants stressed that they would rather move than have a portion of their properties acquired.

Further, informants did not want to live on Ikena Avenue with the bypass even if the DOT did <u>not</u> acquire portions of their property for the aforementioned reasons.

3.3.5 Relocation Preferences

In the context of the informants' first and second preferences, those interviewed felt that they are entitled to fair treatment in relocation. When asked what constituted fair treatment, they provided the following responses:

1. Relocation versus Compensation -- Almost all informants preferred to be relocated by the State, instead of only receiving compensation for their existing home. They were afraid that, given what they know of West Maui's housing supply, the value of their present homes are well below comparable housing at today's prices and that they would not be able to afford another house.

2. Location -- They preferred West Maui, with Lahaina being the most frequently preferred area. Many pointed out that they need to be close to their job sites.

3. Comparable Amenities -- Informants wanted a mauka area which offers views of the ocean and quiet. Some stressed that they did not want to be relocated near the new bypass.

4. Group Cohesion -- People generally wanted to be relocated to the same area as their neighbors and at the same time. They wanted to minimize social disruption as much as possible.

5. Quality of Neighborhood -- Informants did not want to live in "government housing," meaning they wanted market quality units. While some wanted the State to build their new houses, others preferred finding their own contractor.

6. Compensation/Consideration for Non-Tangible Impacts -- In addition to the relocation requirements, a few wanted the State to compensate them for "making the sacrifice for the larger society," the stress of moving, and the disruption to their lives.

Note that the DOT representatives have indicated that they will comply with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (Federal Register, Volume 52, No. 242, December 17, 1987)(personal communication with Jerry Yamada, Right-of-Way Agent, State Department of Transportation, March 18, 1988).

This act requires local authorities to assure that every family displaced from federally-assisted projects has the opportunity to move into comparable replacement housing. A replacement dwelling has to be decent, safe, sanitary, adequate in size and within the

financial means of the displaced household. Second, a comparable replacement dwelling has to be located in an area as desirable as the dwelling from which displacement occurs.

In instances of acquisition, the act allows compensation at fair market value. An alternative provision allows for "last resort housing," in which the State may choose to build or acquire a subdivision to house displaced persons.

3.3.6 Need for DOT-Initiated Dialogue

All of those contacted were eager to be interviewed. Some were frustrated at not being consistently informed by the State on this matter. They pointed out that previous contacts with the DOT have been at the request of Ikena Avenue residents and that the interviews were the first DOT-based attempts at reaching these residents. Informants stressed that they would like further dialogue directly with the DOT.

3.4 Possible Displacement Effects of Alternative C

As explained in Section 1.2, a secondary item in the scope of this report is to examine potential displacement of school-related activities which would occur if Alternative C were implemented.

The State Department of Education (DOE) and State Department of Accounting of General Services (DAGS) have met with DOT officials and have documented their opposition to Alternative C in letters dated January 15, 1988 (DOE) and February 22, 1988 (DAGS).

The following are displacement impacts identified by these agencies in these letters:

1. Learning Center for Agriculture -- Alternative C would displace and isolate the fields used in agricultural study at Lahainaluna High School. The DOE requests equivalent land exchanges with required grading and irrigation.

2. Proposed Baseball Field -- This alternative would preclude this proposed facility. The DOE asks that an equivalent land exchange with required grading be considered.

3. Parking at Lahaina Intermediate School -- This area would be reduced.

4. Playground Area at Kamehameha III Annex Elementary -- This area would be reduced.

Non-displacement related concerns are also noted. Noise, air quality and safety impacts (such as street crossings between the high and intermediate schools) have been particularly raised by school officials and parents. The schools future expansion may be affected because of Alternative C's use of flatter areas.

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APPENDIX C

ARCHAEOLOGICAL RECONNAISSANCE
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HONOAPIILANI HIGHWAY, MAUI: ARCHAEOLOGICAL RECONNAISSANCE

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FEBRUARY 1989

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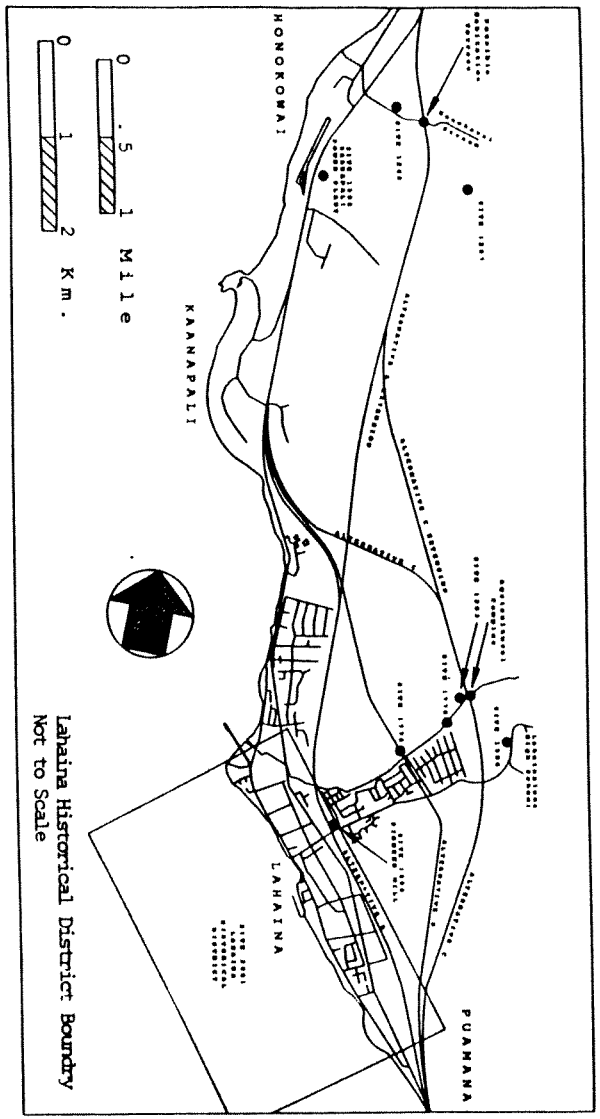
13. Agricultural Complex in Kahoma Valley, Looking North 8
14. Terrace in Honokowai Stream, Looking Northeast 9



1. Map of Project Area

I. INTRODUCTION

This report presents the results of a literature search and archaeological reconnaissance surveys that were conducted along alternate routes of the proposed Honoapiilani Highway realignment between Lahaina and Honokowai, Maui [Figure 1]. One of the alternatives is planned as a widening of existing roadway, the others would involve extensive new construction. The purpose of the work was to determine the presence or absence of sites of historic or archaeological interest that might be located within the project area, with particular attention paid to determining whether the proposed project would have an impact upon properties listed on the National Register of Historic Places. The work consisted of the inspection of State Historic Preservation Office USGS maps and Tax Maps showing known historic site locations and a field check during which one person inspected the proposed rights-of-way for evidence of archaeological or historic sites. The reconnaissances of Alternatives A and B and the widening alternative between Lahaina and Kaanapali were done in June of 1986; Alternative C, the Alternative A and Alternative C extensions and the widening alternative between Kaanapali and Honokowai were done in March of 1988. The 1986 work was accomplished using a Department of Transportation map at a scale of one inch to 1000 feet; the 1988 work was done using a Department of Transportation map at a scale of one inch to 400 feet.

The locations of all of the proposed rights-of-way had been subjected to extensive prior disturbance by heavy equipment associated with highway construction in the case of the widening alternative and sugarcane production in the cases of the other alternatives.

All of the alternate routes begin near Puamana Park, south of Lahaina [Figure 2].

The original Honoapiilani Highway widening alternative followed the existing highway from Puamana to Kaanapali. The section [studied in 1986] has now been dropped, and a section from Kaanapali to Honokowai was added and studied during the 1988 phase of these studies.

Alternative A turns east and parallels Honoapiilani Highway past Pioneer Mill [Figure 3], then veers north behind Waikuli Terrace Park and Wahiku Park subdivisions and turns northwest and



2. South End of Project Area, Looking East



3. Alternative A at Pioneer Mill, Looking Southeast



4. Alternatives A, B and C near Lahaina Civic Center



5. Junction of Alternatives A and B, Looking West



6. Alternative A and C Extensions at Hahakea Gulch



7. Alternative A and C Extensions at Honokowai Stream



8. Site 1203, Kahoma Petroglyphs, Looking West



9. Site 1203, Kahoma Petroglyphs, Looking West

joins Honoapiilani Highway just north of the Lahaina Civic and Recreation Center [Figures 4 and 5]. The alternative A extension continues straight north from the Wahiku Park sub-division and joins Honoapiilani Highway near Honokowai Beach Park [Figures 6 and 7].

Alternative B passes first through canefields [Figure 2] and then along Ikena Avenue, after which it continues through canefields to rejoin Honoapiilani Highway just north of the Lahaina Civic and Recreation Center [Figures 4 and 5].

Alternative C crosses the canefields from Puamana [Figure 2] and passes through some small vegetable gardens located between Lahaina Intermediate School and Lahainaluna High School. It then crosses Kahoma Valley and passes between Wahikuli Reservoir and Crater Reservoir, after which it again passes through canefields [Figure 4] and, turning west, rejoins Honoapiilani Highway north of the Lahaina Civic and Recreation Center.

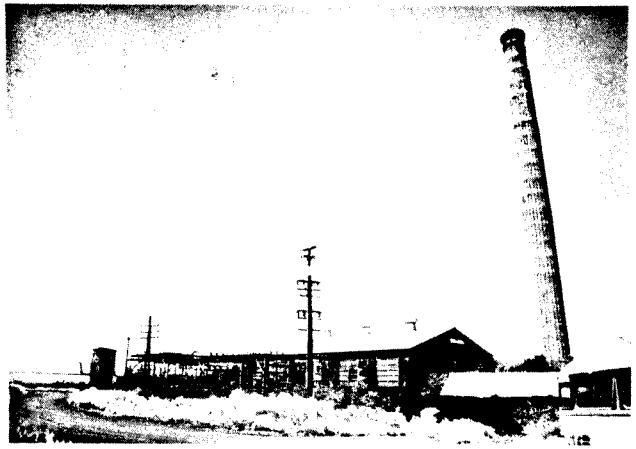
The Alternative C extension continues straight from between the two reservoirs to merge with the Alternative A extension southeast of the Kaanapali Power Plant [Figures 6 and 7].

II. LITERATURE SEARCH

The literature search revealed that about 40 per cent of Alignment A passes through the Lahaina Historical District [National Register of Historic Places Site #3001] and that it passes immediately adjacent to the Pioneer Sugar Mill portion of State Historic Preservation Office Site #1598 [Figure 3].

Alignment B passes through Site 1775, the Kahoma Stream Terrace System Complex.

Alignment C passes through the southeast corner of the Lahaina Historical District, goes immediately west of Site 1596 [Hale Pa'i Printing Museum, which is listed on the Hawaii and National Registers of Historic Places] at Lahainaluna High School, passes very near or over Site 1203 [Kahoma Complex, which is in the State inventory of historic places]], consisting of 38 petroglyphs and a rockshelter [Figures 8 and 9], east of Site 1776 [Haia Terrace System] and between Site 1207 [Honokowai



10. Site 1598, Kaanapali Power Plant, Looking West



11. Agricultural Complex in Kahoma Valley, Looking South



12. Agricultural Complex in Kahoma Valley, Looking East



13. Agricultural Complex in Kahoma Valley, Looking North



14. Terrace in Honokowai Stream, Looking Northeast

Petroglyphs, which is on the list of the Hawaii Register of HIstoric Places] and Site 1208 [Honokowai House Outline, which is in the State inventory of historic places].

Approximately thirty per cent of the original widening alternative [since removed from consideration] passed through the Lahaina Historical District, and at the north end the present widening alternative goes past the Kaanapali Power Plant portion of Site #1598 [Figure 10].

III. FIELD INSPECTION

The field reconnaissance located an unrecorded agricultural complex where Alternative C crosses Kahoma Stream [Figures 11 through 13]. It consists of at least three terraces and a possible irrigation ditch on the alluvial floodplain on the south side of the stream. An unrecorded possible habitation terrace was found where the Alternative A extension crosses Honokowai Stream [Figure 14]. It consists of a stone retaining wall three meters in length and standing to a height of 50 centimeters situated on a 45 degree slope, half way between the streambed and the top of the slope. No midden or artifacts were found. Both of these sites are eligible for the National and State Registers of Historic Places because they contain information of importance to the study of Hawaii's past. Site 1775 could not be inspected, as stream channelization construction work was underway at that location at the time of our visit.

IV. RECOMMENDATIONS

Because the various realignment alternatives involve historic properties either on or eligible to the State and National Registers of Historic Places, it is recommended that the Department of Transportation continue following the procedures of Section 106 of the National Historic Preservation Act of 1966. The specific sites involved are:

Site 3001, the Lahaina Historic District [Alternatives A, B, C and the widening alternative],

Site 1598, the Pioneer Mill [Alternative A],

Site 1775, Kahoma Stream Terrace System Complex [Alternative B],

Site 1598, Kaanapali Power Plant [widening alternative from Kaanapali to Honokowai],

Site 1596 or Hale Pa'i Printing Museum, Site 1203 or Kahoma Complex, and the newly discovered agricultural complex [Alternative C],

the newly discovered possible habitation terrace [Alternative A extension].

The next step will be to apply the "Criteria for Effect," which involve concerns as to whether project implementation will cause the destruction or alteration of all or part of a property, whether implementation will lead to isolation from or alteration of the site's surrounding environment, and whether implementation will introduce visual, audible, or atmospheric elements that are out of character with the property and its setting. If an effect is determined to exist, consultations between the initiating federal agency and the National Advisory Council on Historic Preservation should take place. These consultations will decide whether the effect is adverse, and if so, will determine an agreeable alternative to remove the adverse effect or to recommend planning to minimize the adverse effect.

In addition there remains the possibility that important sub-surface deposits containing valuable data in the form of midden remains, artifacts, charcoal deposits and cultural layers may be present, even though surface evidence of sites [stone walls, terraces, etc.] may have been destroyed by sugarcane production. The proximity of the project to the historically significant town of Lahaina makes this possibility that much greater, even in areas which lie outside the formal boundaries of the Lahaina Historic District. We therefore recommend that an intensive survey, to consist of extensive sub-surface testing, be conducted in the project area prior to any construction activity.

Literature Consulted

State Historic Presrvation Office

USGS Maps on File Showing Locations of Known Archaeological and Historic Sites

Tax Maps on File Showing Locations of Known Archaeological and Historic Sites

Connolly, Robert D. III

1974 *Phase I Archaeological Survey of Kahoma Stream Flood-Control-Project Area, Lahaina, Maui.* Prepared for National Park Service and U.S. Army Corps of Engineers. Bernice P. Bishop Museum. Honolulu.

APPENDIX D

AIR QUALITY

Barry D. Root

AIR QUALITY ASSESSMENT

FOR

HONOAPIILANI HIGHWAY ALTERNATIVES

PUAMANA TO HONOKOWAI, MAUI, HAWAII

Prepared by:

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Kaneohe, Hawaii

April 11, 1988

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APPENDIX D

SUMMARY

1. In this assessment the overall and comparative air quality impact of three proposed alternative routes from Puamana to Kaanapali and two proposed alternatives to increasing traffic carrying capacity between Kaanapali and Honokowai are investigated.

2. Each proposed alternative is expected to cause some short term fugitive dust emissions of a magnitude that will be directly proportional to the amount of dirt-moving involved and the amount of time that bare soil areas remain uncovered. In this regard the greatest impact is likely to be from Alternative B which involves a significant cut or tunnel near Ikena Avenue in the subdivision north of Lahaina. Alternative A would have the second greatest impact in that the greatest portion of its route is relatively closer to currently inhabited areas than is the case for the other alternatives. Indirectly, construction-related traffic delays could be a potential source of increased carbon monoxide emissions near work areas. The widening alternative from Kaanapali to Honokowai would present the greatest potential impact from this source.

3. In the long term the overall impact of all of the planned alternative routings should be favorable in that future traffic congestion and increased levels of air pollution along the existing Honoapioilani Highway corridor will be significantly abated. Each of the proposed alternatives will create its own potential for long term indirect impact since the alternate routes will pass through areas that have little or no vehicular traffic at the current time. Thus improvements in air quality along the existing Honoapiilani Highway corridor will come at the price of slightly increased levels of air pollutants along whichever alternative route is selected.

4. Detailed carbon monoxide modeling using the MOBILE-3 and CALINE4 emissions and dispersion models under worst case peak hour traffic and meteorological conditions indicates that all Federal AAQS will be easily met by all proposed alternatives. Modeling also indicates that State of Hawaii one and eight hour standards could be exceeded under worst case meteorological dispersion conditions near the intersection of Honoapiilani Highway and Lahainaluna Road under current peak hour traffic conditions. All proposed alternatives should successfully abate this condition. In the longer term, peak hour traffic in the year 2007 at the intersection of Honoapiilani Highway and Kaanapali Parkway is expected to cause the one hour State of Hawaii AAQS to be exceeded under worst case dispersion conditions, but selection of the Extension Alternative instead of the Widening Alternative would alleviate this condition. For the eight hour case, however, forecast traffic levels at this location by the year 2007 could cause the State of Hawaii AAQS to be exceeded under worst case conditions no matter which alternative is selected.

5. Because projected carbon monoxide concentrations under all scenarios are both fairly similar and relatively low, all project alternatives would appear to be equally acceptable and the final choice of alternatives should be based on factors other than air quality. From a subjective standpoint, however, Alternative C combined with the Extension Alternative appears to present the best choice when potential short and long term direct and indirect air quality impacts are considered.

1. INTRODUCTION AND PROJECT DESCRIPTION

Honoapiilani Highway, FAP Route 30, is the only State highway serving the Lahaina area. Land uses in the immediate vicinity of Lahiana include commercial, agricultural, resort and residential. Rapid growth of the resort areas, together with increased commercial and residential development have significantly increased traffic levels in the Lahaina area and planned future developments will eventually increase traffic along the existing Honoapiilani Highway corridor to more than double current volumes.

The proposed project involves constructing an alternate traffic corridor to the existing Honoapiilani Highway between Puamana Beach Park and the Kaanapali Parkway and then either widening the existing highway corridor from Kaanapali to Honokowai or constructing a mauka extension of the selected bypass from near Kaanapali to Honokowai. The Puamana to Kaanapali segment of the project is about 5 miles long. The Kaanapali to Honokowai portion is about 3 miles long. The entire project is expected to be completed in phases, but the final phase should be in place by 1997.

There are three proposed alternatives for the mauka corridor between Puamana and Kaanapali. The proposed routing for each of these alternatives (A, B, and C) is indicated on Figure 1. Routing for the widening or extension alternatives is also indicated. Alternatives A, B, and C would be constructed in two phases with the first phase consisting of two lanes from Puamana to either Dickenson Street (to be extended) or Laihainaluna Road. The second phase would be four lanes from that intersection to Kaanapali. The third phase of construction would be either the extension or widening alternative from Kaanapali to Honokowai. The extension alternative would be two lanes wide, while the widening alternative would increase the existing two lane roadway to four lanes.

Because of the large expected increase in traffic volumes over the project corridor, a Do-Nothing alternative is not considered.

The purpose of this study is to estimate the overall air quality impact of the proposed project and to quantitatively compare air quality levels that could result from implementation of each of the proposed project alternatives. Possible measures to mitigate potential air quality impacts are suggested where applicable.

2. AMBIENT AIR QUALITY STANDARDS (AAQS)

State of Hawaii and Federal Ambient Air Quality Standards (AAQS) have been established for six classes of pollutants as shown in Table 1. An AAQS is a pollutant concentration not to be exceeded more than once per year over a specified sampling period which varies from as little as one hour to a year depending on the pollutant and type of exposure necessary to cause adverse effects. Each of the regulated pollutants has the potential to create or exacerbate some form of adverse health effect or to produce environmental degradation when present in sufficiently high concentration.

Federal AAQS have been divided into primary and secondary levels for particulates and sulfur dioxide. For these pollutants, primary AAQS are relevant to the prevention of adverse health impacts, while secondary AAQS refer to public welfare impacts such as decreased visibility, diminished comfort levels, or other potential damage to the natural or man-made environment, e.g. soiling of materials or other economic damage.

State of Hawaii AAQS have been set at a single level which is in some cases significantly more stringent than Federal AAQS. In particular, the State of Hawaii one-hour AAQS for carbon monoxide is four times more stringent than the comparable Federal limit.

Under the provisions of the Federal Clean Air Act [1], the U.S. Environmental Protection Agency (EPA) is required to periodically review and re-evaluate Federal AAQS in light of research findings more recent than those which were available at the time the standards were originally set. Occasionally new standards are created. Most recently the Federal standard for particulate matter has been revised to include specific limits for particulates 10 microns or less in diameter (PM-10) [2]. The State of Hawaii has not explicitly addressed the question of whether to set more stringent limits for this category of air pollutant, but Federal AAQS prevail where States have not set their own more stringent levels.

Federal AAQS are specified in 40 Code of Federal Regulations (CFR) Part 50, while State of Hawaii AAQS are set in Chapter 11-59, Hawaii Administrative Rules. Hawaii AAQS for particulates and sulfur dioxide were amended in 1986 to make them essentially the same as Federal limits. It has been proposed in various forums that the State of Hawaii relax its carbon monoxide standards to Federal levels, but at present there are no indications that such a change is being considered.

3. PRESENT AIR QUALITY

There are no long term ambient air quality monitoring stations within the immediate project area. Local Maui sources of airborne pollutants include emissions from sugar mill stacks (including one in Lahaina), smoke (mostly particulates with some carbon monoxide) from cane field burning, fugitive dust from construction and field cultivation, and emissions from transportation sources such as motor vehicles, ships, and the local Lahaina and Kaanapali Railroad.

Natural sources of air pollutants which could affect Lahaina include the ocean (sea sparay with possible disease or allergenic microorganisms), plants (allergenic spores and pollens), windblown dust, and perhaps a volcanic eruption on the neighbor island of Hawaii. Concentrations of pollutants from these natural sources vary from place to place in patterns that are not highly correlated to human activities.

Until mid-1985 when all sampling stations on Maui were shut down in conformance with State of Hawaii Department of Health budget constraints, concentrations of particulates and sulfur dioxide at Kahului on the other side of the island where among the highest in the State, with particulate readings exceeding allowable Stae of Hawaii AAQS once or twice a year. Particulate measurements from Kihei, about 16 miles southeast of the project area were similarly high. These high readings were generally attributed to dust from field cultivation.

Unfortunately there are no nearby long term measurements of carbon monoxide, ozone, or lead on Maui, so current levels of vehicular pollutants are difficult to estimate using anything other than a modeling approach. Measurements of lead from sites in urban Honolulu indicate that most recent levels are barely above the threshold of detection for current measuring techniques. Airborne lead is thus not considered to be a problem anywhere in Hawaii.

On the other hand, carbon monoxide and ozone readings from urban Honolulu indicate that allowable State of Hawaii standards for these vehicle-related pollutants are being violated at a rate of up to three times a year. Ozone is an indicator of the formation of photochemical smog, a condition which tends to develop if the local air mass is fairly stable with light southerly winds prevailing for a period of two or more days. Concentrations of carbon monoxide are more directly related to local vehicular emission rates and thus serve as the best indicator of vehicle-related air pollution problems. Because of the extremely stringent State of Hawaii one-hour limit for this pollutant it is also the one most likely to cause problems in meeting allowable AAQS when roadway projects such as this one are evaluated under worst case traffic and meteorological dispersion conditions.

4. SHORT TERM DIRECT AND INDIRECT IMPACTS OF PROJECT CONSTRUCTION

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

Fugitive dust emissions will arise from grading and dirt-moving activities within the project site and from any off-site dirt hauling as well. The quantitative emission rate for fugitive dust is almost impossible to estimate because the potential for its generation will vary greatly depending upon the amount of dirt-disturbing activity taking place and the moisture content of exposed soil in work areas. The EPA has provided a rough estimate for fugitive dust emissions from construction activity [3]: 1.2 tons per acre per month of activity under conditions of "medium" activity, moderate soil silt content (30%), and precipitation/evaporation (P/E) index of 50. Lahaina is a very dry area. Any cut and fill operations with their associated dirt-hauling activities will add significantly to the windblown dust potential of this project. Cut and fill requirements appear to be highest for alternative B, which may require construction of a tunnel along that portion of the corridor which passes through Ikena Avenue. Alternative A presents the second highest potential for fugitive dust impact since it is located closest to presently inhabited areas along the greatest portion of its route. In any case State of Hawaii Air Pollution Control Regulations [4] require that visible emissions of fugitive dust from construction activity be essentially nil.

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

On-site mobile and stationary construction equipment will also emit some air pollutants in the form of engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen dioxide emissions from diesel engines can be quite high, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short term construction equipment emissions. Furthermore, carbon monoxide emissions from diesel engines are very low and should be essentially insignificant compared to normal vehicular emissions on nearby streets and roads no matter which alternative is selected.

Indirectly, slow-moving construction vehicles on Lahaina roadways could obstruct the normal flow of traffic to such an extent that overall vehicular emissions of carbon monoxide are increased, but this impact can be mitigated by moving heavy construction equipment during periods of low traffic volume. Likewise the schedules of commuting construction workers can be adjusted to avoid peak hours in the project vicinity. Thus most potential short term air quality impacts from project construction should be relatively easy to mitigate. It should be pointed out, however, that the extension alternative for the portion of the project from Kaanapali to Honokowai would be superior to the widening alternative in mitigating the potential for project-related traffic delays and associated increases in vehicular pollutant emissions.

5. LONG TERM DIRECT AND INDIRECT IMPACT OF PROJECT CONSTRUCTION

Once construction is completed, the proposed new roadways will not in themselves constitute a major direct source of air pollutants and overall the main indirect impact of the project will be to significantly decrease air pollution levels along the current Honoapiilani Highway route through Lahaina.

By building new roadways in areas that currently have little or no current vehicular traffic, however, the project will be a potential new indirect source of air pollutants in these areas.

Motor vehicles, especially those equipped with gasoline-powered engines, are significant emitters of carbon monoxide. Motor vehcles also emit some nitrogen dioxide and those burning leaded gasoline can emit some lead particles as well. The major control measure limiting lead emissions is a Federal law requiring the use of unleaded fuel in most new automobiles. As older cars disappear from the vehicle fleet, lead levels have been falling sharply and recent readings from monitoring stations in the urban Honolulu area have been below the threshold of detection since mid-1986.

Federal control regulations also call for increased efficiency in removing carbon monoxide and nitrogen dioxide from vehicle exhausts. By the year 1997 carbon monoxide emissions from the vehicle fleet then operating should be about one third less than the amounts now emitted. At present, however, no further reductions in vehicular emissions have been mandated for years after 1997, and from that point increases in traffic levels will result in directly proportional increases in vehicle-related pollutant emissions.

Present and projected levels of vehicluar air pollutants, specifically carbon monoxide, can best be investigated by looking a selected potential "hot spots" along the proposed roadways using mathematical diffusion modeling techniques as is done in the next section of this report.

6. CARBON MONOXIDE DIFFUSION MODELING

Six critical receptor sites were selected for detailed carbon monoxide diffusion modeling analysis. Site locations are depicted on Figure 1.

Site 1 is on the south side of Honoapiilani Highway in Lahaina near the intersection with Lahainaluna Road. Site 2 is on the north side of the proposed new intersection with Alternative A and Lahainaluna Road. It would be preferable if this intersection would be created with Dickenson rather than Lahainaluna, but existing traffic forecasts show the Lahainaluna connection and computations for that connection will be more indicative of the worst case scenario since Dickenson is a lower volume road than Lahainaluna. Modeling for sites 1 and 2 was performed treating the roadways between the two sites as a complex because of their relative proximity.

Sites 3 and 4 were located at the northern corner of the intersection bewteen Lahainaluna Road and Alternatives B and C respectively. Site 5 was located just makai of the intersection between Front Street, Honoapiilani Highway, and Fleming Road. Site 6 is on the mauka side of Honoapiilani Highway at the Kaanapali Parkway intersection.

For most cases afternoon peak hour traffic volume at the selected sites was significantly greater than morning peak hour volume. Usually the relatively less favorable meteorological dispersion conditions associated with morning peak hour yield highest carbon monoxide concentrations, but for all sites considered, the greater traffic volume and higher demand time and resulting longer queues at traffic signals during the afternoon rush created higher projected levels of carbon monoxide during that time period.

Forecast peak hour traffic volumes for target years 1987 (before project construction), 1997 (after project completion), and 2007 (10 years after project completion), were obtained from the traffic volume projection for the project.

The computer model MOBILE-3 [4] was used to estimate carbon monoxide emission rates for the years studied. The vehicle mix used was 80% light duty, gasoline-powered automobiles; 16% light duty, gasoline-powered trucks and vans; 1% heavy duty gasoline-powered trucks; 1% light duty diesel vehicles; 1% heavy duty diesel trucks and buses and 1% motorcycles.

Vehicle operating characteristics were computed assuming that 20.6% of the vehicles equipped with catalytic converters and 20.6% of the vehicles without catalytic converters would be operating in the cold start mode and that 27.3% of all vehicles would be operating in the hot start mode. National averages for "mis-fueling" were assumed. A relatively cool 68 degrees F was used for afternoon peak hour emission computations.

The computer model CALINE4 [5] was used to compute carbon monoxide concentrations for each of the scenarios studied. Stability category 4 was used for determining diffusion coefficients. This is the least favorable stability category that can be used for daytime pollutant diffusion in model calculations. A surface roughness factor of 100 was assumed with a mixing depth of 1000 meters. The intersection option of the model was employed at all sites with modal traffic speeds, queue lengths, stop and start distances, and other input factors determined based on optimum signal demand during peak afternoon rush hour.

Worst case wind conditions are defined as uniform wind speed of one meter/sec with the worst case wind direction determined by the model. Carbon monoxide concentrations were computed for a receptor height of 1.5 meters to simulate levels within the normal human breathing zone. Receptor sites were located 10 meters from the edge of the nearest traffic lane.

Background contributions of carbon monoxide from sources or distant roadways not directly considered in the analysis were assumed to be zero in order to more clearly indicate the impact of project alternatives. In fact, background levels in this area should be near 1 ppm along the present Honoapiilani corridor and near zero along the proposed Alternative C corridor.

Results of the peak hour carbon monoxide study are presented in Table 2. Current levels of carbon monoxide near site 1 (Honoapiilani at Lahainaluna) are estimated to exceed allowable State of Hawaii AAQS under worst case peak hour traffic and meteorological conditions. All proposed future alternatives will abate this situation, with slightly greater alleviation provided by alterntives B or C. Levels or carbon monoxide for 1987 at other sites appear to be well within allowable AAQS.

For 1997, after project completion, all projected carbon monoxide values are within allowable AAQS, with highest projected concentrations near site 6 (Honoapiilani Highway and the Kaanapali Parkway). By the year 2007 projected peak hour carbon monoxide values at this site show a potential to exceed State of Hawaii AAQS under worst case conditions unless the Extension Alternative is adopted from Kaanapali to Honokowai rather than the Widening Alternative.

None of the computed worst case carbon monoxide levels for any of the scenarios studied is within even one third of allowable Federal one-hour AAQS.

Eight hour carbon monoxide levels are estimated by multiplying the peak hour values by a "meteorological persistence factor" of 0.6 which is recommended in EPA modeling guidelines [6] to account for the fact that average one hour traffic volumes over an eight hour period are lower than peak hour volumes and the fact that meteorological dispersion conditions are more variable (and hence more favorable) over an eight hour period than they are for a single hour. Eight hour estimates thus computed are shown in Table 3. Results are esentially the same as those for the peak hour scenarios, except that the current projected eight hour level for site 1 is on the order of two-thirds of the allowable Federal AAQS and the projected 2007 levels for site 6 cannot quite meet State of Hawaii eight hour AAQS no matter which alternative is selected.

7. RELATION OF PROJECT TO STATE OF HAWAII IMPLEMENTATION PLAN

The State of Hawaii Air Pollution Control Implementation Plan (SIP) does not employ any transportation management or traffic control strategies to limit pollutant concentrations from mobile sources. Instead the SIP relies on Federal vehicular emissions control laws to insure that both Federal and State AAQS for all regulated air pollutants other than particulates and sulfur dioxide will be attained and maintained in Hawaii.

Of the mobile source pollutants, only carbon monoxide appears to present a potential compliance problem. Detailed carbon monoxide modeling indicates that both peak hour and eight hour levels of this pollutant are likely to be well within allowable Federal AAQS, but current concentrations could be exceeding the considerably more stringent State of Hawaii AAQS at the intersection of Honoapiilani Highway and Lahainaluna Road and by the year 2007 a similar situation could develop at the Kaanapali Parkway intersection. The year 2007 peak hour problem can be alleviated at the Kaanapali Parkway intersection by selecting the Extension Alternative instead of the Widening Alternative for that portion of the project from Kaanapali to Honokowai, but an exceedance of the eight hour limit could occur there by the year 2007 no matter which alternative is implemented.

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TABLE 1

SUMMARY OF STATE OF HAWAII AND FEDERAL
AMBIENT AIR QUALITY STANDARDS (AAQS)
(micrograms per cubic meter)

POLLUTANT	SAMPLING PERIOD	FEDERAL PRIMARY	FEDERAL SECONDARY	STATE OF HAWAII
Total Suspended Particulate Matter (TSP)	Annual Geometric Mean	75	60	60
	24 Hour	260	150	150
PM-10 Particulates <10 microns in diameter	Annual Mean	50	50	50
	24 Hour	150	150	150
Sulfur Dioxide	Annual Mean	80		80
	24 Hour	365		365
	3 Hour		1300	1300
Nitrogen Dioxide	Annual Mean		100	100
Carbon Monoxide (parts per million)	8 Hour		9	4.5
	1 Hour		35	9
Photochemical Oxidants (as Ozone)	1 Hour		240	100
Lead	Calendar Quarter		1.5	1.5

TABLE 2

RESULTS OF PEAK HOUR CARBON MONOXIDE MODELING
(parts per million)

SITE	1988	YEAR/SCENARIO 1997							2007						
ALT:	NC	NC	A +WIDENING	B +WIDENING	C +WIDENING	A +EXTENSION	B +EXTENSION	C +EXTENSION	NC	A +WIDENING	B +WIDENING	C +WIDENING	A +EXTENSION	B +EXTENSION	C +EXTENSION
1	11.8	6.3	5.9	5.8	5.8	5.7	5.5	5.5	7.1	7.3	7.2	7.2	7.2	6.9	6.9
2	2.5	2.3	3.6	2.0	2.0	4.1	2.1	2.1	3.1	4.5	2.6	2.6	5.2	2.9	2.9
3	0.3	0.3	0.3	4.1	0.5	0.3	4.6	0.6	0.3	0.3	4.6	0.6	0.3	5.0	0.8
4	0.1	0.1	0.1	0.1	2.9	0.1	0.1	3.6	0.1	0.1	0.1	3.6	0.1	0.1	4.3
5	4.3	6.8	5.6	5.6	5.6	5.4	5.4	5.4	8.8	6.8	6.8	6.8	6.7	6.7	6.7
6	7.3	7.5	7.5	7.5	7.5	5.3	5.3	5.3	10.5	10.5	10.5	10.5	8.4	8.4	8.4

STATE OF HAWAII AAQS: 9
FEDERAL AAQS: 35

NOTE: See Figure 1 for location of receptor sites. See text, Section 6, for description of scenarios, models, and assumptions.
NC = No Change, the Do-Nothing Alternative.

TABLE 3

EIGHT HOUR CARBON MONOXIDE ESTIMATE
(parts per million)

SITE	1988	YEAR/SCENARIO 1997							2007						
	ALT:	NC	A +WIDENING	B +WIDENING	C +WIDENING	A +EXTENSION	B +EXTENSION	C +EXTENSION	NC	A +WIDENING	B +WIDENING	C +WIDENING	A +EXTENSION	B +EXTENSION	C +EXTENSION
1	7.1	3.8	3.5	3.5	3.5	3.4	3.3	3.3	4.3	4.3	4.3	4.3	4.3	4.2	4.2
2	1.5	1.4	2.2	1.2	1.2	2.5	1.3	1.3	1.9	2.7	1.6	1.6	3.1	1.7	1.7
3	0.2	0.2	0.2	2.5	0.3	0.2	2.8	0.4	0.2	0.2	2.8	0.4	0.2	3.0	0.5
4	0.1	0.1	0.1	0.1	1.7	0.1	0.1	2.2	0.1	0.1	0.1	2.2	0.1	0.1	2.6
5	2.6	4.1	3.4	3.4	3.4	3.2	3.2	3.2	5.3	4.1	4.1	4.1	4.0	4.0	4.0
6	4.4	4.5	4.5	4.5	4.5	3.2	3.2	3.2	6.3	6.3	6.3	6.3	5.0	5.0	5.0

STATE OF HAWAII AAQS: 4.5
FEDERAL AAQS: 9

NOTE: See Figure 1 for location of receptor sites. See text, Section 6, for description of scenarios, models, and assumptions.
NC = No Change, the Do-Nothing Alternative.

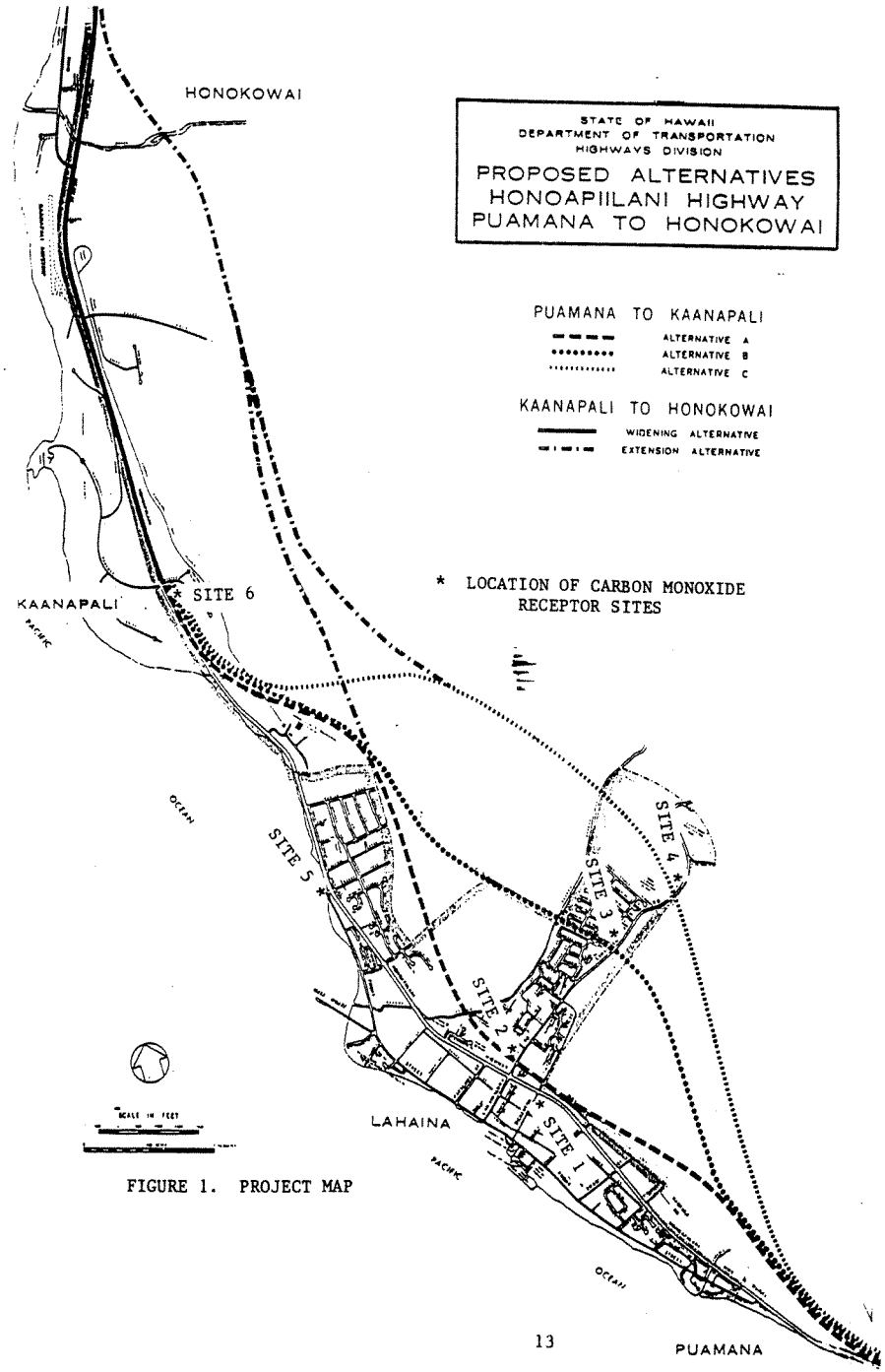

FIGURE 1. PROJECT MAP

BARRY D. ROOT

AIR POLLUTION CONSULTING

46-198 Lilipuna Road
Kaneohe, Hawaii, 96744

(808) 247-6827

April 15, 1989

TO: ENVIRONMENTAL COMMUNICATIONS, INC.

SUBJECT: RESPONSE TO COMMENTS RECIEVED ON HONOAPIILANI AIR QUALITY STUDY

Comment 18: The vehicular emission data used for this study was specifically tailored for Hawaii. MOBILE 3 modeling was performed using a vehicle mix determined by on-site observation and a vehicle age distribution based on 1986 Oahu registration figures. This emission data is in no way related to the EMFAC 7 data used in California. It was not within the scope or charter of this study to develop sigma theta values for use in Hawaii. Examples in the CALINE 4 manual suggested that for a surface roughness of 100 cm and stability class D, a sigma theta value of 25 degrees would be appropriate. Subsequent experience gained over the past year using CALINE 4 for different types of projects in Hawaii indicates that a value of 12.5 degrees might have been more appropriate. A recheck of site 6 of this study (the one with the highest projected CO levels) using sigma theta of 12.5 degrees resulted in a worst case carbon monoxide concentration level about 2 ppm higher than that reported. Because a consistent sigma theta was used throughout the study, conclusions reached would be unaltered by this difference.

Comment 19: The State of Hawaii Air Quality Agency (Department of Health), has produced an Air Quality Implementation Plan that states that compliance with Federal Air Quality Standards for vehicle-related pollutants will depend on vehicle-manufacturer compliance with Federal emissions limitations. This study indicates that present and future worst case levels of vehicle related pollutants are likely to be well within Federal AQS. The State of Hawaii has no published policy or plan of action to deal with potential exceedances of State of Hawaii standards, which, in the case of peak hour carbon monoxide, are four times more stringent than Federal limits. A Do-Nothing alternative was not considerd in this project. All of the proposed actions would result is lower carbon monoxide levels than would be the case under a Do-Nothing Alternative.

Regards,

Barry D Root

Barry D. Root

APR 18 1989

BARRY D. ROOT

AIR POLLUTION CONSULTING

46-198 Lilipuna Road
Kaneohe, Hawaii, 96744

(808) 247-6827

May 5, 1990

TO: ENVIRONMENTAL COMMUNICATIONS, INC.

SUBJECT: RESPONSE TO COMMENTS RECIEVED ON HONOAPIILANI AIR QUALITY STUDY

1. Tables 2 and 3 of the original study have been revised to reflect the Do-Nothing Alternative using all the modeling assumptions contained in the original study. As was done in the original study a background value of zero was used to facilitate comparisons between locations. Background levels of carbon monoxide approaching 1 ppm could occur at sites 1, 2, 5, and 6, but with no industry or major urban traffic center upwind in the usual tradewind direction for thousands of miles a background value of near zero is considered to be appropriate for sites 3 and 4.

Regards,

Barry D Root

Barry D. Root

MAY 8 1990

APPENDIX D

APPENDIX E

ENERGY ANALYSIS

Barry D. Root

COMPARATIVE ENERGY ANALYSIS

FOR

HONOAPIILANI HIGHWAY ALTERNATIVES

PUAMANA TO HONOKOWAI, MAUI, HAWAII

Prepared by:

Barry D. Root
Kaneohe, Hawaii

April 25, 1988

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APPENDIX E

1. INTRODUCTION AND PROJECT DESCRIPTION

Honoapiilani Highway, FAP Route 30, is the only State highway serving the Lahaina area. Land uses in the immediate vicinity of Lahiana include commercial, agricultural, resort and residential. Rapid growth of the resort areas, together with increased commercial and residential development have significantly increased traffic levels in the Lahaina area and planned future developments will eventually increase traffic along the existing Honoapiilani Highway corridor to more than double current volumes.

The proposed project involves constructing an alternate traffic corridor to the existing Honoapiilani Highway between Puamana Beach Park and the Kaanapali Parkway and then either widening the existing highway corridor from Kaanapali to Honokowai or constructing a mauka extension of the selected bypass from near Kaanapali to Honokowai. The Puamana to Kaanapali segment of the project is about 5 miles long. The Kaanapali to Honokowai portion is about 3 miles long.

There are three proposed alternatives for the mauka corridor between Puamana and Kaanapali. The proposed routing for each of these alternatives (A, B, and C) is indicated on Figure 1. Routing for the widening or extension alternatives is also indicated.

The extension alternative would be two lanes wide, while the widening alternative would increase the existing two lane roadway to four lanes.

Because of the large expected increase in traffic volumes over the project corridor, a Do-Nothing alternative is not considered.

The purpose of this study is estimate and compare the energy utilization impact of each of the proposed project alternatives.

2. SUMMARY AND CONCLUSION

Results of the comparative energy analysis are summarized in Table 1.

There is essentially no energy difference between the three bypass alternatives with a mauka extension to Honokowai and all appear to yield a potential energy savings of about 17 percent over the option of widening Honoapiilani Highway between Kaanapali and Honokowai.

3. TECHNICAL CALCULATIONS

This study follows guidelines presented in a California Department of Transportation study titled ENERGY AND TRANSPORTATION SYSTEMS, prepared by J.A. Apostolos, W. R. Shoemaker, and E.C. Shirley, in December, 1978.

Where not explicitly stated, all assumptions contained herin are based on references contained in the above publication. Extapolation of tabular data were performed as necessary to fit the conditions of this particular project.

The approach taken is to use 1997 as the target year for energy comparisions with separate computations for each segment of the Honoapiilani Highway and Mauka Bypass corridors. Results are then computed for each project alternative by adding the contribution of each roadway segment involved.

A. DIRECT ENERGY

Traffic volume forecasts for 1997 are from the traffic study for the project. Other traffic assumptions used as input for the direct energy use computations are summarized in Tables 2 and 3.

Up and down grades by percentqge of each roadway segment are listed in Table 4. These values, along with the percentage of average daily traffic going in each direction, were used to compute adjustments to fuel consumption rates.

Radius of curvature factors are shown in Table 5. In general radius of curvature provides only a very slight adjustment to fuel consumption rates.

Since it is difficult to estimate the percentage of cold starts which might contribute to fuel usage levels on each segment of the project, this adjustment was not used.

Adjusted fuel usage for each type of vehicle was computed for each roadway segment. Gasoline has an energy equivalent of 0.125 million BTU per gallon, while that for diesel fuel is 0.139 million BTU per gallon. Results of the direct energy usage computations are shown in the first part of Table 1.

B. INDIRECT ENERGY

Vehicles traveling along roadways in the project area will consume energy indirectly as a result of wear-out and maintenance related to their operation. Likewise there will be energy costs associated with the construction of improvements and the maintenance of either a widened Honoapiilani Highway or one of the Mauka Bypass Alternatives.

VEHICLE MANUFACTURING ENERGY

Factors used in the computation of vehicle manufacturing energy are summarized in Tables 6 and 7. Results are shown in Table 8 and in Table 1. Vehicle manufacturing energy is an indirect estimate of replacement energy cost that will be incurred when vehicles traveling over project roadways wear out.

VEHICLE MAINTENANCE ENERGY

Good estimates of vehicle maintenance energy are not really available. Data regrading tire wear and replacement has been extrapolated to provide vehicle maintenance energy estimates. Factors used are as follows (BTU per mile): Autos, Pickups and Vans - 2,713; Six-tire Trucks - 6,619; Trailer Trucks - 9,426, and Bus - 13,142. Results of the vehicle maintenance energy analysis are shown in Table 9.

FACILITY CONSTRUCTION ENERGY

Construction cost estimates are used to evaluate construction energy requirements. Cost estimates used in this analysis are shown in Table 10, with energy values summarized in Table 11. The energy factor used in the analysis is BTU per dollar, where the dollars are 1974 dollars. Inflation rates since 1974 are summarized as follows (percent):

1975	11.0	1980	11.0	1985	3.5
1976	9.0	1981	13.5	1986	1.0
1977	5.9	1982	6.0	1987	4.5
1978	6.2	1983	4.2		
1979	7.5	1984	4.6		

FACILITY MAINTENANCE ENERGY

The annual amount of energy expended in facility maintenance is estimated to be 120 million BTU per mile of through lane. Maintenance energy required for each project option is summarized in Table 1.

PERIPHERAL EFFECTS

Each of the proposed alternatives involves some encroachment on existing land uses within the project corridor. A clear methodology for evaluating the energy implications of these shifts in land use has yet to evolve and these impacts are thus regretably omitted from this analysis.

TABLE 1

COMPARATIVE SUMMARY OF ENERGY USE
UNDER DIFFERENT PROJECT ALTERNATIVES

1997 DAILY ENERGY EQUIVALENT
(million BTU)

	ALTERNATIVE					
ROADWAY SEGMENT	A	B + WIDENING	C	A	B + EXTENSION	C
DIRECT ENERGY:						
HONOAPIILANI Puamana to Kaanapali	896	896	896	598	598	598
HONOAPIILANI Kaanapali to Honokowai	392	392	392	196	196	196
MAUKA BYPASS	285	317	351	262	284	320
BYPASS EXTENSION				194	194	159
Total Direct:	1573	1605	1639	1250	1272	1273
INDIRECT ENERGY:						
VEHICLE MANUFACTURING	465	470	476	403	405	406
VEHICLE MAINTENANCE	899	909	922	778	782	782
FACILITY CONSTRUCTION	21	19	18	24	21	24
FACILITY MAINTENANCE	15	16	16	16	16	16
Total Indirect	1400	1414	1432	1221	1224	1228
TOTAL DAILY ENERGY	2973	3019	3071	2471	2496	2501
Equivalent Barrels of Crude Oil	513	521	529	426	430	431

TABLE 2

VEHICLE MIX (percent)

	ALL ROADWAY SEGMENTS
AUTOMOBILES	80.5
PICKUPS/VANS	17.5
SIX TIRE TRUCKS - gasoline	0.5
TRAILER TRUCKS - diesel	0.5
BUS - diesel	1.0

TABLE 3

ASSUMPTIONS REGARDING TRAFFIC CONGESTION

(Average Speed in mph - Number of stops per mile)

CONDITION	Vehicles per lane per hour	HONOAPIILANI Puamana to Kaanapali	HONOAPIILANI Kaanapali to Honokowai	BYPASS CORRIDORS & EXTENSIONS
CONGESTED	> 360	25 - 3	30 - 2	45 - 0
HEAVY	240 - 360	30 - 2	35 - 1	45 - 0
MODERATE	120 - 239	30 - 1	40 - 1	45 - 0
LIGHT	< 120	35 - 0	45 - 0	45 - 0

TABLE 4

GRADE FACTORS (% Grade - % of Roadway Segment)

HONOAPIILANI Puamana to Kaanapali	HONOAPIILANI Kaanapali to Honokowai	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C
+1.00 - 20	level - 100	+4.00 - 11.1	+3.50 - 8.1	+3.50 - 27.8
-1.00 - 15		+2.00 - 10.0	+3.10 - 10.3	+2.50 - 18.3
level - 65		+1.90 - 11.5	+2.20 - 21.8	+1.40 - 14.4
		+0.50 - 6.7	+0.50 - 7.4	-3.90 - 15.4
		-0.70 - 18.9	-1.80 - 18.5	-5.50 - 19.0
		-1.00 - 9.6	-2.70 - 22.9	level - 5.1
		-2.00 - 12.6	-4.50 - 7.1	
		-4.50 - 8.5	level - 13.9	
		level - 11.1		

ALTERNATIVE A/B EXTENSION	ALTERNATIVE C EXTENSION
+4.00 - 12.2	+0.50 - 44.6
+2.20 - 17.1	-0.70 - 2.7
+1.40 - 14.4	-2.80 - 53.7
-3.90 - 15.4	
-5.50 - 19.0	
level - 5.1	

TABLE 5

CURVATURE FACTORS
Radius of Curvature in feet - % of Roadway Segment

HONOAPIILANI Puamana to Kaanapali	HONOAPIILANI Kaanapali to Honokowai	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C
1250 - 3.2	7500 - 34.4	1450 - 4.4	1450 - 4.4	1450 - 5.3
1450 - 1.8	strght 65.6	2400 - 9.9	2400 - 5.9	2300 - 7.0
1500 - 1.8		4000 - 9.2	3600 - 9.6	4000 - 14.1
1900 - 2.1		4800 - 9.6	4800 - 14.7	8400 - 24.6
2400 - 1.8		5730 - 5.9	5730 - 5.5	strght 49.0
3100 - 3.8		8000 - 10.7	10000 - 11.8	
4800 - 3.5		strght 50.3	strght 48.1	
5730 - 7.3				
strght 74.7				

ALTERNATIVE A/B EXTENSION	ALTERNATIVE C EXTENSION
8000 - 14.6	4800 - 13.5
strght 85.4	5600 - 18.9
	9200 - 45.9
	strght 21.7

TABLE 6

ASSUMPTIONS USED IN ESTIMATING VEHICLE MANUFACTURING ENERGY

	AVERAGE WEIGHT (pounds)	ESTIMATED LIFE (miles)	MANUFACTURING ENERGY BTU/lb	BTU/veh-mile
AUTOS	3,000	100,000	39,250	1178
PICKUPS/VANS	5,000	100,000	54,600	2730
SIX-TIRE TRUCKS	10,000	200,000	58,000	2900
TRAILER TRUCKS	20,000	300,000	61,400	4093
BUS	15,000	300,000	51,200	2560

TABLE 7

VEHICLE MILES PER DAY

ROADWAY SEGMENT	ALTERNATIVE A	B + WIDENING	C	A	B + EXTENSION	C
HONOAPIILANI Puamana to Kaanapali						
Autos	118218	118218	118218	77234	77234	77234
Pickups/Vans	25700	25700	25700	16788	16788	16788
Six-Tire Trucks	734	734	734	480	480	480
Trailer Trucks	734	734	734	480	480	480
Bus	1468	1468	1468	959	959	959
HONOAPIILANI Kaanapali to Honokowai						
Autos	65414	65414	65414	34722	34722	34722
Pickups/Vans	14220	14220	14220	7548	7548	7548
Six-Tire Trucks	406	406	406	216	216	216
Trailer Trucks	406	406	406	216	216	216
Bus	813	813	813	431	431	431
MAUKA BYPASS						
Autos	68281	71195	74942	62788	63779	68350
Pickups/Vans	14844	15477	16292	13650	13865	14858
Six-Tire Trucks	424	441	464	390	396	424
Trailer Trucks	424	441	464	390	396	424
Bus	848	882	928	780	792	849
BYPASS EXTENSION						
Autos				43122	43212	38980
Pickups/Vans				9394	9394	8474
Six-Tire Trucks				268	268	242
Trailer Trucks				268	268	242
Bus				537	537	484

TABLE 8

VEHICLE MANUFACTURING ENERGY
(million BTU per day)

ROADWAY SEGMENT	ALTERNATIVE A	B + WIDENING	C	A	B + EXTENSION	C
HONOAPIILANI Puamana to Kaanapali						
Autos	139	139	139	91	91	91
Pickups/Vans	70	70	70	46	46	46
Six-Tire Trucks	2	2	2	1	1	1
Trailer Trucks	3	3	3	2	2	2
Bus	4	4	4	2	2	2
HONOAPIILANI Kaanapali to Honokowai						
Autos	77	77	77	41	41	41
Pickups/Vans	39	39	39	21	21	21
Six-Tire Trucks	1	1	1	1	1	1
Trailer Trucks	2	2	2	1	1	1
Bus	2	2	2	1	1	1
MAUKA BYPASS						
Autos	80	84	88	74	75	81
Pickups/Vans	41	42	44	37	38	41
Six-Tire Trucks	1	1	1	1	1	1
Trailer Trucks	2	2	2	2	2	2
Bus	2	2	2	2	2	2
BYPASS EXTENSION						
Autos				51	51	46
Pickups/Vans				26	26	23
Six-Tire Trucks				1	1	1
Trailer Trucks				1	1	1
Bus				1	1	1

TABLE 9

VEHICLE MAINTENANCE ENERGY
(million BTU per day)

ROADWAY SEGMENT	ALTERNATIVE A	B + WIDENING	C	A	B + EXTENSION	C
HONOAPIILANI Puamana to Kaanapali						
Autos/Pickups/Vans	390	390	390	255	255	255
Six-Tire Trucks	5	5	5	3	3	3
Trailer Trucks	7	7	7	5	5	5
Bus	19	19	19	13	13	13
HONOAPIILANI Kaanapali to Honokowai						
Autos/Pickups/Vans	216	216	216	114	114	114
Six-Tire Trucks	3	3	3	3	3	3
Trailer Trucks	4	4	4	4	4	4
Bus	11	11	11	10	10	10
MAUKA BYPASS						
Autos/Pickups/Vans	226	235	248	207	211	226
Six-Tire Trucks	3	3	3	3	3	3
Trailer Trucks	4	4	4	4	4	4
Bus	11	12	12	10	10	11
BYPASS EXTENSION						
Autos/Pickups/Vans				143	143	129
Six-Tire Trucks				2	2	2
Trailer Trucks				3	3	2
Bus				7	7	6

TABLE 10

COST ASSUMPTIONS FOR FACILITY CONSTRUCTION ENERGY ANALYSIS
(million $, 1987)

		ALTERNATIVE					
	BTU per $ (1974)	A	B	C	A/B EXTENSION	C EXTENSION	HONOAPIILANI WIDENING
Roadway	19,200	9.9	9.3	14.9	4.4	5.8	3.7
Structures	16,300	13.0	9.3	0.4	2.9	2.9	0.5
Landscaping	10,300	.3	.3	.3	.3	.3	.3

TABLE 11

FACILITY CONSTRUCTION ENERGY
(million BTU per day)

		ALTERNATIVE					
	USEFUL LIFE (years)	A	B	C	A/B EXTENSION	C EXTENSION	HONOAPIILANI WIDENING
Roadway	25	8.9	8.4	13.5	4.0	5.2	3.3
Structures	30	8.3	6.0	0.3	1.9	2.9	0.3
Landscaping	10	0.4	0.4	0.4	0.4	0.4	0.2
TOTAL		17.6	14.8	14.2	6.3	8.5	3.8

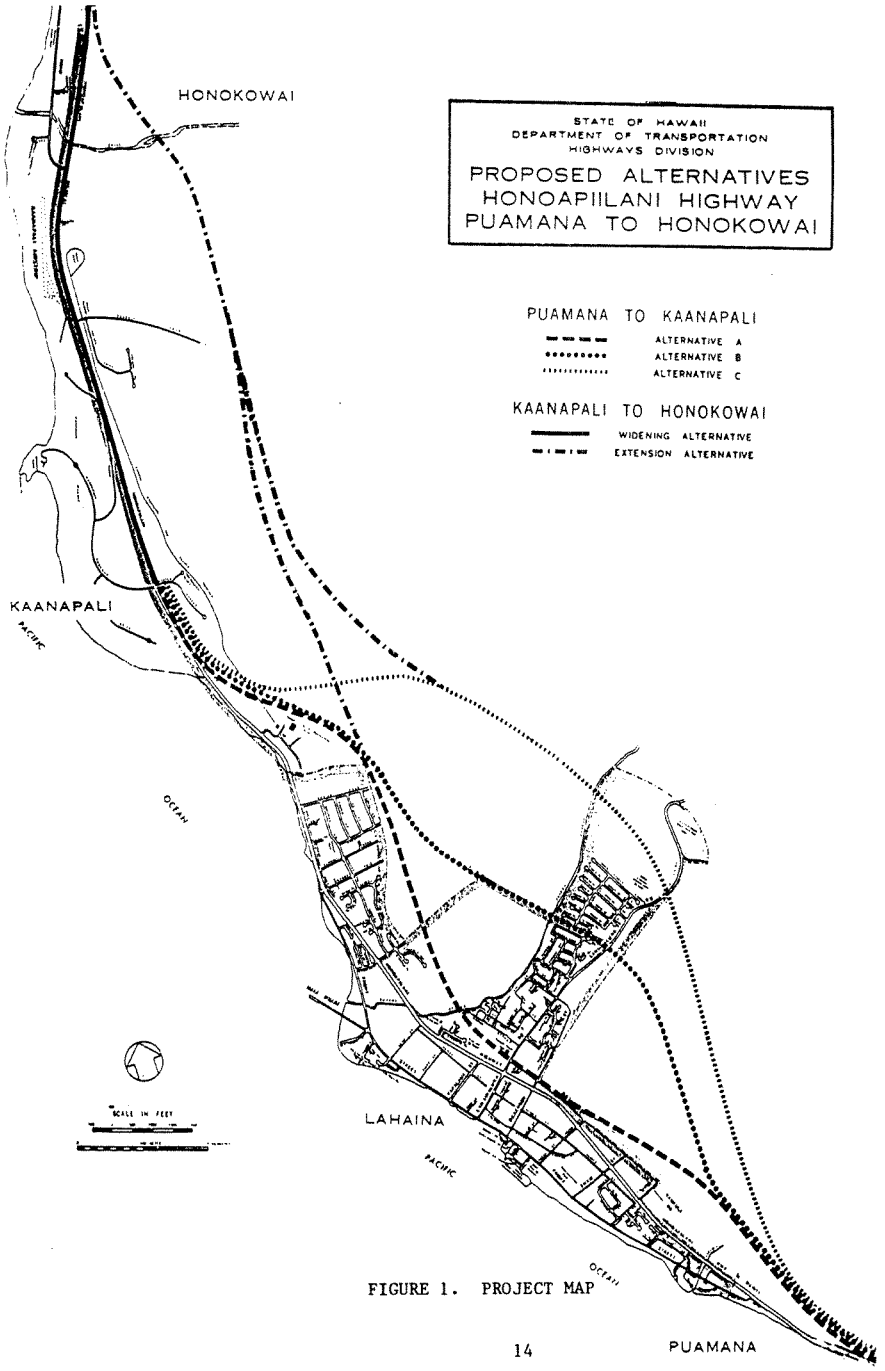

FIGURE 1. PROJECT MAP

APPENDIX F

CONCEPTUAL RELOCATION PLAN
Department of Transportation

RELOCATION PROGRAM PLAN (CONCEPTUAL STAGE) FOR HONOAPIILANI HIGHWAY, PUAMANA TO KAANAPALI, PROJECT NOS. 30AB-01-85 AND 30AB-01-87, LAHAINA, MAUI

Pursuant to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended and the requirements stipulated in the Rules and Regulations of Act 166, Session Laws of Hawaii 1970, the following relocation program plan is presented.

This plan provides information on the households that may be displaced, impact on the neighborhood and housing available, relocation alternatives for the anticipated displacees, and the anticipated remedies for those to be displaced.

The information was obtained through visual inspection and public records, community sources and a report by Earthplan dated April 1, 1988 that compiled interviews with anticipated displacees regarding their characteristics and needs.

The project is on the island of Maui, in the Lahaina District from Puamana to Kaanapali. This district is the center of Maui's primary industry, tourism. Sixty one percent (61%) of the 1984 estimated 13,334 Maui County hotel units (8,163) are found in Lahaina. The main agricultural crop in this area is sugar cane and is grown by Pioneer Mill Company, Limited. The population was estimated to be 13,229 in 1984 (Census Tract 314 and 315) which is 16% of Maui County's population of 83,000.

It is estimated that thirty five (35) parcels of land will be affected. There will be nineteen (19) whole takings and sixteen (16) partial takings.

Residential zoned lands and agricultural zoned lands will be affected by the project. Of the nineteen (19) whole takings, eighteen (18) are improved with homes on them and one is a vacant lot. All of these are zoned residential. Seventeen (17) of the houses are occupied by owner-occupants while one house is occupied by tenants.

A few of the homes are multi-family occupied. This means that the household have in-laws living with the family or brother or sister in-law's family living together with the family.

The average number per household according to the report by Earthplan is 6 to 7. The majority of the occupants are Filipinos (72%). The rest are Caucasian (22%) and Hawaiian (6%). The majority of the residents are employed at resort related jobs.

Most of the homes are about 6 to 7 years old and four of the homes are about 4 to 5 years old. An inquiry with Maui Realtors indicated that there were 28 homes for sale in the Lahaina, Puamana Nu, Wahikulu and Napilihau area. Two were leaseholds and the rest were fee simple. The price ranged from a low of $230,000 to a high of $485,000. The available homes for sale with the number of bedrooms, bathrooms and living area with the asking price is shown in Exhibit "A". It is anticipated that some of the owner-occupants may be able to find comparable replacement dwelling in the market with the compensation received for their homes plus the replacement housing payment they are entitled to. The rest of the owner-occupants will find it difficult to purchase comparable dwelling in the market even with the replacement housing payment. It is therefore anticipated that there may be problems for some of the owner-occupants.

The tenant-occupants will find it difficult to find replacement housing in the market. Rentals on the island of Maui, especially in the Lahaina area, are very hard to find and the rental prices are very high. The rental prices have increased between 40 and 50 percent over the last two years. A two bedroom house commands between $800 to $1,500 a month rent and a three bedroom rents from $975 to $3,000. It is very likely that problems will be there for the tenant-occupants. The available rentals are shown on Exhibit "A".

There is the David Malo housing project with 18 duplex units that have experienced one vacancy per year and there is another public housing for the elderly (age 62 and over) with 42 units that have two vacancies per year. Should the tenants qualify for any of the two housing units, there may not be any problems. Families and individuals displaced by highway projects are given priority placement in government housing.

Pursuant to Federal-Aid Highway guidelines, right-of-way negotiations on any project causing the relocation of any person will not be authorized nor can proceed without an approved assurance by the State that comparable replacement housing will be available within a reasonable period of time prior to displacement.

A comparable replacement dwelling is one which is decent, safe and sanitary, functionally equivalent and substantially the same as the original dwelling acquired. The criteria for comparison are number of rooms, living area, type of construction, age and condition. It should also be located in an equal or better neighborhood, be reasonably accessible to the displacees' place of employment and in an area not generally less desirable than the dwelling unit being acquired with respect to public utilities as well as public and commercial facilities. It must also be within the financial means of the displacee.

An examination of the Federal laws as well as the State program reveals that certain statutory limits exist with respect to replacement housing payments that can be made to tenant/owner displacees. Under the typical relocation assistance program, a displaced tenant will be eligible for up to a maximum of $5,250 for 42 months, or in the case of an owner-occupant, a lump sum payment of up to $22,500 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 the other services which the relocatee is entitled.

Due to the high cost of rental and "for sale" homes in Hawaii (especially the Lahaina area) the above benefit maximums sometimes are insufficient to accommodate the satisfactory relocation of families displaced by highway projects. State and Federal regulations require that a person 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 subsidy paid by the displacing agency.

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 as than he was before.

The conceptual relocation study made for this project shows there is indication that the statutory requirement would have to be exceeded to satisfactorily relocate families. Where this is the case a procedure called "Last Resort Housing" (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 of these various methods are accomplished under the auspices of the State highway agency and such housing so provided is either rented to the 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 displacee to purchase on his own or rent a dwelling within his financial means. Under this procedure, the owner-occupant displacee would simply be paid an amount in excess of $22,500 on a lump sum basis or in the case of a tenant, the maximum $5,250 subsidy for 42 months 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 the 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 relocatees.

EXHIBIT "A"

HOUSES FOR SALE

	Address	Living Area SqFt	Bdrm	Bath	Price
1.	33 Kauhala Road	1,392	3	2	$350,000
2.	5125 F Kupele Pl.	1,152	5	2.5	230,000
3.	70 Kahana Pl.*	1,948	2	2	303,000
4.	4800 Honoapiilani Hwy*	1,800	3	2	310,000
5.	Mahinahina St.	2,720	5	4	399,000
6.	7 Malialani Pl.	1,048	3	2	349,000
7.	27 Halui St.	2,150	6	3	425,000
8.	2 Maluna Kai	2,357	3	3	485,000
9.	1390 Kahoma St.	888	3	1	239,000
10.	850 Kaakepa St.	1,125	4	1.5	240,000
11.	814 Niheu Pl.	1,340	5	3	264,000
12.	891 N. Hopoe Pl.	1,074	3	2	269,000
13.	88 Kapunakea St.	1,187	3	2	285,000
14.	119 Hamou Pl.	1,798	4	3	299,000
15.	916 Hopoe St.	1,872	6	3	320,000
16.	1253 Ainakea St.	2,306	4	3	325,000
17.	213 Akeke Pl.	1,120	5	2	325,000
18.	1270 Nahale Pl.	1,837	3	2	350,000
19.	1213 S. Nahale St.	2,552	6	3.5	399,000
20.	1430 N. Front St.	2,280	6	3	425,000
21.	680 Luakini St. A&B	960	5	2	300,000
22.	57 Kahili Pl.	1,880	3	2	300,000
23.	48 Aholo Road	1,596	5	3	325,000
24.	212 Puapihi St.	2,317	4	3	349,000
25.	251 Puapihi St.	2,780	4	3	365,000
26.	768-A Panaewa St.	1,200	3	2	375,000
27.	235 Puapihi St.	2,270	5	3	375,000
28.	310 Front St.	1,073	2	2	460,000

* Leasehold

HOUSES FOR RENT

1.	Kaanapali	3 bdr.	3.5 bath	$3,000/month
2.	Lahaina	3	2.5	2,900
3.	Keao St.	2	2	1,100
4.	Lahilahi	3	2	1,400
5.	Olowalu	3	1	1,200
6.	Lahaina	1	1	850

APPENDIX G

TRAFFIC NOISE STUDY
(Puamana to Kaanapali)
Y. Ebisu & Associates

TRAFFIC NOISE STUDY
FOR THE PROPOSED IMPROVEMENTS TO
HONOAPIILANI HIGHWAY, PUAMANA TO KAANAPALI

PREPARED FOR
ENVIRONMENTAL COMMUNICATIONS, INC.

BY
Y. EBISU & ASSOCIATES

MAY, 1986

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I. SUMMARY

The existing and future traffic noise along Honoapiilani Highway from Puamana Park to Kaanapali Parkway, at Lahaina, Maui were studied to evaluate potential noise impacts associated with the various design alternatives of the highway improvement project. Noise measurements were obtained, noise contours developed, and noise abatement alternatives evaluated.

The improvement alternatives evaluated were: Highway Widening Alternative; Highway Realignment A, Phase I (completion of northern segment); Highway Realignment A, Phase II (completion of northern and southern segments); and Highway Realignment B.

Existing traffic noise levels along Honoapiilani Highway do not exceed FHWA noise abatement criteria except at two public use facilities and at beach parks at the northern end of the project. If the highway is widened to accommodate anticipated demand, FHWA noise abatement criteria would be exceeded at 26 or more single family dwellings, 4 apartment and 1 hotel complexes, 4 public use facilities, and 5 coastal parks. The construction of new sections of the highway inland of the existing highway would divert traffic from the existing highway by varying amounts. Only Realignment Alternative A (Phase I) is predicted to contribute to a future decrease of traffic along Honoapiilani Highway. Although future noise levels along these proposed realignment alternatives are not expected to exceed FHWA noise abatement criteria, significant increases in background ambient noise levels are predicted to occur as a result of the redistribution of the traffic to locations inland of the existing highway.

Traffic noise mitigation measures in the form of noise barrier construction will probably be required along the existing highway if the Highway Widening Alternative is implemented. Additional sound insulation of multistory apartments may also be required to meet FHWA noise abatement criteria. If the Realignment B Alternative is implemented, traffic noise mitigation measures may be required in the vicinity of the Ikele Avenue crossing. If

either of the Realignment A Alternatives is implemented, traffic noise mitigation measures may not required.

II. GENERAL STUDY METHODOLOGY

Existing traffic noise at five locations along Honoapiilani Highway were measured on March 6 and 7, 1986 for the purpose of calibrating the traffic noise model used in generating the Base Year and representative future year traffic noise contours under the various improvement alternatives evaluated. Additional background ambient noise measurements were obtained at seven locations in residential communities which are removed from the existing highway, but which are in the vicinity of the two highway realignment alternatives. The background ambient noise measurements were obtained to identify possible noise impacts resulting from increases in ambient noise levels due to traffic noise from the two highway realignment alternatives. The results of the noise measurements are summarized in TABLE 1, with measurement locations indicated in FIGURE 1.

The Federal Highway Administration (FHWA) Traffic Noise Prediction Model (Reference 1) was used as the primary method of calculating base year and future traffic noise levels, with model parameters adjusted to reflect terrain, ground cover, and local shielding conditions. At the five noise measurement locations near Honoapiilani Highway (Sites A50, A100, A200, B200, and C50), the measured noise levels were compared with model predictions to insure that measured and calculated noise levels for the existing conditions were consistent and in general agreement. As indicated in TABLE 1, spot counts of traffic volumes were obtained during the measurement periods and were used to generate the Equivalent Sound Level (Leq) predictions shown in the table. The agreement between measured and predicted traffic noise levels was considered good, and sufficiently accurate to formulate the Base Year and Future Year traffic noise contours.

Base Year traffic noise contours were then developed along Honoapiilani Highway using Base Year (1987) traffic volume data for the PM peak hour from Reference 2. Traffic mix by vehicle types for the north and south sections of the highway were

derived from References 3 and 4. The determination of the PM peak hour as the period of highest hourly traffic volumes on the highway was made after a review of the intersection traffic counts along the highway (References 5 thru 8). The Equivalent (or Average) Hourly Sound Level [Leq(h)] noise descriptor was used to generate the Base Year and all Future Year traffic noise contours as required by Reference 9. Topographic and aerial photomaps (where available) of the area were used to determine terrain, ground cover, and local shielding effects from building structures, which were entered into the noise prediction model.

Future Year (2007) noise contours were then developed for the various Build Alternatives (highway widening and realignment) using the future traffic assignments of Reference 10, the topographic and existing development features described previously, the highway elevation profiles of Realignments A and B, and typical highway sections at roadway cuts required for the realignments. Following development of the future traffic noise contours for the various Build Alternatives, general comparisons of the future traffic noise levels and impacts among the Build Alternatives were made. Comparisons of predicted traffic noise levels with FHWA noise abatement criteria (see TABLE 2) were also made to determine specific locations where noise abatement measures would be necessary. The exterior criteria of 67 Leq(h) shown in TABLE 2 was applied to all dwellings, hotels, and public parks/playgrounds along the highway. The interior criteria of 52 Leq(h) was applied to all churches and schools along the highway, with an estimated 8 dB of exterior to interior noise reduction assumed for naturally ventilated structures. At these specific locations, the use of noise barriers was tested to determine if barriers would be effective in mitigating adverse noise impacts. Other noise mitigation measures as described in Reference 9 were also examined for their applicability to this project.

III. BASE YEAR (1987) TRAFFIC NOISE LEVELS

For the purposes of this study, 1987 was used as the Base Year for computing changes in traffic noise levels among the various Build Alternatives. Differences between existing traffic noise levels measured on March, 1986 and computed Base Year (1987) traffic noise levels along Honoapiilani Highway from Puamana Park to Kaanapali Parkway are not considered significant. The Base Year noise environment along the highway was described by computing the noise contours of Hourly Equivalent Sound Level [Leq(h)] for the 1987 time period. These sound level contours, expressed in decibels, represent the average level of traffic noise for a given hour of the day. The PM peak hour, which occurs between 3:30 to 4:30 PM, was used as the hour with the highest traffic noise levels.

TABLE 3 presents the traffic volume, speed, and mix assumptions used to generate the Base Year noise contours along the various segments of the existing highway. Also shown in TABLE 3 are the calculated Peak Hour Leq(h)'s at a reference distance of 50 FT from the centerline of the various roadway segments, and the calculated distances to the various noise contour lines (from 55 to 75 Leq) under unobstructed, line-of-sight conditions. The actual distances to the 60 and 55 Leq contour lines will generally be less than indicated in TABLE 3 when intervening structures or walls exist between the highway and a receptor. This reduction (or shrinkage) of the traffic noise contour distances from the highway centerline are the result of noise shielding (or attenuation) affects caused by the intervening structures or walls.

By using the traffic assumptions of TABLE 3, and aerial photomaps of the existing improvements on both sides of Honoapiilani Highway, existing traffic noise contours were developed along the existing highway. These Base Year contours are depicted in the set of figures numbered from BY-1 thru BY-12, where the "BY" designation refers to the depiction of the Base Year condition. Updated aerial photomaps of all segments of the highway were not

available, and these segments were not included in the figures. Also, only low resolution line drawings were available along the north end of the highway (FIGURES BY-10 thru BY-12), so the noise contour lines for these figures do not include shielding effects from intervening structures. Also shown in FIGURES BY-1 and BY-8 are the five highway noise measurement locations listed in TABLE 1, and their relationships to the Base Year traffic noise contours.

Along Honoapiilani Highway, the areas at which existing noise levels currently exceed FHWA noise abatement criteria are listed in TABLE 4. These include the shoreline parks which are adjacent to the highway between the Kaanapali Golf Course and the north Front Street intersection, a small church south of the Chart House, and a private school at Dickenson Street. Although updated aerial photomaps were not available along the entire length of Honoapiilani Highway, the existing single family residences, multifamily dwellings, and a hotel units are believed to be located outside (or with noise levels less than) the Base Year 67 Leq(h) contour line.

At areas removed from Honoapiilani Highway, such as the residential areas along Lahainaluna Road and to the east (mauka) of the highway, Base Year noise levels are very low. As the noise measurement results of TABLE 1 indicate, Base Year noise levels in areas removed from Honoapiilani Highway are probably less than 55 Leq(h), and possibly as low as 40 Leq(h).

IV. COMPARISON OF FUTURE TRAFFIC NOISE LEVELS UNDER VARIOUS ALTERNATIVES

The future traffic noise levels along the existing Honoapiilani Highway as well as along the proposed bypass alignments were evaluated for the various study alternatives. These alternatives were: Honoapiilani Highway Widening Alternative; Partial (or Phase I) Construction of the Bypass Alignment A; Completion (or Phase II) of Construction of the Bypass Alignment A; and Construction of the Bypass Alignment B. The same methodology that was used to construct the Base Year noise contours was also used to construct the Year 2007 noise contours under the alternatives listed above. TABLE 5 presents a comparison of the predicted changes in traffic noise levels along Honoapiilani Highway and along the new realignments as a result of the implementation of the various alternatives. TABLES 6 and 7 present comparisons of the corresponding changes in the setback distances to the 55 thru 77 Leq(h) noise contours under the various alternatives. TABLES 5 thru 7 are useful for presenting an overview of the changes in traffic noise levels that can be expected along Honoapiilani Highway.

The future traffic volume, speed, and mix assumptions used for the Widening and Bypass Alternatives are shown in TABLE 7. The roadway segment designations of TABLE 7 are identical to those used in TABLE 3. Also shown in TABLE 7 are the future traffic noise levels at a reference distance of 50 FT from the roadways' centerlines, the change in traffic noise levels from the Base Year values along each highway segment, and the future setback distances to the 75 thru 55 Leq(h) noise contours for unobstructed, line-of-sight conditions.

The following general conclusions can be made in respect to the effects of the various alternatives on the existing traffic noise levels along Honoapiilani Highway:

A. Under the Honoapiilani Highway Widening Alternative,

traffic noise increases are expected to be the greatest, at approximately 3.1 dB or Leq. Traffic noise impacts would be localized to the existing highway corridor, and would probably require noise mitigation measures.

B. Under the partial construction alternative of Bypass Alignment A (Phase I), traffic noise reductions of 2.2 dB are predicted to occur along the north sections of Honoapiilani Highway due to a significant diversion of traffic to the new bypass. South of the bypass, traffic noise increases along the existing highway are expected to be similar to the situation under the Widening Alternative.

C. Under the alternatives of complete construction of Bypass Alignments A (Phase II) or B, increases of 1.4 and 2.1 dB are predicted along the south and north sections of the existing highway. Under these alternatives, the diversion of traffic from the existing highway are not sufficient to reduce traffic noise along the existing highway corridor to Base Year levels.

FIGURES FY-1 thru FY-12 depict the future traffic noise contours along Honoapiilani Highway under the worst case, Highway Widening Alternative. The locations shown in these figures are identical to those shown in the Base Year FIGURES BY-1 thru BY-12. FIGURES FY-1 thru FY-8 include noise shielding effects from buildings, while FIGURES FY-9 thru FY-12 do not include these effects.

FIGURES FY-13 thru FY-16 depict the future year noise contours at the south and north ends of the project for the bypass construction alternatives. These figures do not include the effects of local shielding from buildings.

Future traffic noise levels were also calculated along the Bypass Alignments A (Phase I and Phase II) and B, using 1" = 400' scale topographic maps, and highway plans and profiles. The noise shielding effects from proposed highway cuts, and from elevated roadway sections were included in these calculations. Typi-

cal results of the traffic noise vs. distance calculations are depicted in FIGURES FY-17 thru FY-30, which are keyed to the proposed highway station numbers. The relative location of noise sensitive structures to the highway centerlines and corresponding noise levels are also shown in the figures. These results, as well as the results of FIGURES FY-13 thru FY-16, were used to isolate structures and lands which may be impacted if either of the three bypass alternatives are completed.

The following general conclusions can be made in respect to the potential increases in traffic noise levels resulting from the three bypass alternatives:

A. Under the partial construction alternative of Bypass Alignment A (Phase I), traffic noise levels should not exceed FHWA noise abatement criteria at noise sensitive lands along the new bypass. Traffic noise levels from the new bypass are predicted to range from 50 to 60 Leq at noise sensitive properties closest to the bypass, which represents an estimated increase of 10 to 20 dB in the existing background ambient noise levels.

B. Under the alternative of complete construction of Bypass Alignment A (Phase II), traffic noise levels are also not expected to exceed FHWA noise abatement criteria at noise sensitive lands along the entire bypass from Puamana Park to Kaanapali. Traffic noise levels at noise sensitive lands closest to the bypass and to the south of the sugar mill are predicted to range from 50 to 60 Leq. To the north of the sugar mill, traffic noise levels along the bypass are predicted to range from 45 to 55 Leq at noise sensitive properties closest to the bypass.

Because access to the bypass from Papalua Street is not expected to be provided under this alternative, actual traffic volumes on the bypass under Phase II is expected to be only 26 percent of the traffic volume under Phase I. If traffic on the bypass approaches capacity (say 4,000 VPH during the peak hour) beyond the Year 2007, traffic noise levels along the entire bypass

will be similar to those predicted under Phase I conditions. Traffic noise levels along the entire bypass under capacity conditions are predicted to increase approximately 6 dB above Phase II noise levels and, also, should not exceed FHWA noise abatement criteria along the entire bypass.

C. Under the alternative of construction of Bypass Alignment B, traffic noise levels are not expected to exceed FHWA noise abatement criteria along the bypass from Puamana Park to Kaanapali, except possibly along the first row of existing residences along the mauka (east) side of the proposed alignment along Ikena Avenue. At other noise sensitive locations along the bypass, traffic noise levels from the bypass should not exceed 50 Leq. Traffic noise levels along the first row of existing residences mauka of Ikena Avenue are predicted to be approximately 67 Leq. At those residences makai (west) of the avenue, traffic noise levels are predicted to be less at 56 Leq, due to noise shielding effects from the cut.

If traffic volume increases to near capacity conditions (say 4,000 VPH) beyond the Year 2007, traffic noise levels are predicted to increase by approximately 6 dB above those assumed for the Alignment B Alternative. Under these conditions, FHWA noise abatement criteria will probably be exceeded at existing homes east of Ikena Avenue, but will not be exceeded at other locations along the bypass.

V. FUTURE TRAFFIC NOISE IMPACTS

Existing noise sensitive developments along Honoapiilani Highway (from Puamana Park to Kaanapali Parkway) include single family residences, multifamily residences, three churches, one private school, and beach parks. Other less noise sensitive developments of commercial or industrial nature are concentrated in the area of the Papalua Street and Lahainaluna Road intersections. Existing noise sensitive developments inland of the highway and in the vicinity of the proposed bypass alignments, are primarily single and multifamily residences. The extent of future traffic noise impacts resulting from the Highway Widening Alternative, and the Bypass Alignment Alternatives were evaluated through the use of TABLE 4, the Base Year traffic noise contours, the future (Year 2007) traffic noise contours, and TABLES 8 thru 12. Additionally, evaluation of potential traffic noise impacts were performed for worst case future conditions when traffic volumes approach the design capacity of the improved roadways.

Potential traffic noise impacts would be the most severe under the Highway Widening Alternative, primarily because of the presence of single family residences, apartment complexes, a hotel, public use structures, and beach parks on both sides of the highway. Potential traffic noise impacts would be the least severe under the Bypass Alignment A (Phase I) Alternative, since future as well as existing traffic on the northern section of Honoapiilani Highway would be diverted to the bypass. Potential traffic noise impacts under the Alignment A (Phase II) and Alignment B Alternatives are similar, with Alignment B having a higher risk of adverse noise impacts under roadway capacity conditions. All alternatives are not impact free, since all alternatives do not reduce traffic volumes along the entire project length of Honoapiilani Highway below base year volumes.

Traffic noise impacts in the form of large increases in background ambient noise levels are expected along the proposed new alignments for each of the three Bypass Alternatives. Because

existing background ambient noise levels are very low (40 to 50 Leq) at inland residential areas which are removed from the existing highway, and because a new bypass must cross or pass near these quiet residential areas, unavoidable increases in background ambient noise levels are expected to occur if a new bypass is built. These increases, although large, should not result in excessively high noise levels which exceed current FHWA noise abatement criteria. In essence, if a bypass is constructed, a redistribution of future traffic and traffic noise will occur from the existing highway to locations inland (to the east). This redistribution will minimize future traffic noise impacts along the existing highway corridor.

A summary of the potential traffic noise impacts and the noise mitigation implications under the various Build Alternatives are as follows:

A. Significant increases in traffic noise are predicted for the Highway Widening Alternative, and FHWA noise abatement criteria will be exceeded. Noise mitigation measures will probably be required at impacted locations identified in TABLE 8 in conjunction with the Widening Alternative.

B. Under the Bypass Alignment A (Phase I and II) Alternatives, traffic noise impacts along the existing highway are expected to occur as a result of future growth in traffic volumes, and not as a result of the construction of the bypass. Traffic noise increases at inland areas bordering the new alignment, and associated with the construction of the new highway, are expected to occur. However FHWA noise abatement criteria are not expected to be exceeded along the new highway, and noise mitigation measures would not be required.

C. Traffic noise impacts under the Bypass Alignment B Alternative are expected to be similar to those described above for Alignment A. Traffic noise levels under Alignment B, however,

are expected to be only marginally below the FHWA noise abatement criteria where it parallels Ikena Road, and are expected to exceed FHWA criteria when traffic volumes approach the new highway capacity. For this reason, traffic noise mitigation measures will probably be required along the new highway at Ikena Road.

VI. CONSTRUCTION NOISE IMPACTS

Short-term noise impacts associated with widening or new construction activities will occur as a result of the proposed project under all Build Alternatives. These impacts will occur as a result of the short distances (less than 100 FT) between existing noise sensitive receptors and the possible construction sites. The total duration of the construction period for the proposed project is not known, but noise exposure from construction activities at any one receptor location is not expected to be continuous during the total construction period.

Noise levels of diesel powered construction equipment typically range from 80 to 90 dB at 50 FT distance. Under the Highway Widening Alternative, construction noise levels at existing structures will intermittently exceed 90 dB when work is being performed at close distances in front of these structures. Under the Bypass Alternatives, distances between the construction sites and receptors are expected to be greater than 50 FT, and construction noise levels should generally be below 80 dB. The State Department of Health currently regulates noise from construction activities on Oahu under a permit system (Reference 11). Under current permit procedures, noisy construction activities which exceed 95 dB at the project boundary lines are restricted to hours between 9:00 AM and 5:30 PM,, from Monday through Friday, and excluding certain holidays. These restrictions minimize construction noise impact on residences, schools, and churches, and have generally been successfully when applied.

VII. POSSIBLE NOISE MITIGATION MEASURES

Possible noise mitigation measures considered included the following:

A. Restricting the Growth In the Number of Noisy Buses, Heavy Trucks, Motorcycles, and Automobiles with Defective Mufflers. The percentage contribution to the total traffic noise by heavy trucks, buses, and noisy vehicles is currently in the order of 50 percent, and elimination of these noise sources would reduce total traffic noise levels by approximately 3 dB. Restricting the growth rate of these vehicles (to growth rates below passenger automobile growth rates) could produce noise reductions in the order of 1 or 2 dB, which are not considered significant for the level of regulatory efforts required.

B. Alteration of the Horizontal Or Vertical Alignment of the Highway. This mitigation measure has been incorporated into the Bypass Alternatives, and the proposed alignments represent the optimum noise abatement alignments for the Bypass Alignments A and B. Both alignments can accommodate the anticipated traffic demand without exceeding FHWA noise abatement criteria.

C. Acquisition of Property Rights for Construction of Noise Barriers, and/or Construction of Noise Barriers Along the Right-of-Way. For the majority of structures along the existing highway, construction of noise barriers will probably be the preferred noise mitigation measure under the Highway Widening Alternative. The 5 to 10 dB of noise attenuation achievable with a 6 FT high wall will be sufficient for all single story structures which currently front the highway, and which are within the Year 2007, 67 Leq(h) noise contour. For the Bypass Alternatives, the use of 2.5 to 3.0 FT high, solid concrete, crash barriers along the sides of the elevated highway sections will be sufficient to minimize traffic noise impacts in residential areas which adjoin

the proposed new alignments. The top edges of roadway cuts proposed along the new alignments will also function as noise barriers, particularly at locations makai of the roadway. Although site specific plans and section details were not available for the Widening or Bypass Alternatives, the use of noise barriers along the Right-of-Way would probably be the primary noise mitigation measure employed to meet FHWA exterior noise abatement criteria.

D. Acquisition of Real Property Interests To Serve As A Noise Buffer Zone. Where multistory structures are within the Year 2007, 67 Leq(h) contour, the use of sound attenuating barriers (see para. C above) will not be practical due to the excessive heights required to shield the upper floors from traffic noise. In these situations, the only other noise mitigation possibilities are sound insulation of the affected upper floor units or acquisition of the property interests. A noise buffer zone extending 68 to 84 FT from the highway centerline would be required to meet exterior FHWA noise abatement criteria under the Highway Widening Alternative. Under the Bypass Alignment B Alternative, a noise buffer zone extending approximately 80 to 130 FT from the highway centerline (and mauka of Ikena Avenue) would be required. In general, the acquisition of property for the creation of noise buffer zones or noise mitigation has seldom been applied in Hawaii. Where existing multistory homes or apartment complexes are within the high noise zones, the application of sound insulation treatment should be evaluated prior to consideration of property acquisition for noise mitigation.

E. Noise Insulation of Public Use or Nonprofit Institutional Structures. This mitigation measure will probably be required under the Highway Widening Alternative if the construction of noise barriers is not practical for reasons other than noise attenuation. Based upon currently available information, this mitigation measure should not be required since all public use structures along the existing highway are of single story con-

struction.

VIII. GENERAL RECOMMENDATIONS

Based upon the results of this study, the following recommendations are provided to minimize noise impacts from the proposed highway improvement project:

A. If the Highway Widening Alternative is selected, priority should be given to increasing the Right-of-Way width in the direction away from the sides of the highway where multistory dwellings are located. If it is feasible to realign the widened highway in this manner, the difficulties associated with noise abatement treatment of upper floor dwellings will be reduced, or at worst, the level of unavoidable traffic noise exposure will be reduced.

B. The proposed Bypass Alignment A (Phase I) is the recommended alternative if the only consideration is potential noise impact. This alternative is attractive because it is expected to divert a significant amount of traffic from the north sections of the existing highway, to reduce existing traffic noise to levels below FHWA criteria, and to eliminate the requirement to provide noise mitigation measures for the aesthetically difficult case of the beach parks and for the technically difficult case of the multistory apartments. Special noise abatement measures for complying with FHWA standards should not be necessary for this alternative.

C. If the complete construction of Bypass Alignment A (Phase II) is the selected improvement alternative, On and Off Ramp access in the vicinity of the sugar mill should be provided if possible. Any access ramps which can be physically included with the construction of the bypass is predicted to divert future traffic from the existing highway, and to lessen noise impacts along the existing highway corridor.

D. If the Widening Alternative is selected, a more in-depth examination of noise barrier construction parameters should be made in conjunction with the design of the widening project. Because the length of the walls are expected to be extensive, aesthetic considerations will be as important as sound attenuation performance. For this reason, provision should be made for including landscaping treatment in front of the walls.

E. If the Bypass Alternative B is selected, a more in-depth examination of highway cross section parameters should be made along the Ikena Avenue cut. The height requirements and possible use of noise barriers along the mauka Right-of-Way should also be examined if the design capacity of the roadway is approximately 4,000 VPH.

F. Consideration should be given to employing the curfew system of the State Department of Health regulations relating to excessive construction noise. In this way, construction noise impacts on noise sensitive receptors can be minimized.

TABLE 1

MARCH, 1986 TRAFFIC AND BACKGROUND AMBIENT NOISE MEASUREMENTS

	Location	Time of Day (HRS)	Ave.Speed (MPH)	---Hourly Traffic Volume--- Auto	Med.Truck	Heavy Truck	Measured Leq (dB)	Predicted Leq (dB)
1.	SITE F. At north end of Niheu Street.	1030 TO 1043	N/A	N/A	N/A	N/A	37.8	N/A
2.	SITE G. At north end of Kuialua Place.	1046 TO 1055	N/A	N/A	N/A	N/A	42.5	N/A
3.	SITE H. At south end of Hokeo Street.	1057 TO 1105	N/A	N/A	N/A	N/A	47.6	N/A
4.	SITE I. At intersection of Liloa Street an Ikena Avenue.	1107 TO 1117	N/A	N/A	N/A	N/A	50.8	N/A
5.	SITE J. At southwest end of community park a Kanakea Avenue (66 FT from centerline of Lahainaluna Road.	1122 TO 1222	35	222	6	0	54.7	54.6 *
6.	SITE A50. 50 FT from centerline of Honoapiilani Hwy. at Aholo Rd.	1415 TO 1510	40	1,276	40	40	66.9	66.4
7.	SITE A100. 100 FT from centerline of Honoapiilani Hwy. at Aholo Rd.	1511 TO 1532	40	1,272	40	44	61.0	61.6

TABLE 1 (CONT.)

MARCH, 1986 TRAFFIC AND BACKGROUND AMBIENT NOISE MEASUREMENTS

Location	Time of Day (HRS)	Ave.Speed (MPH)	---Hourly Traffic Volume--- Auto	Med.Truck	Heavy Truck	Measured Leq (dB)	Predicted Leq (dB)
8. SITE A100. 100 FT from centerline of Honoapii-lani Hwy. at Aholo Rd.	1532 TO 1608	40	1,272	40	30	59.4	60.8
9. SITE B200. 200 FT from centerline of Honoapii-lani Hwy. on Kapo Pl.	1610 TO 1623	40	1,272	40	30	51.0	<55.0
10. SITE A200. 200 FT from centerline of Honoapii-lani Hwy. in clearing.	1624 TO 1700	40	1,272	40	30	55.7	56.0
11. SITE E1. At FHA units near sugar mill on Alik Pl.	1355 TO 1400	N/A	N/A	N/A	N/A	68.0 **	N/A
12. SITE E2. At FHA units near sugar mill on Mill St. at south driveway.	1407 TO 1408	N/A	N/A	N/A	N/A	59.9 **	N/A
13. SITE C50. 50 FT from centerline of Honoapii-lani Hwy. south of the Chart House.	1530 TO 1650	37	2,288	32	8	64.8	64.5

Footnotes:

* 3 dB used for roadway grade adjustment factor.
** Measured noise level due to boiler fans of adjacent sugar mill.

TABLE 1 (CONT.)

MARCH, 1986 TRAFFIC AND BACKGROUND AMBIENT NOISE MEASUREMENTS

For locations of noise measurement sites:

Refer to FIGURE 1 for locations of Sites F, G, H, I, and J.

Refer to FIGURE BY-1 for locations of Sites A50, A100, A200, and B200.

Refer to FIGURES 1 and BY-5 for locations of Sites E1 and E2.

Refer to FIGURE BY-8 for locations of Site C50.

TABLE 2

NOISE ABATEMENT CRITERIA
[Hourly A-Weighted Sound Level--Decibels (dBA)]

Activity Category	Leq(h)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	----	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

(Extracted from Reference 9.)

TABLE 3
HONOAPIILANI HWY.; BASE YEAR 1987; PM PEAK HR. SETBACK DISTANCES

SEGMENT	SPEED	MIX	VPH	LEQ(50') IN DB	DISTANCE (FT) FROM CENTERLINE					
					55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	1,569	66.6	295	137	64	30	14	47
(b)	40 MPH	95/2.6/2.4	1,391	66.1	273	127	59	27	13	43
(c)	40 MPH	95/2.6/2.4	1,391	66.1	273	127	59	27	13	43
(d)	40 MPH	95/2.6/2.4	1,369	66.0	270	125	58	27	13	43
(e)&(f)	40 MPH	95/2.6/2.4	1,369	66.0	270	125	58	27	13	43
(g)	37 MPH	95/2.6/2.4	1,911	66.4	286	133	62	29	13	45
(h)	35 MPH	95/2.6/2.4	2,164	66.2	278	129	60	28	13	44
(i)	37 MPH	95/2.6/2.4	2,164	66.9	311	144	67	31	14	49
(j)	37 MPH	95.3/3/1.7	2,148	66.3	285	132	61	28	13	45
(k)	37 MPH	95.3/3/1.7	2,703	67.3	332	154	72	33	15	53
(1)	37 MPH	95.3/3/1.7	2,684	67.3	330	153	71	33	15	52
(m2)	37 MPH	95.3/3/1.7	2,549	67.1	319	148	69	32	15	51

SEGMENT	BOUNDING INTERSECTIONS
(a1)	South of Front Street or New Bypass
(a2)	Front Street & New Bypass
(b)	Front Street & Aholo Road
(c)	Aholo Road & Shaw Street
(d)	Shaw Street & Prison Street
(e)	Prison Street & Dickenson Street
(f)	Dickenson Street & Lahainaluna Road
(g)	Lahainaluna Road & Papalaua Street
(h)	Papalaua Street & Kenui Street
(i)	Kenui Street & Kapunakea Street
(j)	Kapunakea Street & Front Street
(k)	Front Street & Kaniau Road
(1)	Kaniau Road & Road to Civic Center
(m1)	Road to Civic Center & New Bypass
(m2)	Road to Civic Center (or New Bypass) & Kaanapali Parkway

TABLE 4

LIST OF EXISTING NOISE IMPACTED STRUCTURES AND LAND AREAS
DURING THE BASE YEAR PERIOD

HIGHWAY SEGMENT	NUMBER OF IMPACTED UNITS (BASE YEAR LEQ) — PRIVATE DWELLINGS	PUBLIC USE STRUCTURES	PARK LANDS
(a1)	None	None	None
(b)	None	None	None
(c)	None	None	None
(d)	None	None	None
(e)	None	None	None
(f)	None	1 School	None
(g)	None	None	None
(h)	None	None	None
(i)	None	None	None
(j)	None	1 Church*	None
(k)	None	None	1 Beach Park
(l)	None	None	1 Beach Park
(m2)	None	None	2 Beach Parks

Notes:

* Presently air conditioned with window units.

TABLE 5

COMPARISONS OF EXISTING AND FUTURE TRAFFIC NOISE LEVELS IN PROJECT ENVIRONS

LOCATION	SPEED (MPH)	VPH	*** HOURLY LEQ IN DB @ 50'*** AUTO	MT	HT	ALL VEH	DB INCREASE
YEAR 1987 PM PEAK HOUR TRAFFIC:							
Honoapiilani Hwy. (S. End)	40	1,569	62.5	58.3	63.2	66.6	-
Honoapiilani Hwy. (N. End)	37	2,549	63.3	59.8	63.0	67.1	-
YEAR 2007 PM PEAK HOUR TRAFFIC (Do Nothing):							
Honoapiilani Hwy. (S. End)	40	2,331	64.2	60.0	64.9	68.3	1.7
Honoapiilani Hwy. (N. End)	37	3,200	64.3	60.8	64.0	68.1	1.0
YEAR 2007 PM PEAK HOUR TRAFFIC (Widening Alternative B):							
Honoapiilani Hwy. (S. End)	40	3,186	65.6	61.3	66.3	69.6	3.1
Honoapiilani Hwy. (N. End)	37	5,173	66.4	62.9	66.0	70.2	3.1
YEAR 2007 PM PEAK HOUR TRAFFIC [Bypass Alternative A (Phase I)]:							
Honoapiilani Hwy. (S. End)	40	3,185	65.6	61.3	66.3	69.6	3.1
Honoapiilani Hwy. (N. End)**	37	1,547	61.2	57.7	60.8	64.9	(2.2)
Bypass A	50	3,904	70.2	66.1	68.0	73.2	-
YEAR 2007 PM PEAK HOUR TRAFFIC [Bypass Alternative B or Alt. A (Phase II)]:							
Honoapiilani Hwy. (S. End)*	40	2,158	63.9	59.7	64.6	68.0	1.4
Honoapiilani Hwy. (N. End)**	37	4,145	65.5	62.0	65.1	69.2	2.1
Bypass B or A (Phase II)	50	1,028	64.4	60.3	62.2	67.4	-

Notes:
* Segment (a2) used for south end of Honoapiilani Hwy.
** Segment (m1) used for north end of Honoapiilani Hwy.

TABLE 6

EXISTING AND FUTURE DISTANCES TO 57, 67, AND 72 Leq CONTOURS

STREET SECTION	57 Leq SETBACK (FT) EXISTING	57 Leq SETBACK (FT) FUTURE	67 Leq SETBACK (FT) EXISTING	67 Leq SETBACK (FT) FUTURE	72 Leq SETBACK(FT) EXISTING	72 Leq SETBACK(FT) FUTURE
YEAR 2007 PM PEAK HOUR TRAFFIC (Do Nothing):						
Honoapiilani Hwy. (S. End)	217	283	47	61	22	28
Honoapiilani Hwy. (N. End)	235	274	51	59	23	27
YEAR 2007 PM PEAK HOUR TRAFFIC (Widening Alternative B):						
Honoapiilani Hwy. (S. End)	217	348	47	75	22	35
Honoapiilani Hwy. (N. End)	235	376	51	81	23	38
YEAR 2007 PM PEAK HOUR TRAFFIC [Bypass Alternative A (Phase I)]:						
Honoapiilani Hwy. (S. End)	217	348	47	75	22	35
Honoapiilani Hwy. (N. End)*	235	168	51	36	23	17
Bypass A	-	600	-	129	-	60
YEAR 2007 PM PEAK HOUR TRAFFIC [Bypass Alternative B or Alt. A (Phase II)]:						
Honoapiilani Hwy. (S. End)*	217	269	47	58	22	27
Honoapiilani Hwy. (N. End)*	235	325	51	70	23	32
Bypass B or A (Phase II)	-	247	-	53	-	25

Notes:
All setback distances are to the roadway centerlines. Setback distances are for unobstructed line-of-sight conditions.
* Segment (a2) used for south end of Honoapiilani Hwy.
** Segment (m1) used for north end of Honoapiilani Hwy.

TABLE 7
HONOAPIILANI WIDENING ALTERNATIVE B; YEAR 2007; PM PEAK HR. SETBACK DISTANCES

SEGMENT	SPEED	MIX	VPH	LEQ(50') IN DB	CHANGE	DISTANCE (FT) FROM CENTERLINE 55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	3,186	69.6	3.0	473	220	102	47	22	75
(b)	40 MPH	95/2.6/2.4	2,826	69.1	3.0	437	203	94	44	20	69
(c)	40 MPH	95/2.6/2.4	2,826	69.1	3.0	437	203	94	44	20	69
(d)	40 MPH	95/2.6/2.4	2,781	69.1	3.1	432	201	93	43	20	68
(e)&(f)	40 MPH	95/2.6/2.4	2,781	69.1	3.1	432	201	93	43	20	68
(g)	37 MPH	95/2.6/2.4	3,880	69.5	3.1	460	213	99	46	21	73
(h)	35 MPH	95/2.6/2.4	4,393	69.3	3.1	446	207	96	45	21	71
(i)	37 MPH	95/2.6/2.4	4,393	70.0	3.1	498	231	107	50	23	79
(j)	37 MPH	95.3/3/1.7	4,362	69.4	3.1	457	212	98	46	21	72
(k)	37 MPH	95.3/3/1.7	5,487	70.4	3.1	532	247	115	53	25	84
(l)	37 MPH	95.3/3/1.7	5,446	70.4	3.1	529	246	114	53	25	84
(m2)	37 MPH	95.3/3/1.7	5,173	70.2	3.1	512	237	110	51	24	81

TABLE 7 (CONT.)
HONOAPIILANI BYPASS ALIGNMENT A (PHASE I); YEAR 2007; PM PEAK HR. SETBACK DISTANCES

SEGMENT	SPEED	MIX	VPH	LEQ(50') IN DB	CHANGE	DISTANCE (FT) FROM CENTERLINE 55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	3,185	69.6	3.0	473	220	102	47	22	75
(b)	40 MPH	95/2.6/2.4	3,035	69.4	3.3	458	213	99	46	21	73
(c)	40 MPH	95/2.6/2.4	2,976	69.4	3.3	453	210	97	45	21	72
(d)	40 MPH	95/2.6/2.4	3,098	69.5	3.5	464	216	100	46	22	74
(e)	40 MPH	95/2.6/2.4	3,323	69.8	3.8	487	226	105	49	23	77
(f)	37 MPH	95/2.6/2.4	3,375	68.8	2.8	418	194	90	42	19	66
(g)	37 MPH	95/2.6/2.4	3,947	69.5	3.1	464	216	100	46	22	74
(h)	35 MPH	95/2.6/2.4	1,139	63.4	(2.8)	181	84	39	18	8	29
(i)	37 MPH	95/2.6/2.4	936	63.3	(3.6)	178	83	38	18	8	28
(j)	37 MPH	95.3/3/1.7	896	62.5	(3.8)	159	74	34	16	7	28
(k)	37 MPH	95.3/3/1.7	1,861	65.7	(1.6)	259	120	56	26	12	41
(l)	37 MPH	95.3/3/1.7	1,820	65.6	(1.7)	255	118	55	26	12	40
(m1)	37 MPH	95.3/3/1.7	1,547	64.9	(2.2)	229	106	49	23	11	36
(m2)	37 MPH	95.3/3/1.7	4,993	70.0	2.9	500	232	108	50	23	79
Bypass	50 MPH	95.3/3/1.7	3,904	73.2		816	379	176	82	38	129

TABLE 7 (CONT.)
HONOAPIILANI BYPASS ALIGNMENT A (PHASE II); YEAR 2007; PM PEAK HR. SETBACK DISTANCES

SEGMENT	SPEED	MIX	VPH	LEQ(50') IN DB	CHANGE	DISTANCE (FT) FROM CENTERLINE 55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	3,186	69.6	3.0	473	220	102	47	22	75
(a2)	40 MPH	95/2.6/2.4	2,158	68.0	1.4	365	169	79	37	17	58
(b)	40 MPH	95/2.6/2.4	2,007	67.6	1.5	348	162	75	35	16	55
(c)	40 MPH	95/2.6/2.4	1,948	67.5	1.4	341	158	74	34	16	54
(d)	40 MPH	95/2.6/2.4	2,070	67.8	1.8	355	165	76	36	16	56
(e)	40 MPH	95/2.6/2.4	2,295	68.2	2.2	380	177	82	38	18	60
(f)	37 MPH	95/2.6/2.4	2,347	67.3	1.3	328	152	71	33	15	52
(g)	37 MPH	95/2.6/2.4	2,919	68.2	1.8	380	176	82	38	18	60
(h)	35 MPH	95/2.6/2.4	3,585	68.4	2.2	389	180	84	34	18	62
(i)	37 MPH	95/2.6/2.4	3,534	69.0	2.1	431	200	93	43	20	68
(j)	37 MPH	95.3/3/1.7	3,494	68.5	2.2	394	183	85	39	18	62
(k)	37 MPH	95.3/3/1.7	4,459	69.5	2.2	464	215	100	46	22	74
(l)	37 MPH	95.3/3/1.7	4,418	69.5	2.2	461	214	99	46	21	73
(m1)	37 MPH	95.3/3/1.7	4,145	69.2	2.1	442	205	95	44	21	70
(m2)	37 MPH	95.3/3/1.7	5,173	70.2	3.1	512	237	110	51	24	81
Bypass	50 MPH	95.3/3/1.7	1,028	67.4		335	156	72	34	16	53

TABLE 7 (CONT.)
HONOAPIILANI BYPASS ALIGNMENT B: YEAR 2007 PM PEAK HR. SETBACK DISTANCES

SEGMENT	SPEED	MIX	VPH	LEQ(50') IN DB	CHANGE	DISTANCE (FT) FROM CENTERLINE 55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	3,186	69.6	3.0	473	220	102	47	22	75
(a2)	40 MPH	95/2.6/2.4	2,158	68.0	1.4	365	169	79	37	17	58
(b)	40 MPH	95/2.6/2.4	2,007	67.6	1.5	348	162	75	35	16	55
(c)	40 MPH	95/2.6/2.4	1,948	67.5	1.4	341	158	74	34	16	54
(d)	40 MPH	95/2.6/2.4	2,070	67.8	1.8	355	165	76	36	16	56
(e)	40 MPH	95/2.6/2.4	2,295	68.2	2.2	380	177	82	38	18	60
(f)	37 MPH	95/2.6/2.4	2,347	67.3	1.3	328	152	71	33	15	52
(g)	37 MPH	95/2.6/2.4	2,919	68.2	1.8	380	176	82	38	18	60
(h)	35 MPH	95/2.6/2.4	3,585	68.4	2.2	389	180	84	34	18	62
(i)	37 MPH	95/2.6/2.4	3,534	69.0	2.1	431	200	93	43	20	68
(j)	37 MPH	95.3/3/1.7	3,494	68.5	2.2	394	183	85	39	18	62
(k)	37 MPH	95.3/3/1.7	4,459	69.5	2.2	464	215	100	46	22	74
(l)	37 MPH	95.3/3/1.7	4,418	69.5	2.2	461	214	99	46	21	73
(m1)	37 MPH	95.3/3/1.7	4,145	69.2	2.1	442	205	95	44	21	70
(m2)	37 MPH	95.3/3/1.7	5,173	70.2	3.1	512	237	110	51	24	81
Bypass	50 MPH	95.3/3/1.7	1,028	67.4		335	156	72	34	16	53

TABLE 8

LIST OF POTENTIAL NOISE IMPACTED STRUCTURES AND LAND AREAS
UNDER THE HONOAPIILANI HIGHWAY WIDENING ALTERNATIVE

HIGHWAY SEGMENT	------ NUMBER OF IMPACTED UNITS (YEAR 2007 Leq) ----- PRIVATE DWELLINGS	PUBLIC USE STRUCTURES	PARK LANDS
(a1)	Possible*	None	1 Beach Park
(b)	Possible*	None	None
(c)	6+ Homes*	None	None
(d)	1 Home	1 Church	None
(e)	1 Home & 1 Hotel***	None	None
(f)	5 Homes & 2 Apartment Complexes	1 School	None
(g)	None	None	None
(h)	2 Apart. Complexes	None	None
(i)	None	None	None
(j)	13 Homes	1 Church***	None
(k)	None	1 Church****	1 Beach Park
(l)	None	None	1 Beach Park
(m2)	None	None	2 Beach Parks

Notes:

* All homes not shown on aerial photomap.
** Hotel rooms air conditioned with window units.
*** Presently air conditioned with window units.
**** Future noise impact dependent upon how retaining wall is constructed.

TABLE 9

LIST OF POTENTIAL NOISE IMPACTED STRUCTURES AND LAND AREAS
UNDER THE BYPASS ALTERNATIVE A (PHASE I)

HIGHWAY SEGMENT	NUMBER OF IMPACTED UNITS (YEAR 2007 Leq) PRIVATE DWELLINGS	PUBLIC USE STRUCTURES	PARK LANDS
(a1)	Possible*	None	1 Beach Park
(b)	Possible*	None	None
(c)	7+ Homes*	None	None
(d)	1 Home	1 Church	None
(e)	2 Homes & 1 Hotel***	None	None
(f)	4 Homes & 2 Apartment Complexes	1 School	None
(g)	None	None	None
(h)	None	None	None
(i)	None	None	None
(j)	None	1 Church***	None
(k)	None	None	None
(l)	None	None	None
(m1)	None	None	None
(m2)	None	None	None
Bypass A	None	None	None

Notes:

* All homes not shown on aerial photomap.
** Hotel rooms air conditioned with window units.
*** Presently air conditioned with window units.

TABLE 10

LIST OF POTENTIAL NOISE IMPACTED STRUCTURES AND LAND AREAS
UNDER THE BYPASS ALTERNATIVE A (PHASE II)

HIGHWAY SEGMENT	------ NUMBER OF IMPACTED UNITS (YEAR 2007 Leq) ----- PRIVATE DWELLINGS	PUBLIC USE STRUCTURES	PARK LANDS
(a1)	None	None	None
(a2)	None	None	1 Beach Park
(b)	None	None	None
(c)	1+ Homes*	None	None
(d)	1 Home	1 Church	None
(e)	1 Home & 1 Hotel***	None	None
(f)	3 Homes & 2 Apartment Complexes	1 School	None
(g)	None	None	None
(h)	2 Apart. Complexes	None	None
(i)	None	None	None
(j)	8 Homes	1 Church***	None
(k)	None	1 Church****	1 Beach Park
(l)	None	None	1 Beach Park
(m1)	None	None	2 Beach Parks
(m2)	None	None	None
Bypass A	None	None	None

Notes:

* All homes not shown on aerial photomap.
** Hotel rooms air conditioned with window units.
*** Presently air conditioned with window units.
**** Future noise impact dependent upon how retaining wall is constructed.

TABLE 11

LIST OF POTENTIAL NOISE IMPACTED STRUCTURES AND LAND AREAS
UNDER THE BYPASS ALTERNATIVE B

HIGHWAY SEGMENT	------ NUMBER OF IMPACTED UNITS (YEAR 2007 Leq) ----- PRIVATE DWELLINGS	PUBLIC USE STRUCTURES	PARK LANDS
(a1)	None	None	None
(a2)	None	None	1 Beach Park
(b)	None	None	None
(c)	1+ Homes*	None	None
(d)	1 Home	1 Church	None
(e)	1 Home & 1 Hotel***	None	None
(f)	3 Homes & 2 Apartment Complexes	1 School	None
(g)	None	None	None
(h)	2 Apart. Complexes	None	None
(i)	None	None	None
(j)	8 Homes	1 Church***	None
(k)	None	1 Church****	1 Beach Park
(l)	None	None	1 Beach Park
(m1)	None	None	2 Beach Parks
(m2)	None	None	None
Bypass B	Possible*	None	None

Notes:

* All homes not shown on aerial photomap.
** Hotel rooms air conditioned with window units.
*** Presently air conditioned with window units.
**** Future noise impact dependent upon how retaining wall is constructed.

TABLE 12
COMPARISON OF NOISE IMPACTED AREAS UNDER THE VARIOUS BUILD ALTERNATIVES

ROADWAY	ALTERNATIVE	******* NOISE IMPACTED AREAS ALONG ROADWAY ******* DWELLINGS	PUBLIC	PARK
Honoapiilani Hwy.	Base Year	None	1 Church 1 Private School	4 Coast Parks
Honoapiilani Hwy.	Widening Alt. B	26+ Detached 4 Apt. Complexes 1 Hotel Complex	3- Churches 1 Private School	5 Coast Parks
Honoapiilani Hwy.	Align. A (Ph. I)	14+ Detached 2 Apt. Complexes 1 Hotel Complex	2 Churches 1 Private School	1 Coast Park
Bypass A (Phase I)		None	None	None
Honoapiilani Hwy.	Align. A (Ph. II)	14+ Detached 4 Apt. Complexes 1 Hotel Complex	3- Churches 1 Private School	5 Coast Parks
Bypass A (Phase II)		None	None	None
Honoapiilani Hwy.	Alignment B	14+ Detached 4 Apt. Complexes 1 Hotel Complex	3- Churches 1 Private School	5 Coast Parks
Bypass B		Heights Resid.	None	None

Notes:
1. Noise impact criteria used: 67 Leq (exterior) for dwellings; 52 Leq (interior) for public use structures; and 67 Leq (exterior) for active playgrounds and parks.
2. Alignment A (Phase I) is the minimum impact alternative.

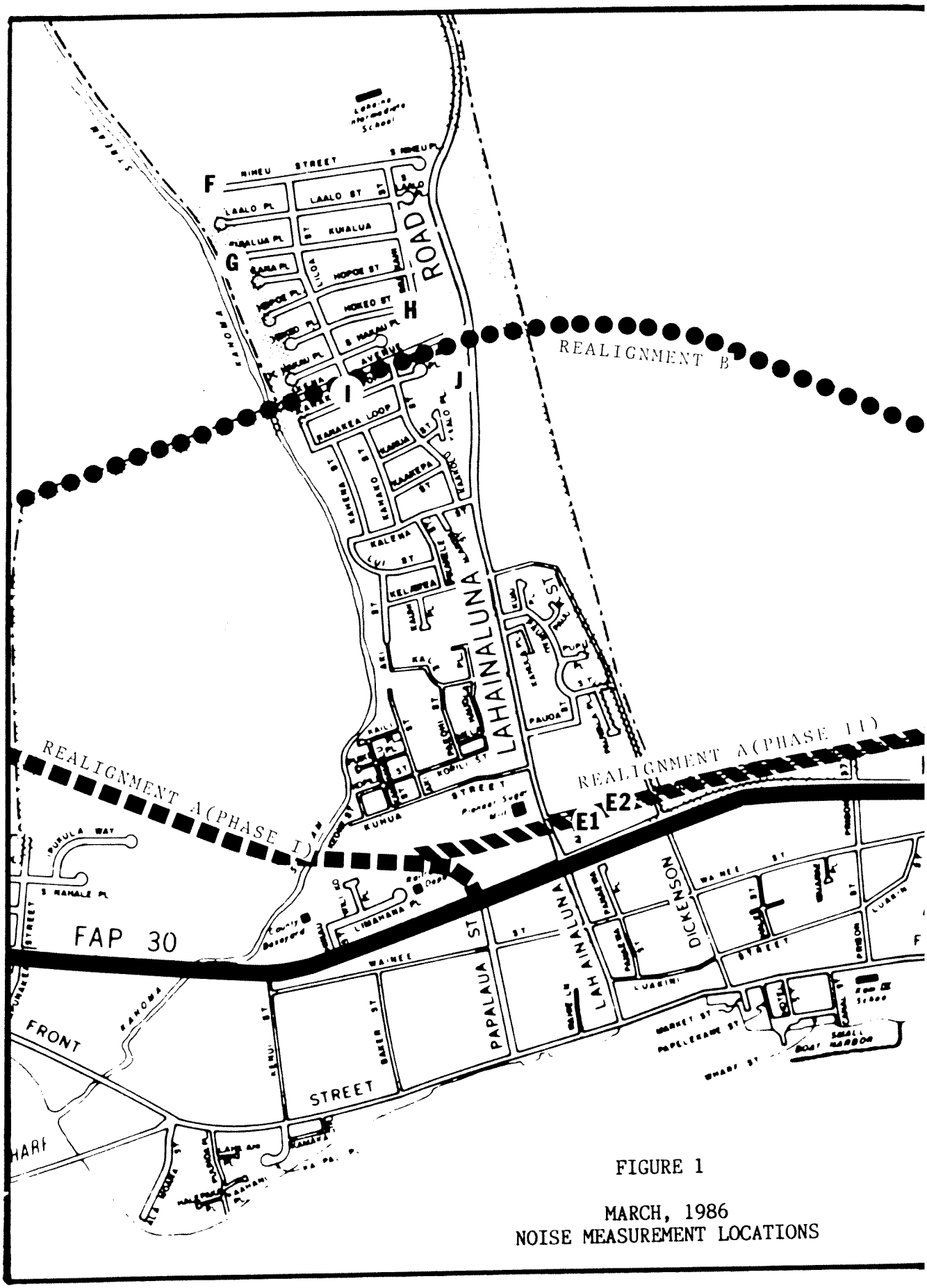


FIGURE 1

MARCH, 1986
NOISE MEASUREMENT LOCATIONS

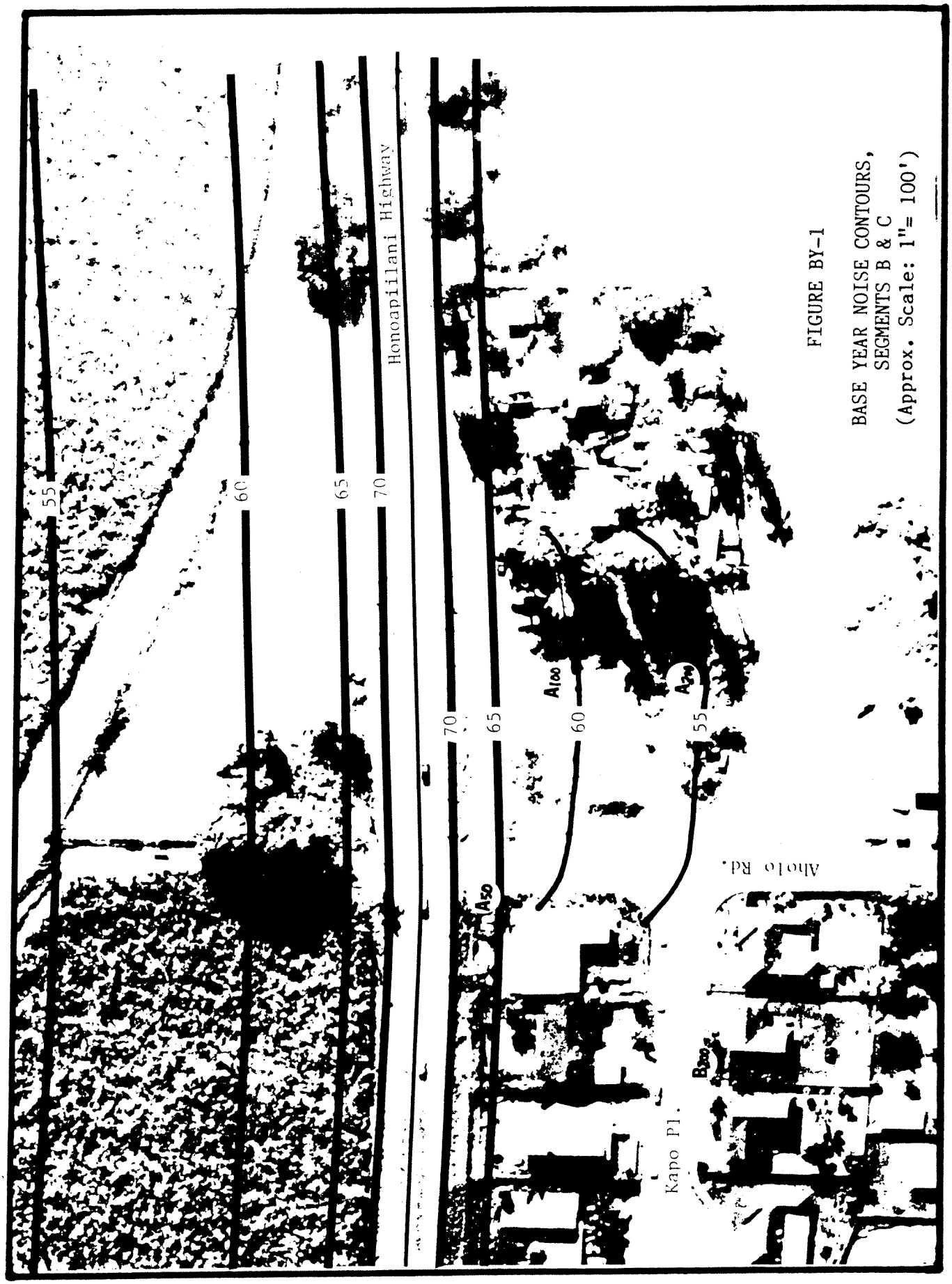


FIGURE BY-1

BASE YEAR NOISE CONTOURS,
SEGMENTS B & C
(Approx. Scale: 1"= 100')

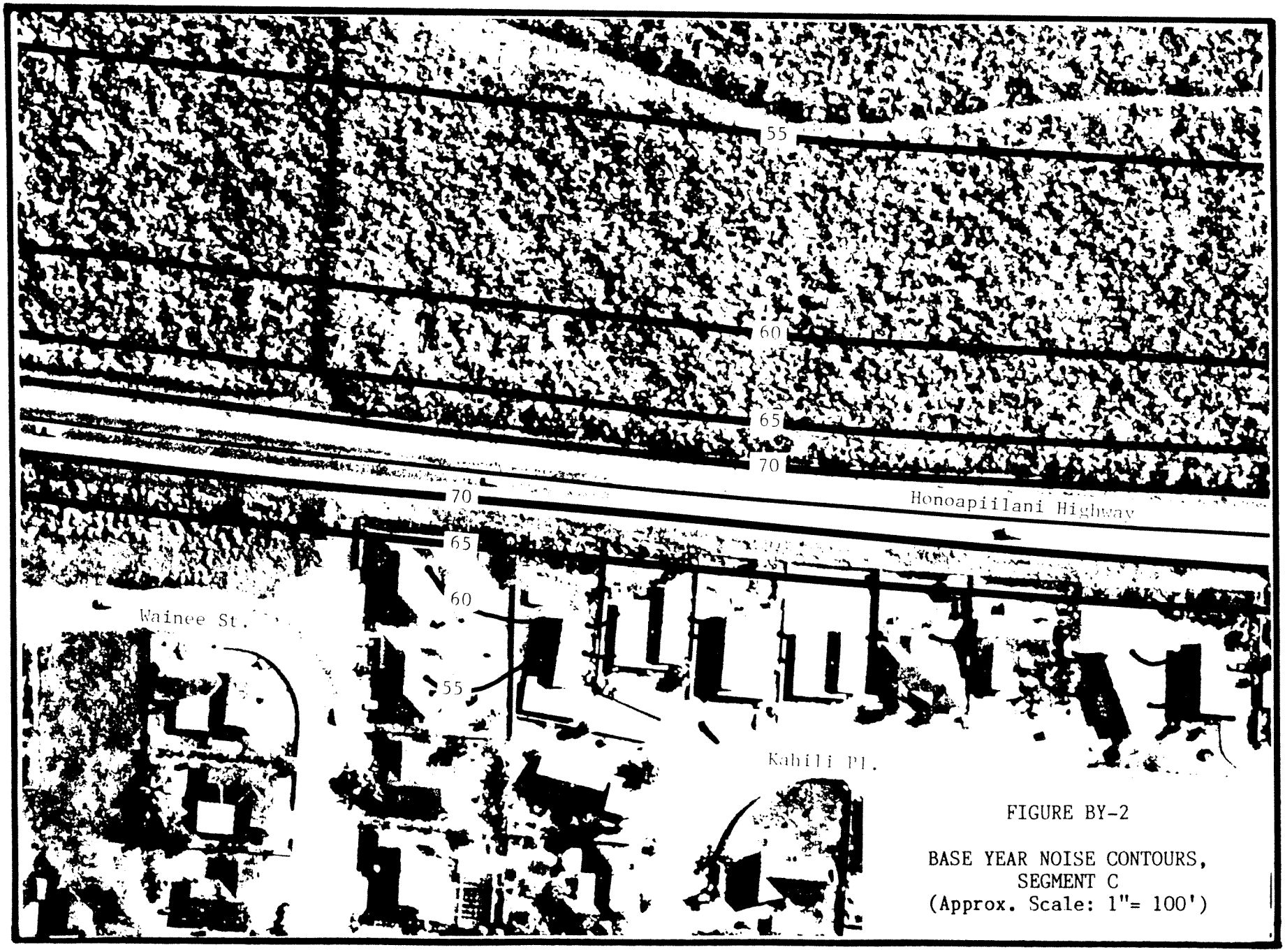


FIGURE BY-2

BASE YEAR NOISE CONTOURS,
SEGMENT C
(Approx. Scale: 1"= 100')

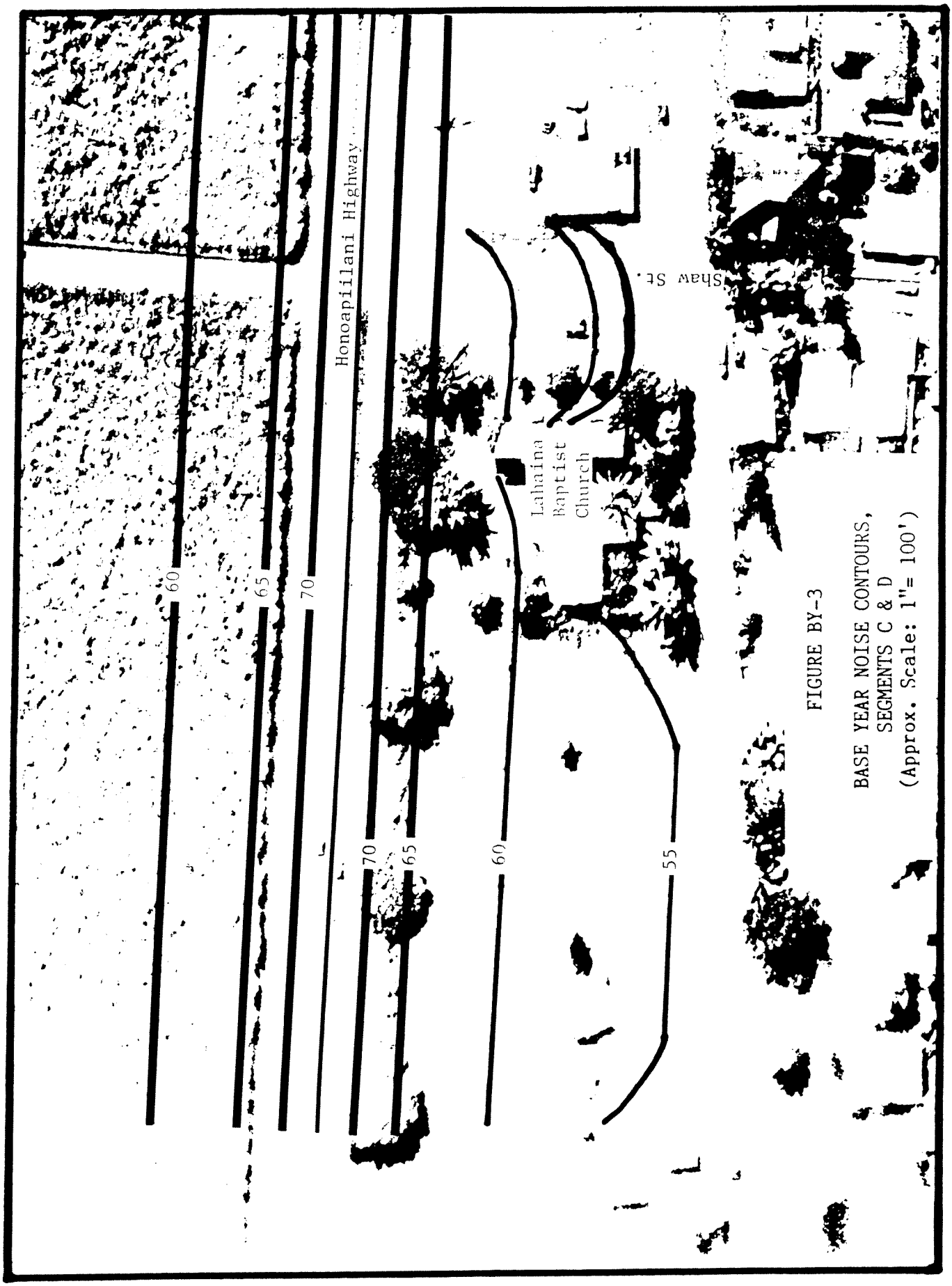


FIGURE BY-3

BASE YEAR NOISE CONTOURS,
SEGMENTS C & D
(Approx. Scale: 1"= 100')

FIGURE BY-4

BASE YEAR NOISE CONTOURS,
SEGMENTS D & E
(Approx. Scale: 1"= 100')



FIGURE BY-5

BASE YEAR NOISE CONTOURS,
SEGMENTS E & F
(Approx. Scale: 1"= 100')

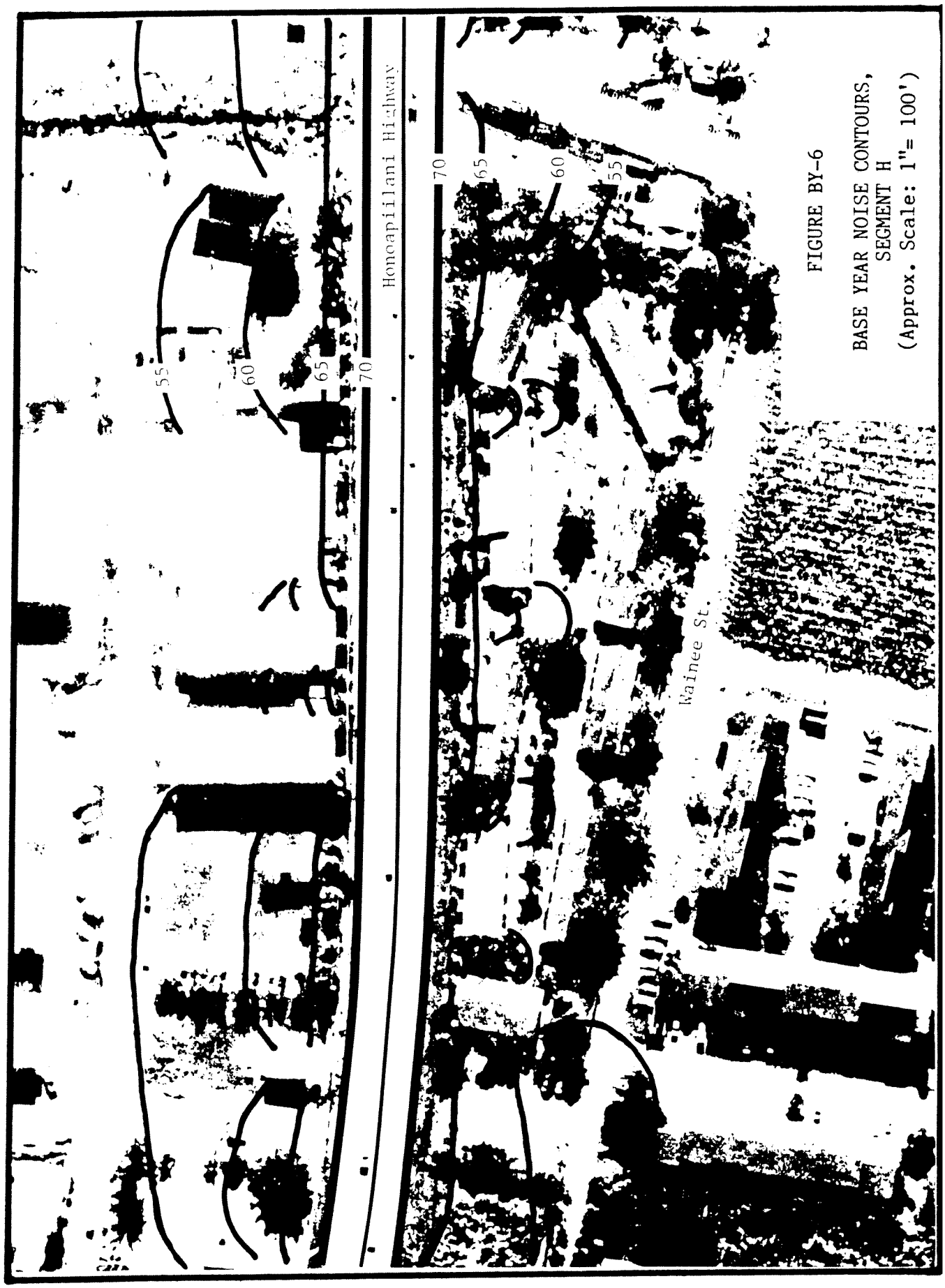


FIGURE BY-6

BASE YEAR NOISE CONTOURS,
SEGMENT H
(Approx. Scale: 1"= 100')

FIGURE BY-7

BASE YEAR NOISE CONTOURS,
SEGMENTS I & J
(Approx. Scale: 1"= 100')

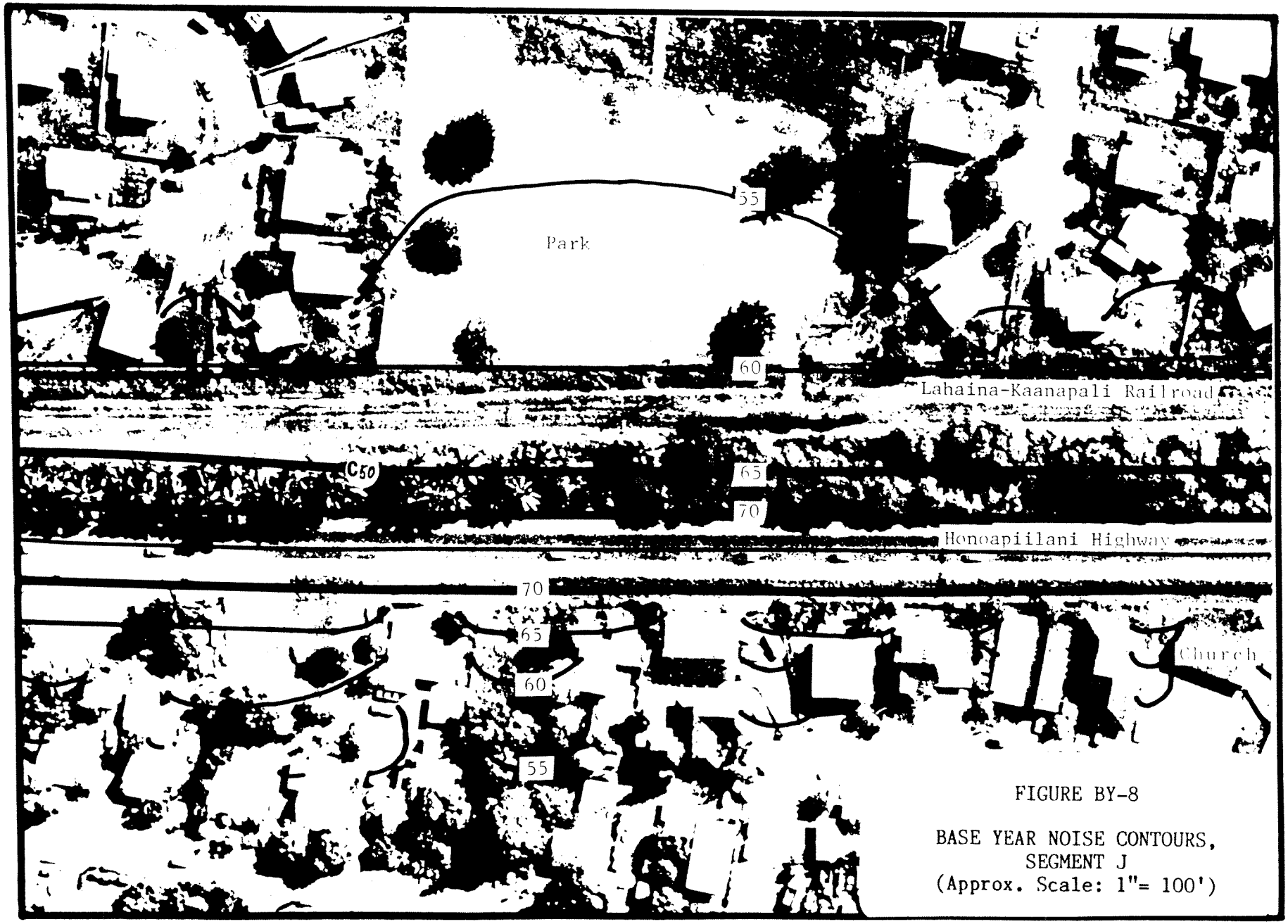


FIGURE BY-8

BASE YEAR NOISE CONTOURS,
SEGMENT J
(Approx. Scale: 1"= 100')

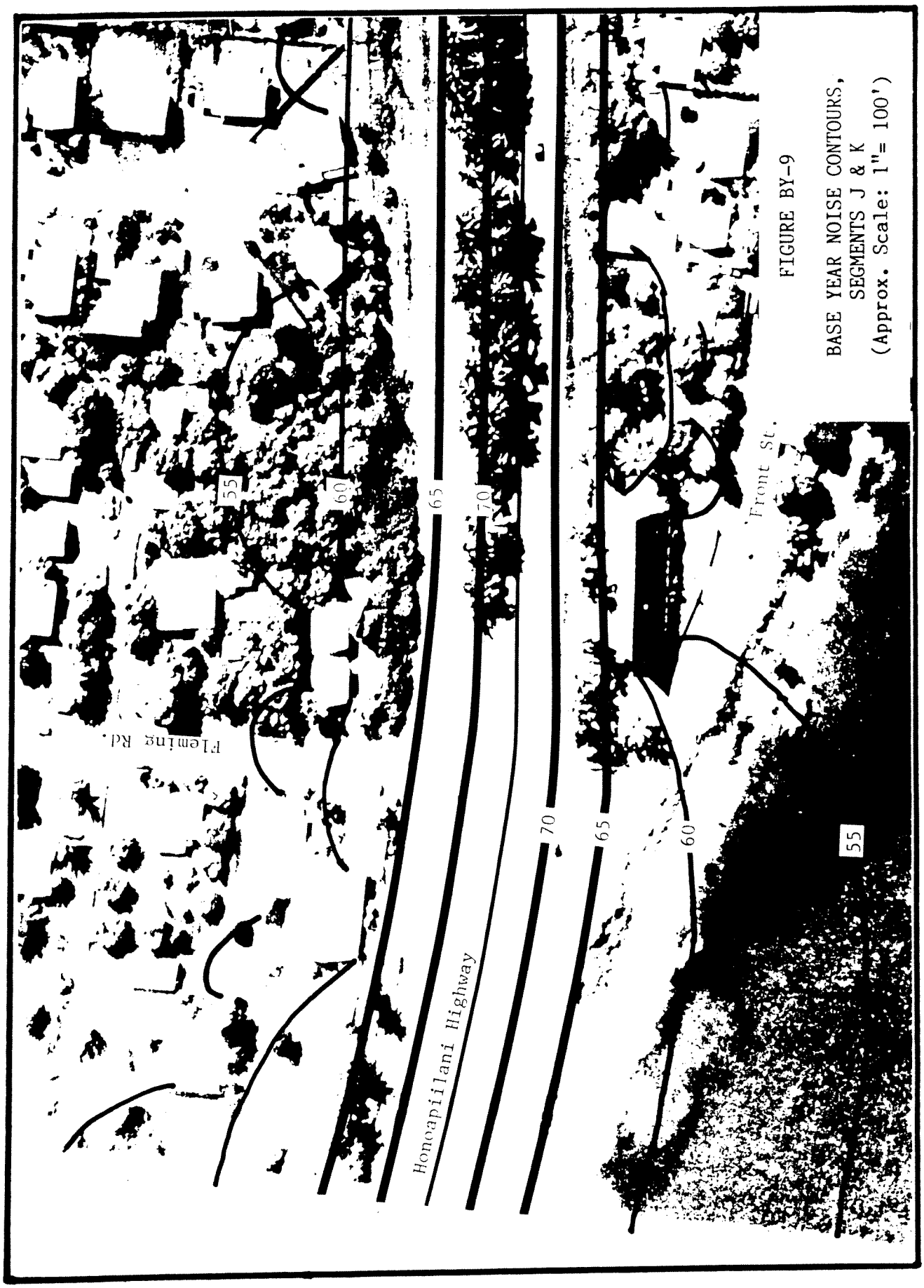


FIGURE BY-9

BASE YEAR NOISE CONTOURS,
SEGMENTS J & K
(Approx. Scale: 1"= 100')

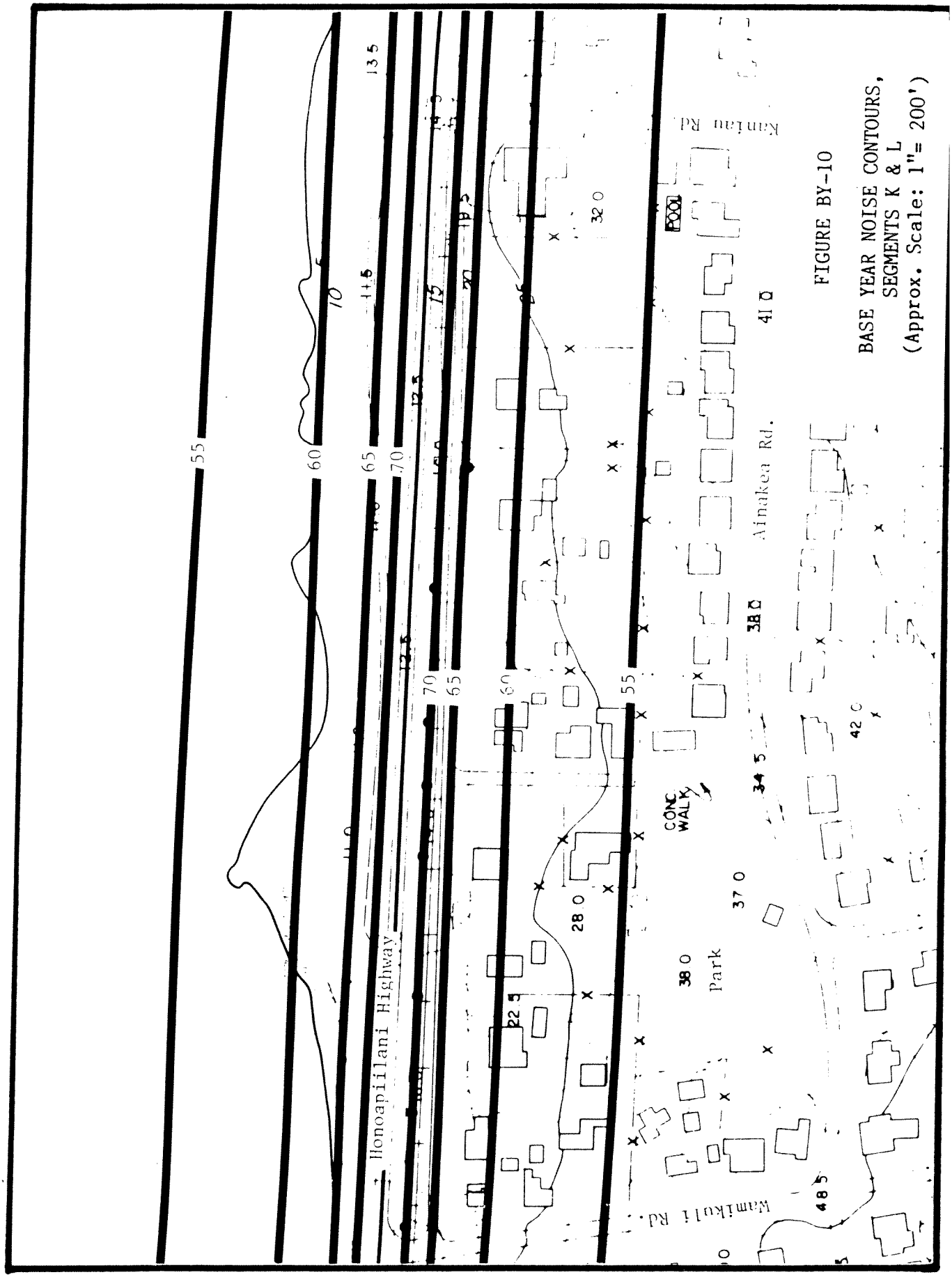


FIGURE BY-10

BASE YEAR NOISE CONTOURS,
SEGMENTS K & L
(Approx. Scale: 1"= 200')

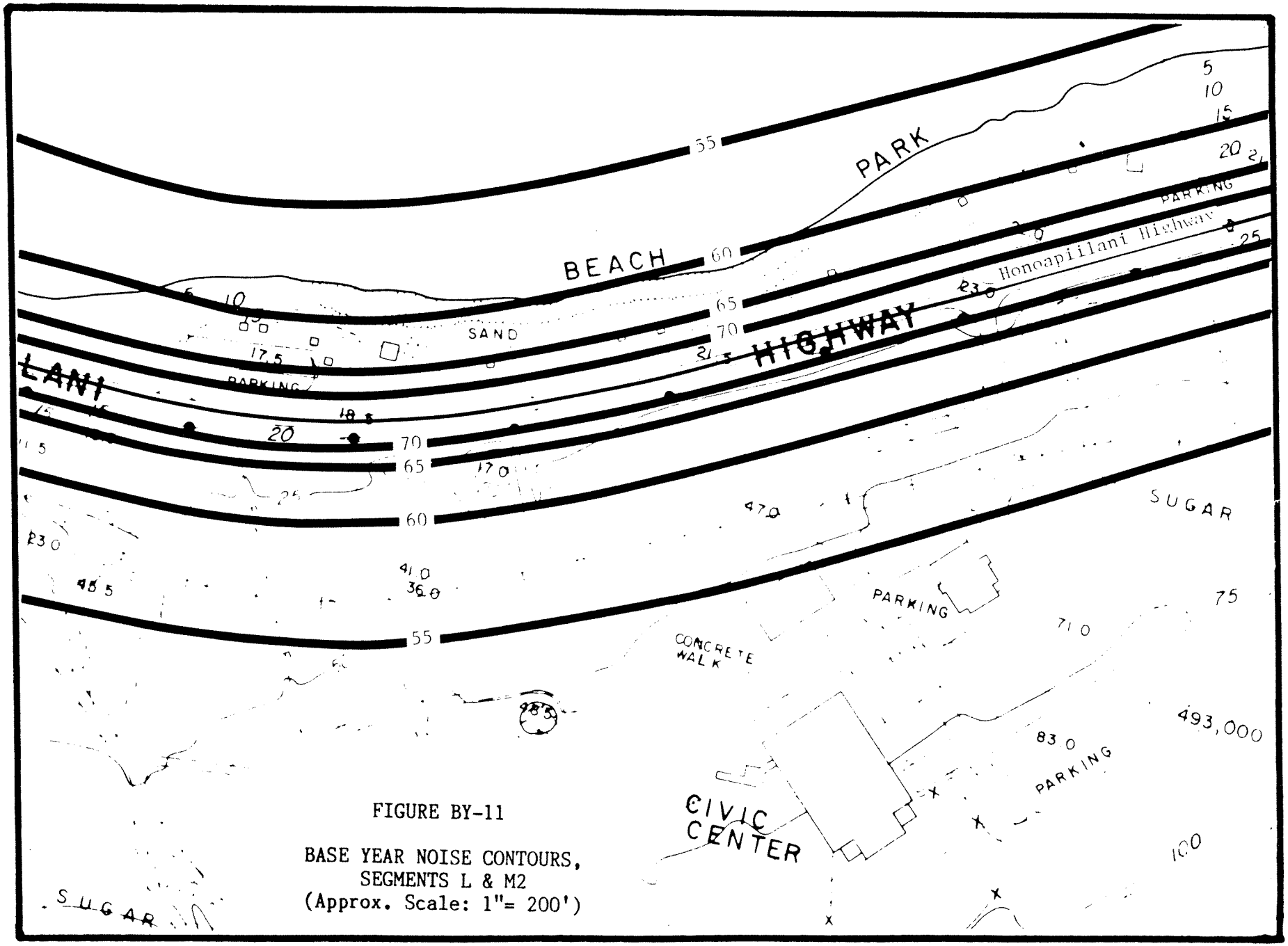


FIGURE BY-11

BASE YEAR NOISE CONTOURS,
SEGMENTS L & M2
(Approx. Scale: 1"= 200')

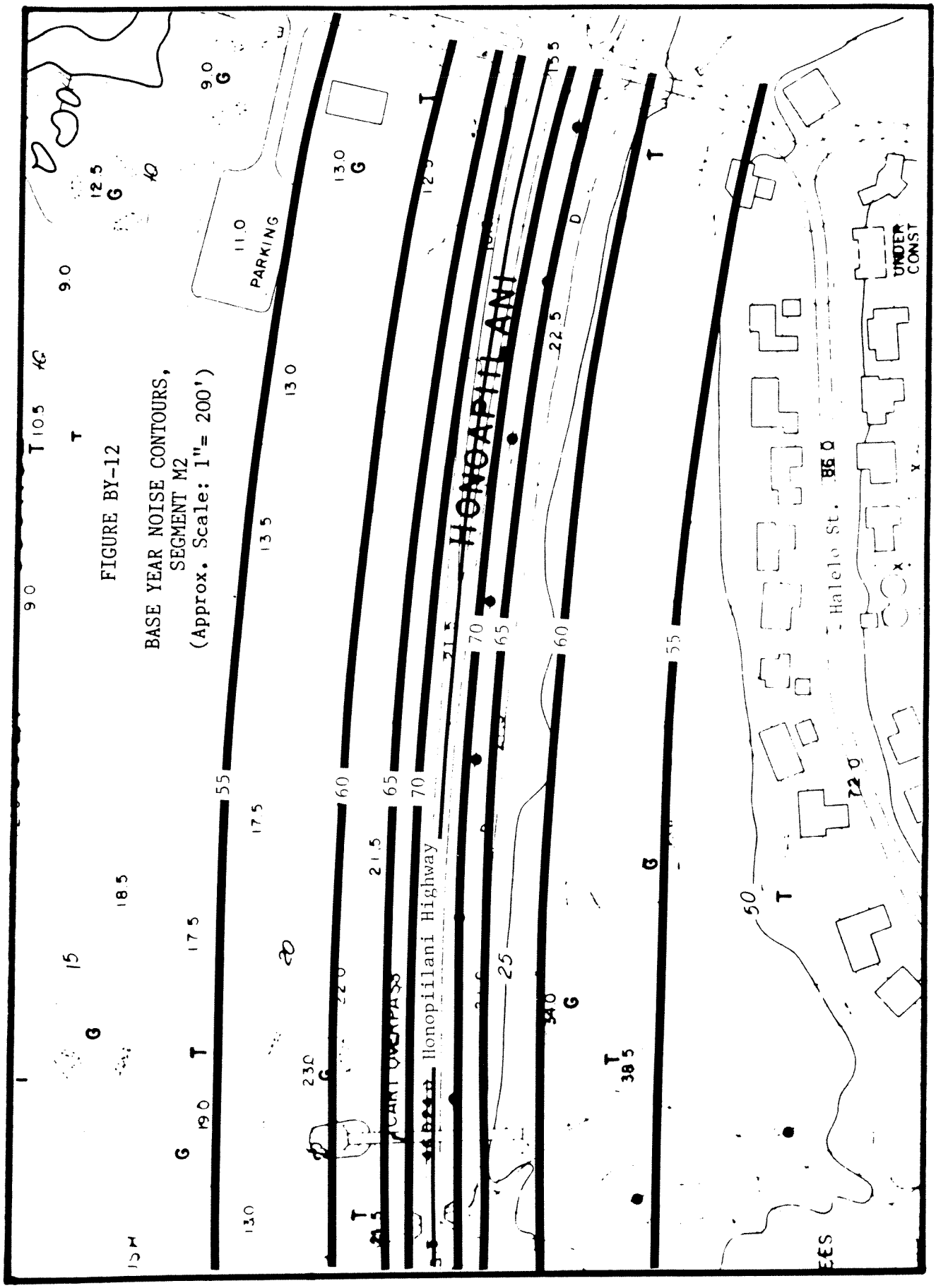


FIGURE BY-12

BASE YEAR NOISE CONTOURS,
SEGMENT M2
(Approx. Scale: 1"= 200')

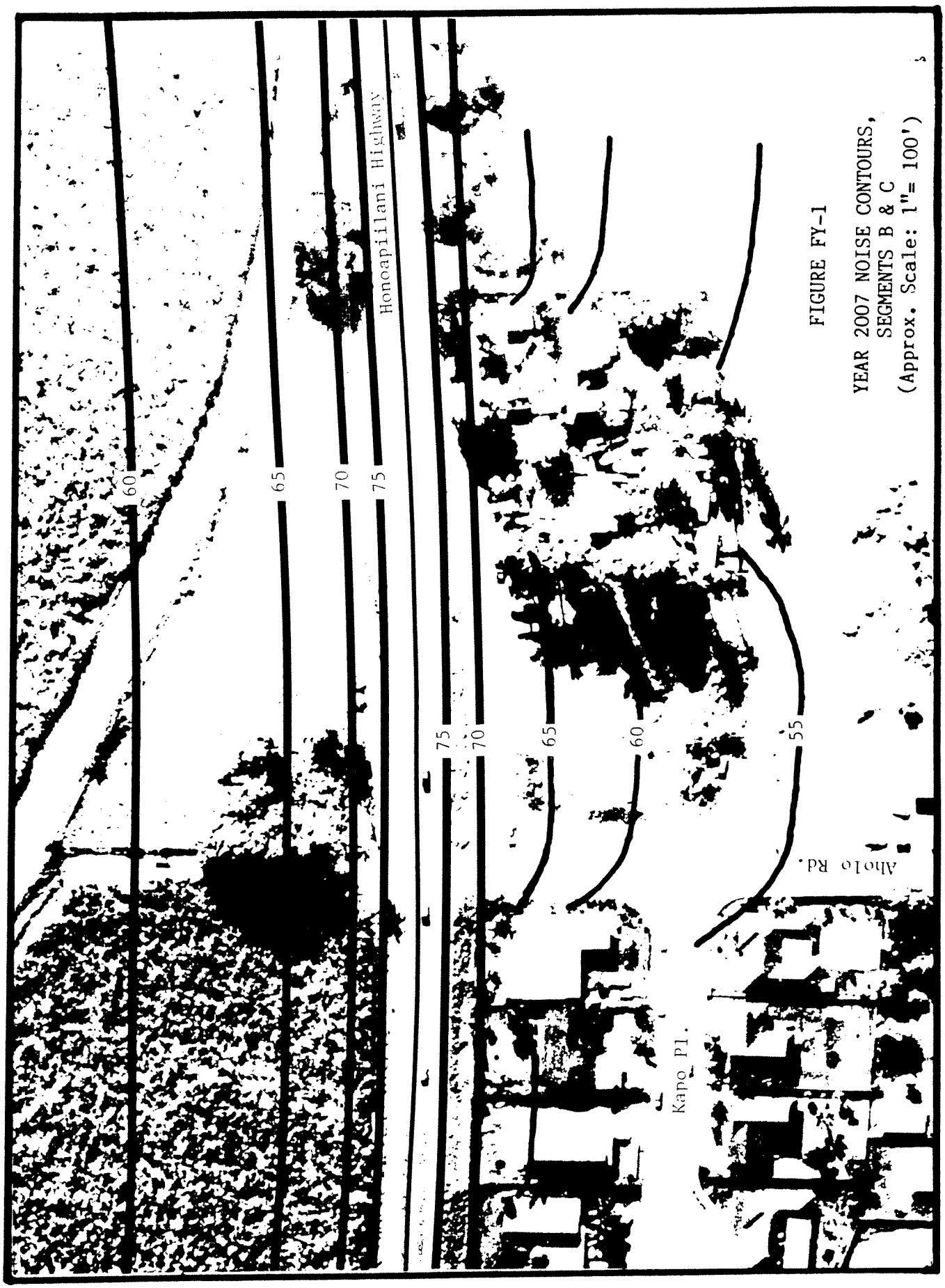


FIGURE FY-1

YEAR 2007 NOISE CONTOURS,
SEGMENTS B & C
(Approx. Scale: 1"= 100')

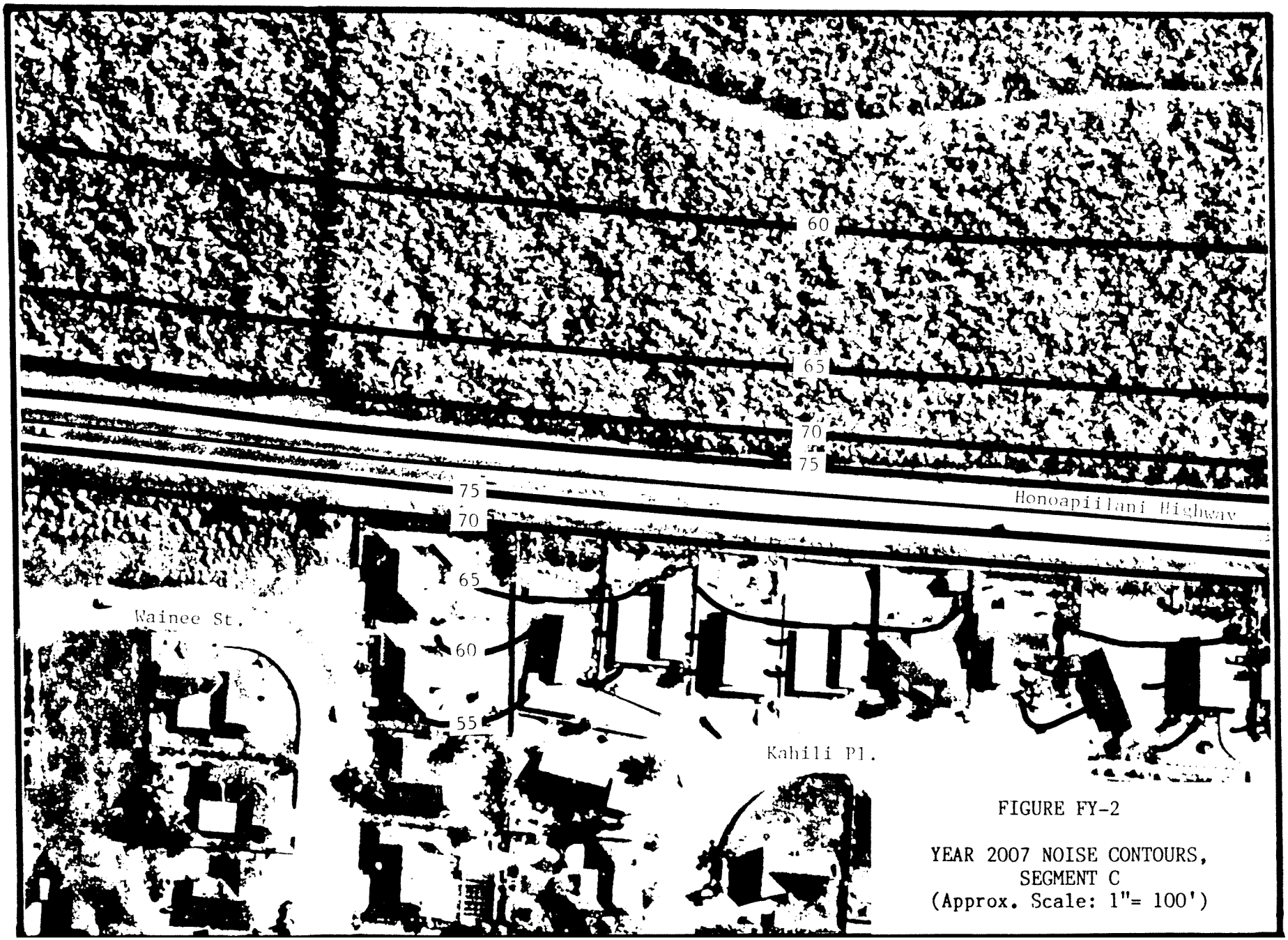


FIGURE FY-2

YEAR 2007 NOISE CONTOURS,
SEGMENT C
(Approx. Scale: 1"= 100')

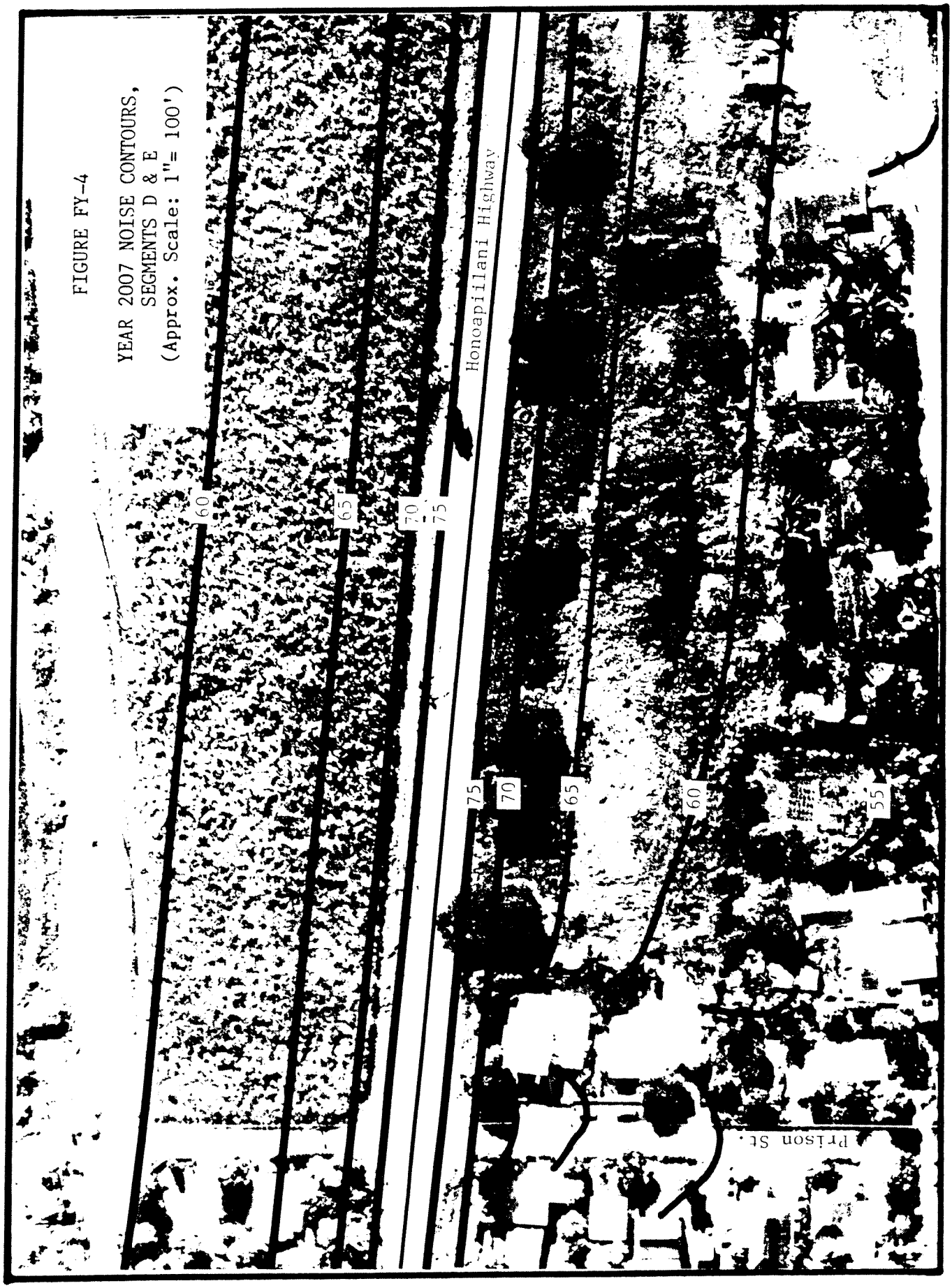


FIGURE FY-3

YEAR 2007 NOISE CONTOURS,
SEGMENTS C & D
(Approx. Scale: 1"= 100')

FIGURE FY-4

YEAR 2007 NOISE CONTOURS,
SEGMENTS D & E
(Approx. Scale: 1"= 100')



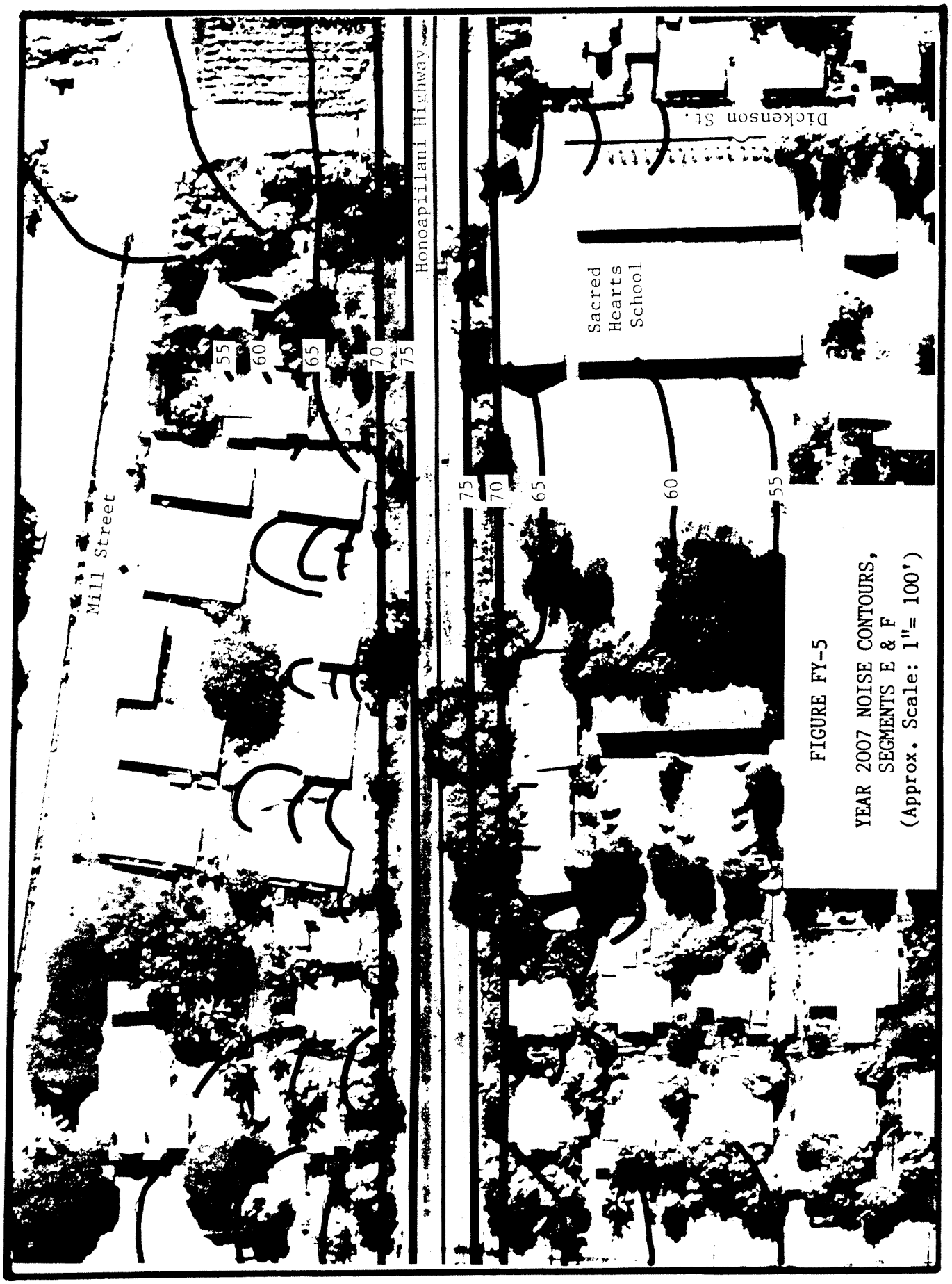


FIGURE FY-5

YEAR 2007 NOISE CONTOURS,
SEGMENTS E & F
(Approx. Scale: 1"= 100')

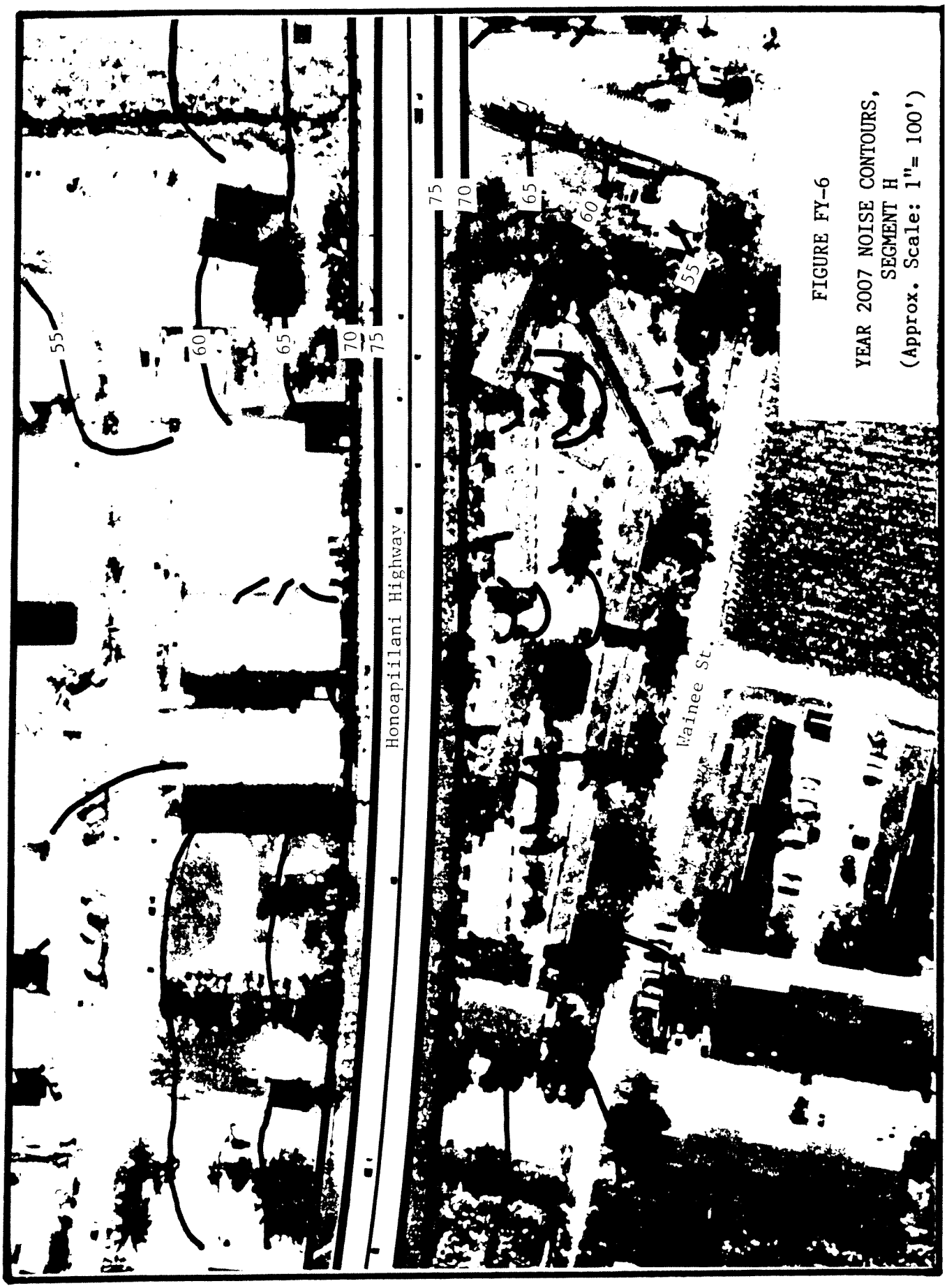


FIGURE FY-6

YEAR 2007 NOISE CONTOURS,
SEGMENT H
(Approx. Scale: 1"= 100')



FIGURE FY-7

YEAR 2007 NOISE CONTOURS,
SEGMENTS I & J
(Approx. Scale: 1"= 100')

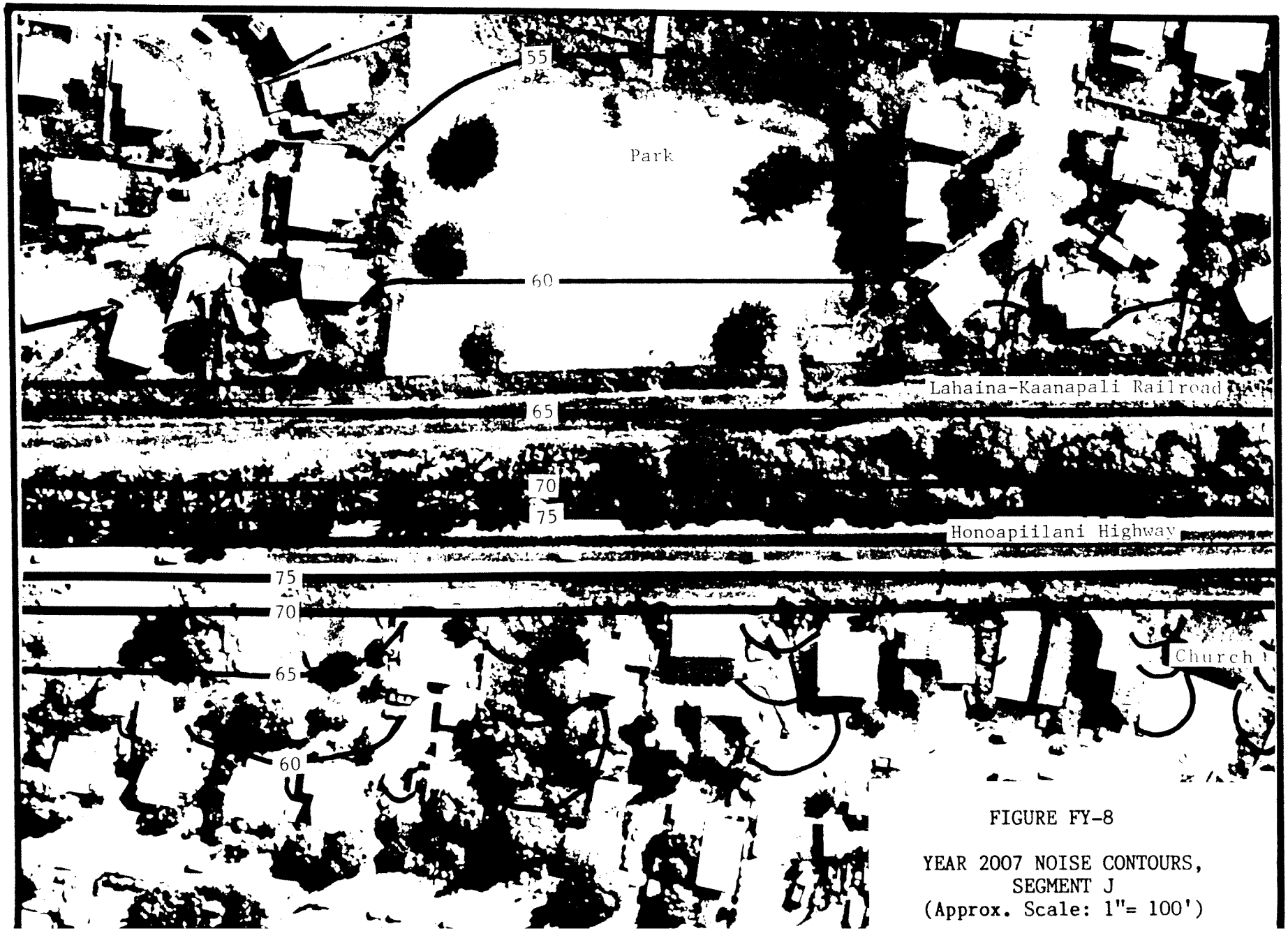


FIGURE FY-8

YEAR 2007 NOISE CONTOURS,
SEGMENT J
(Approx. Scale: 1"= 100')

FIGURE FY-9

YEAR 2007 NOISE CONTOURS,
SEGMENTS J & K
(Approx. Scale: 1"= 100')

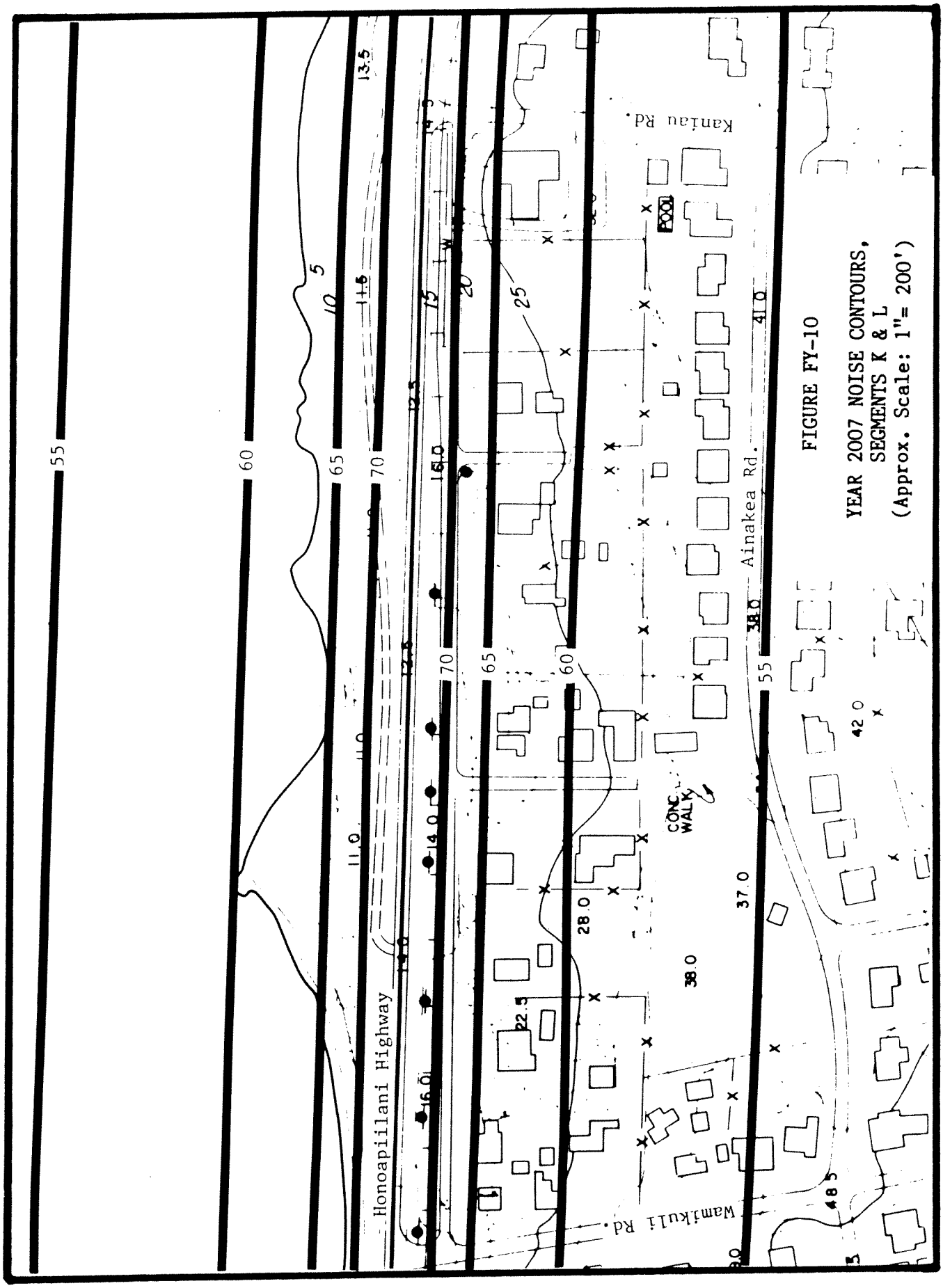


FIGURE FY-10

YEAR 2007 NOISE CONTOURS,
SEGMENTS K & L
(Approx. Scale: 1"= 200')

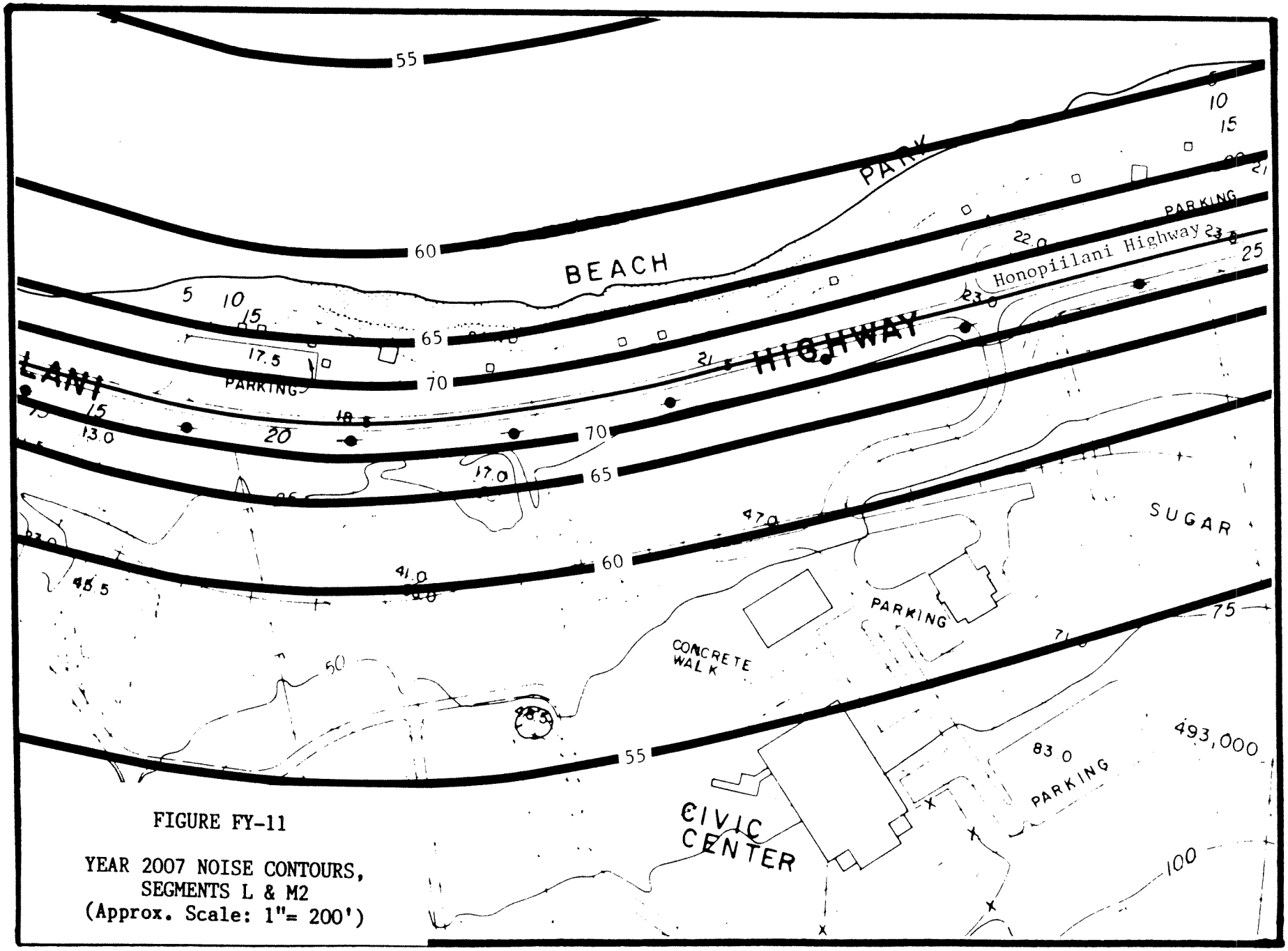


FIGURE FY-11

YEAR 2007 NOISE CONTOURS,
SEGMENTS L & M2
(Approx. Scale: 1"= 200')

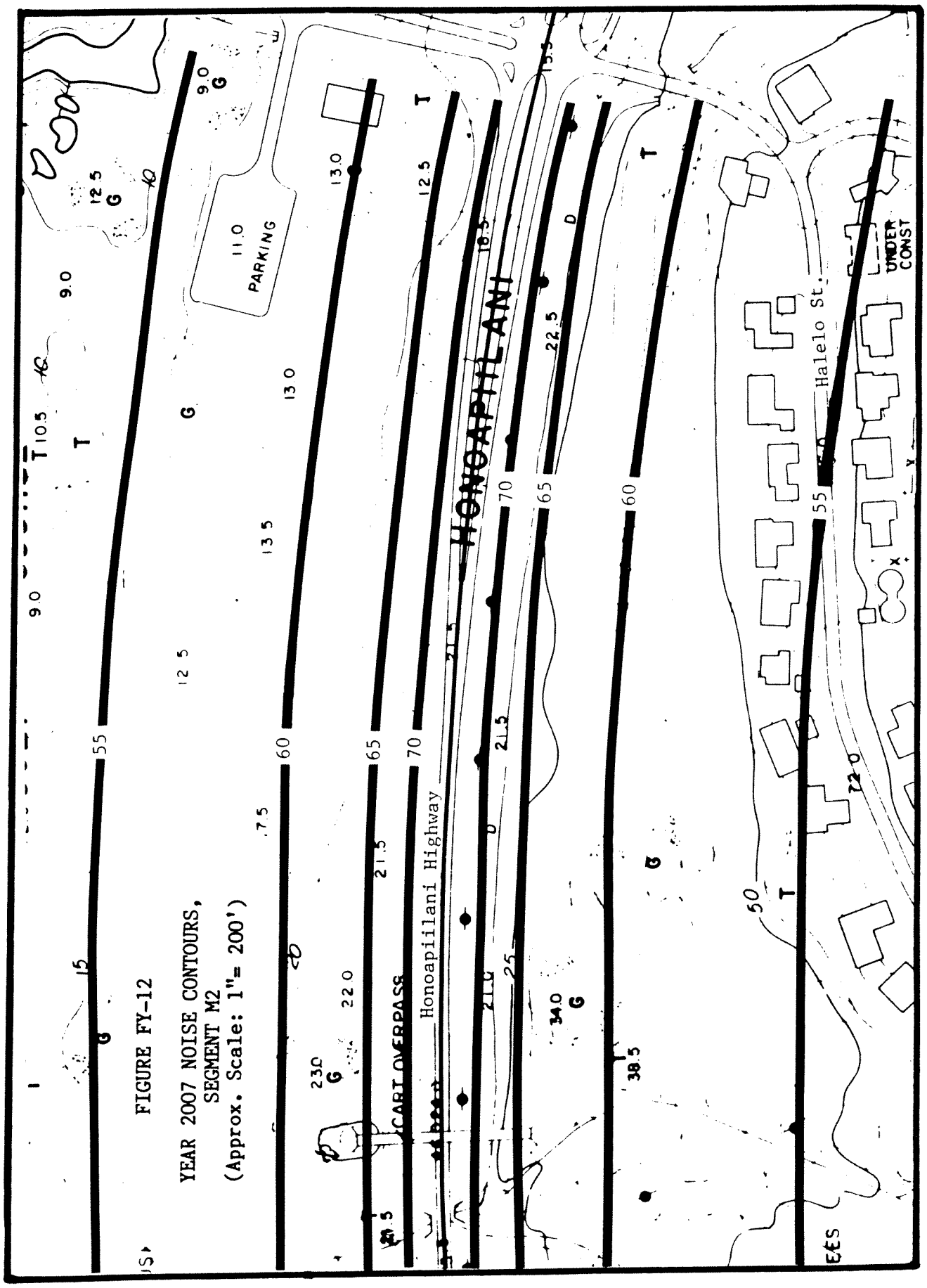


FIGURE FY-12
YEAR 2007 NOISE CONTOURS,
SEGMENT M2
(Approx. Scale: 1"= 200')
PARKING
11.0
HONOAPIILANI
Honoapiilani Highway
Halelo St.
UNDER CONST

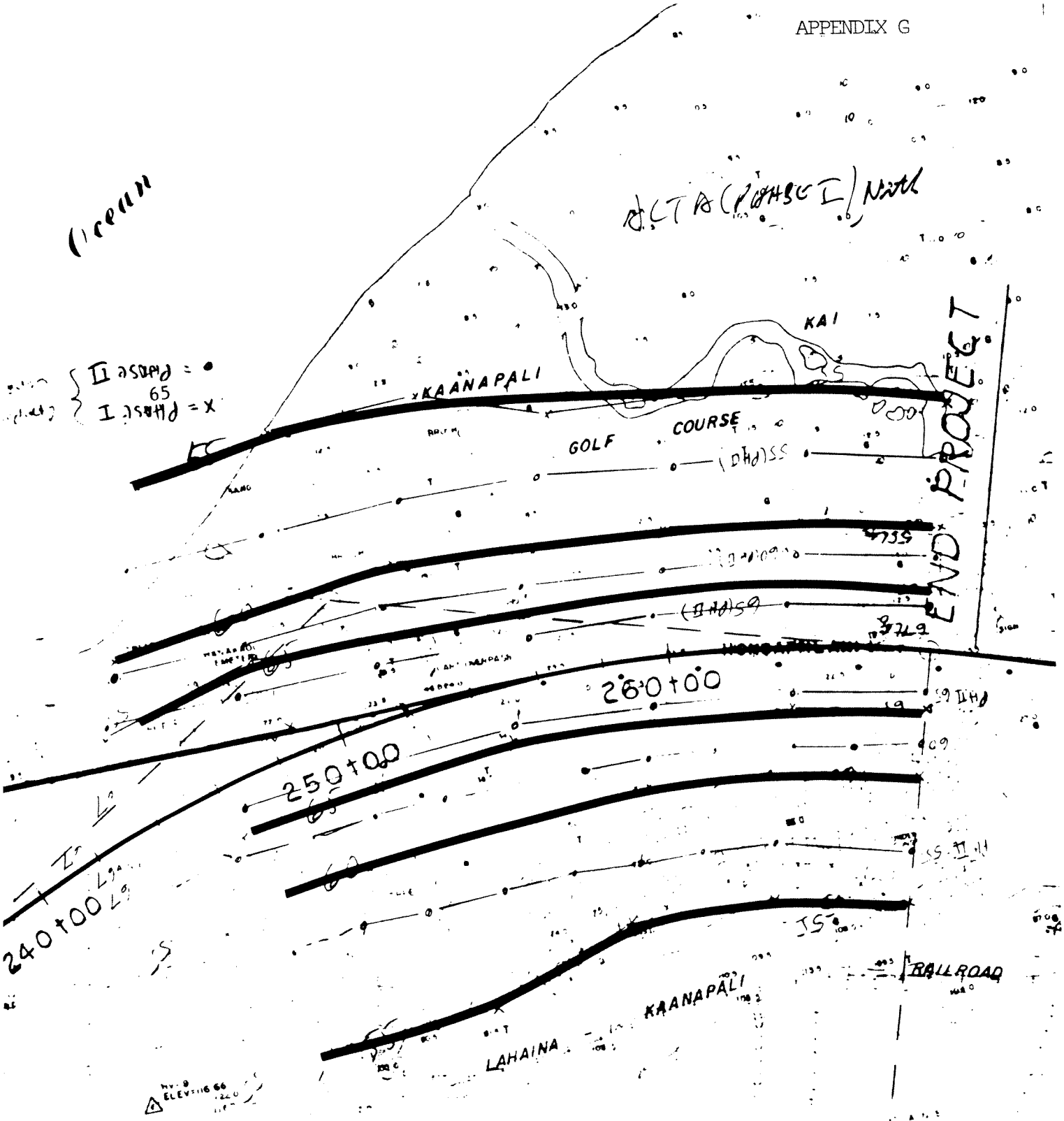


FIGURE FY-13

YEAR 2007 NOISE CONTOURS,
NORTH END, REALIGNMENT A (PH. I)
(Approx. Scale: 1"= 400')

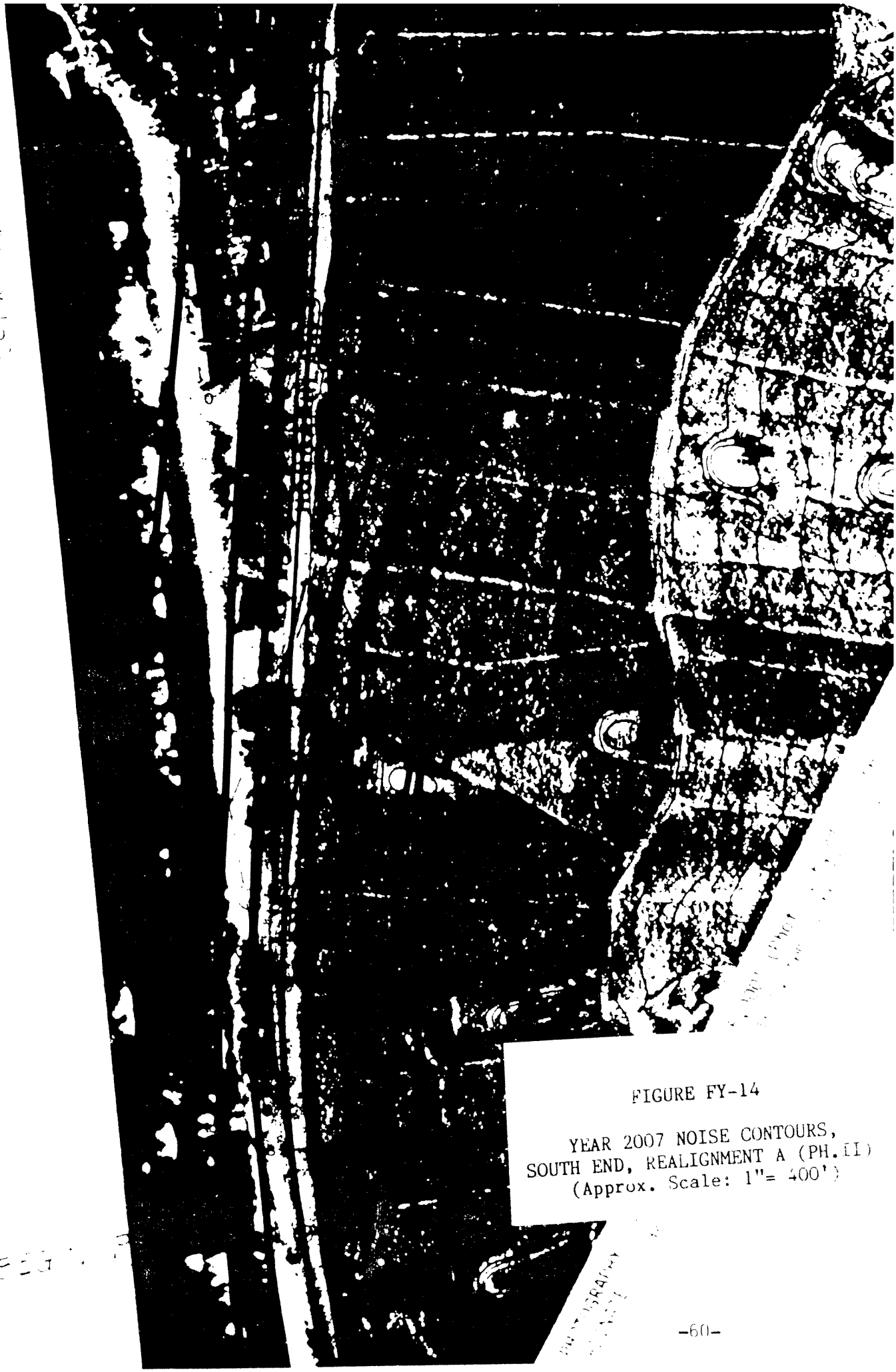


FIGURE FY-14

YEAR 2007 NOISE CONTOURS,
SOUTH END, REALIGNMENT A (PH. II)
(Approx. Scale: 1"= 400')

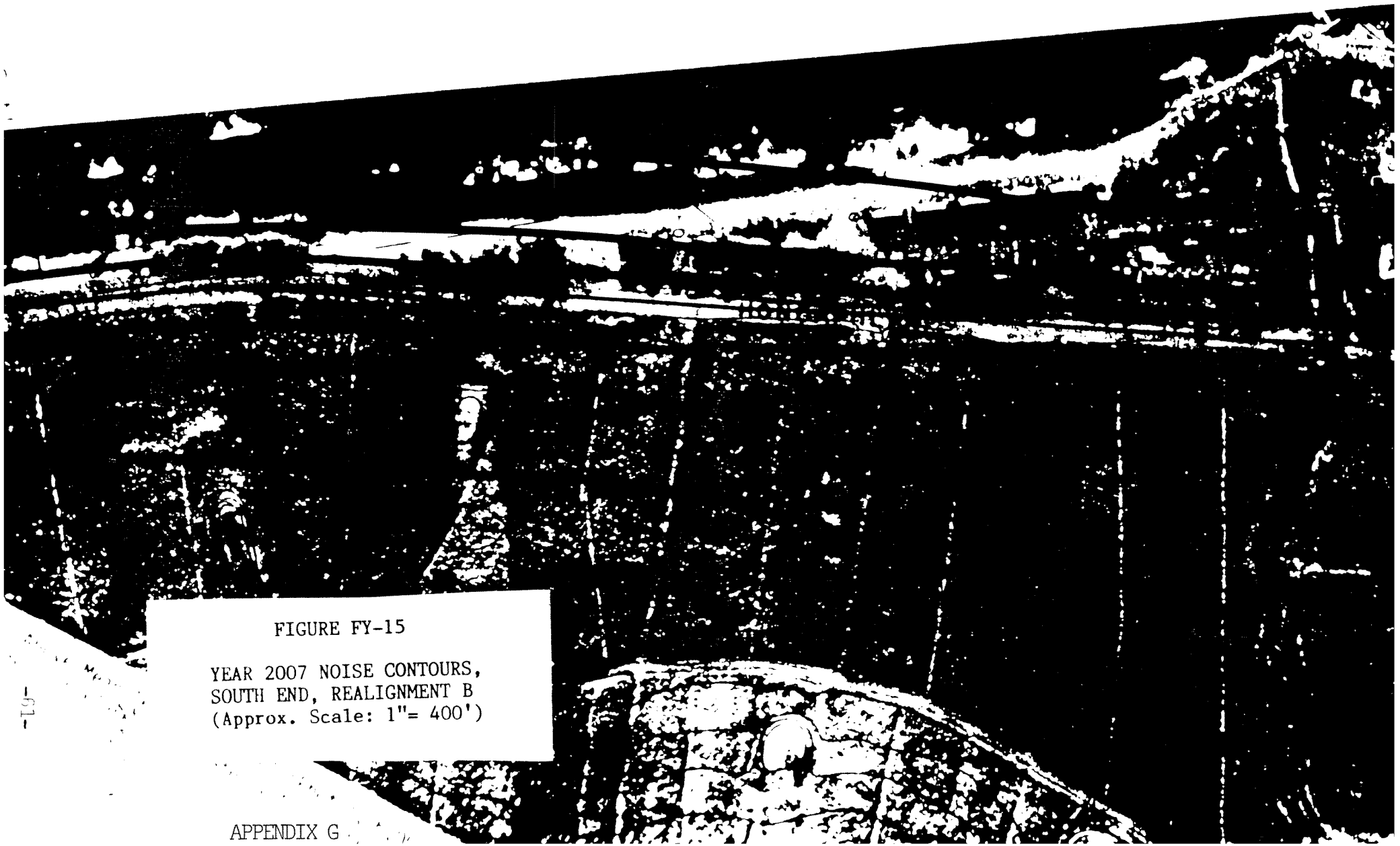


FIGURE FY-15

YEAR 2007 NOISE CONTOURS,
SOUTH END, REALIGNMENT B
(Approx. Scale: 1"= 400')

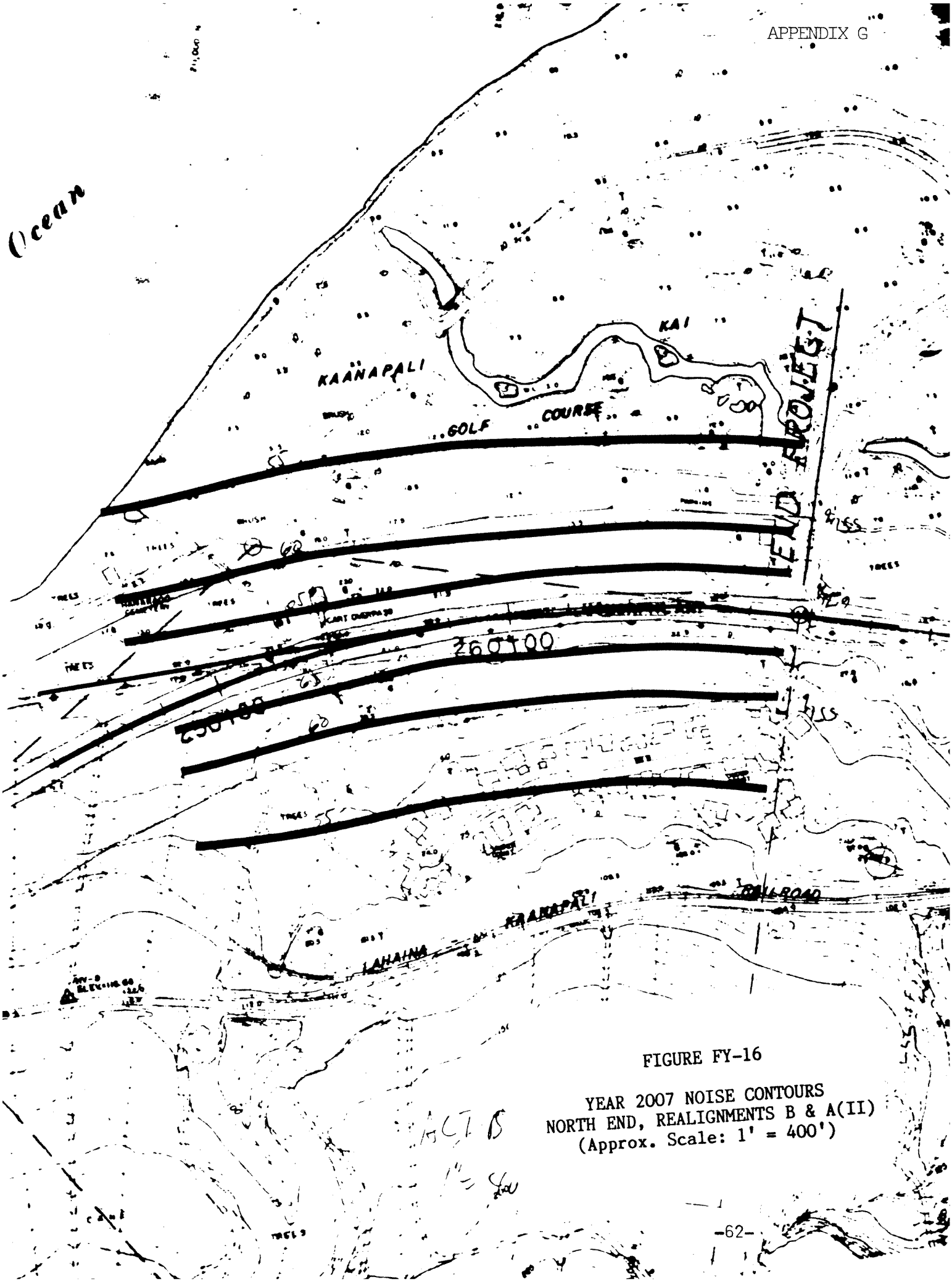


FIGURE FY-16

YEAR 2007 NOISE CONTOURS
NORTH END, REALIGNMENTS B & A(II)
(Approx. Scale: 1' = 400')

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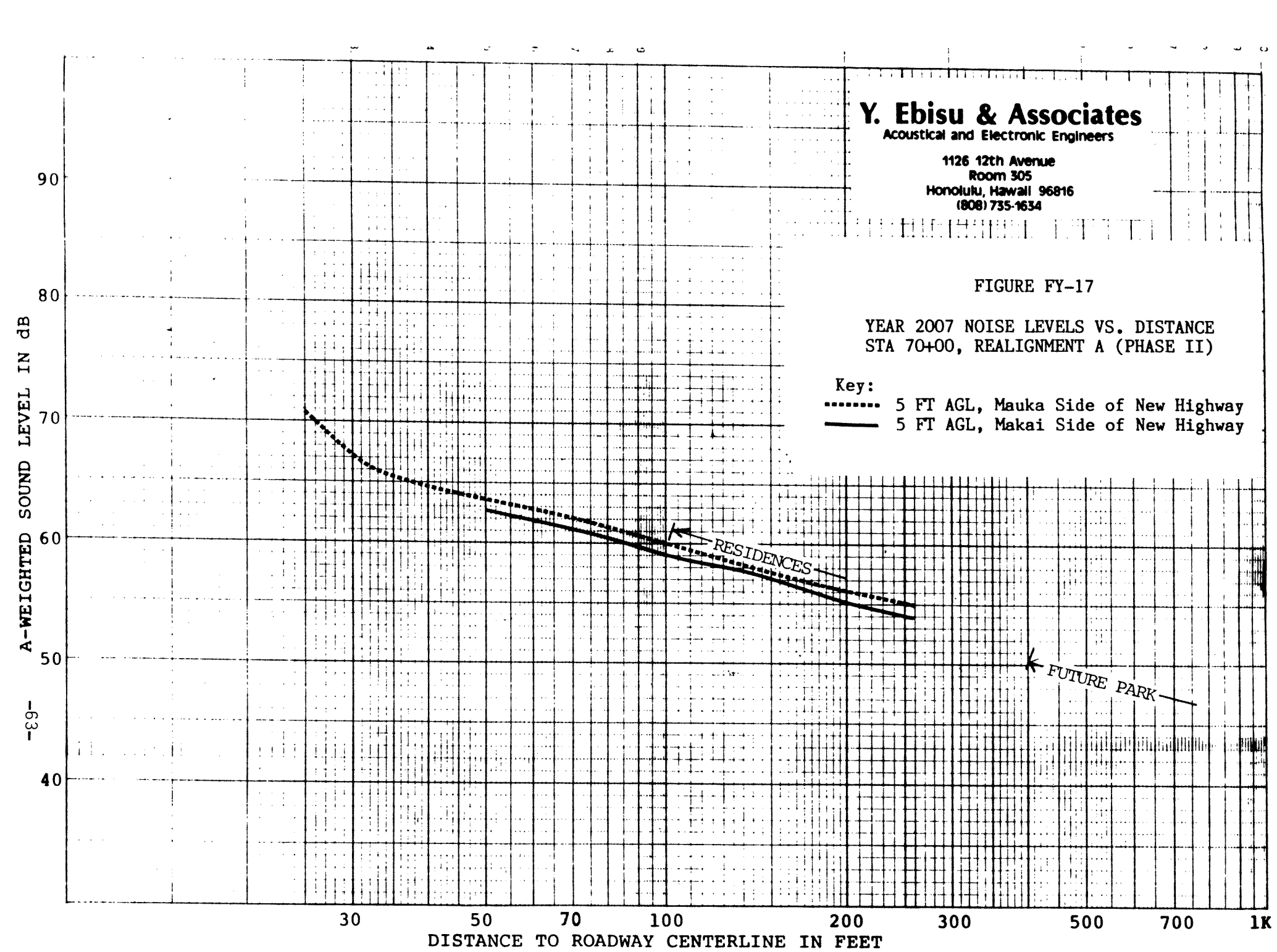
FIGURE FY-17

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 70+00, REALIGNMENT A (PHASE II)



APPENDIX G

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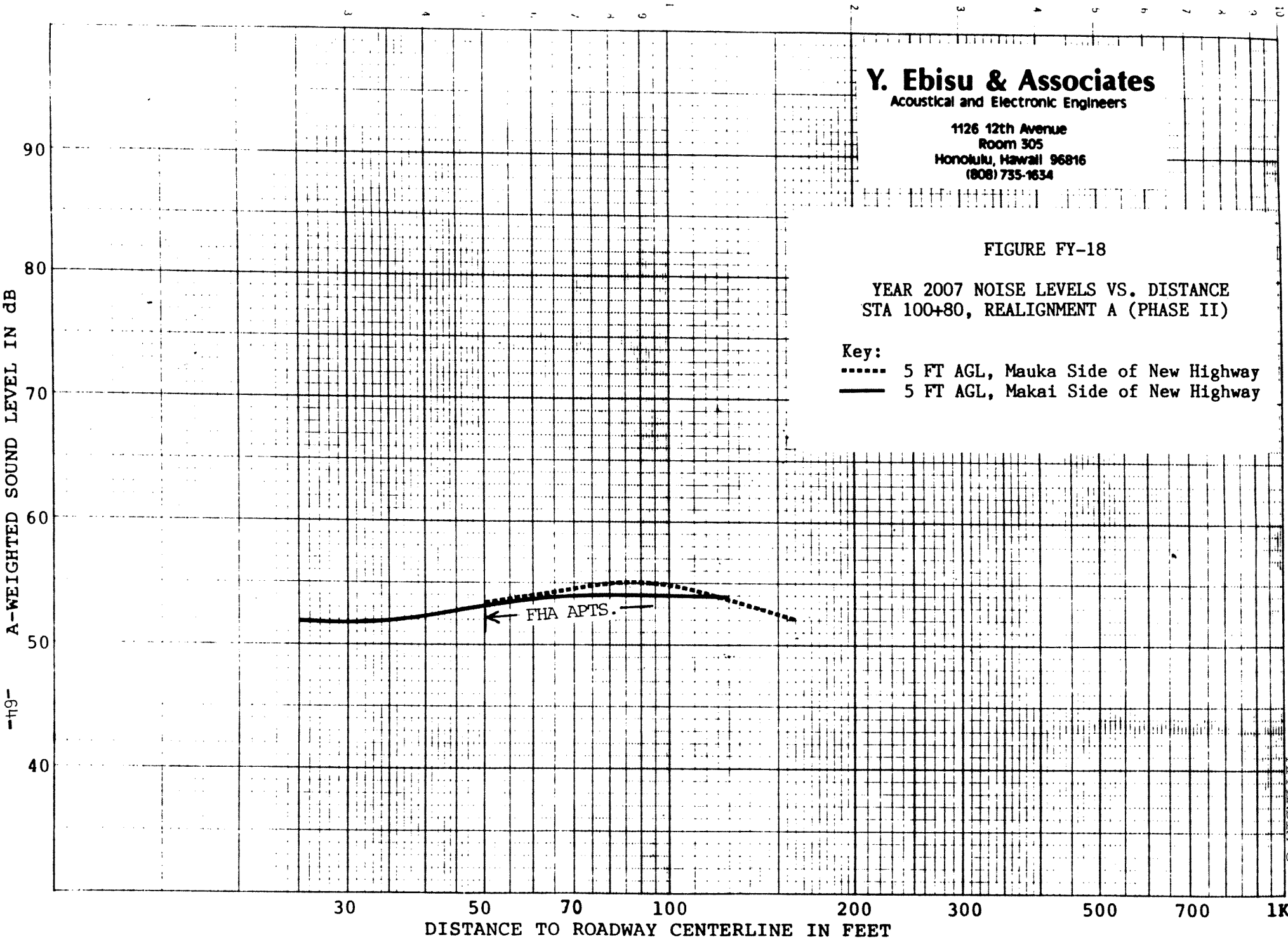
FIGURE FY-18

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 100+80, REALIGNMENT A (PHASE II)

Key:
------ 5 FT AGL, Mauka Side of New Highway
——— 5 FT AGL, Makai Side of New Highway



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Room 305
Honolulu, Hawaii 96816
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FIGURE FY-19

YEAR 2007 UPPER FLOOR NOISE LEVELS
VS. DISTANCE, STA 100+80
REALIGNMENT A (PHASE II)

Key:
——— 15 FT AGL, Makai Side of New Highway

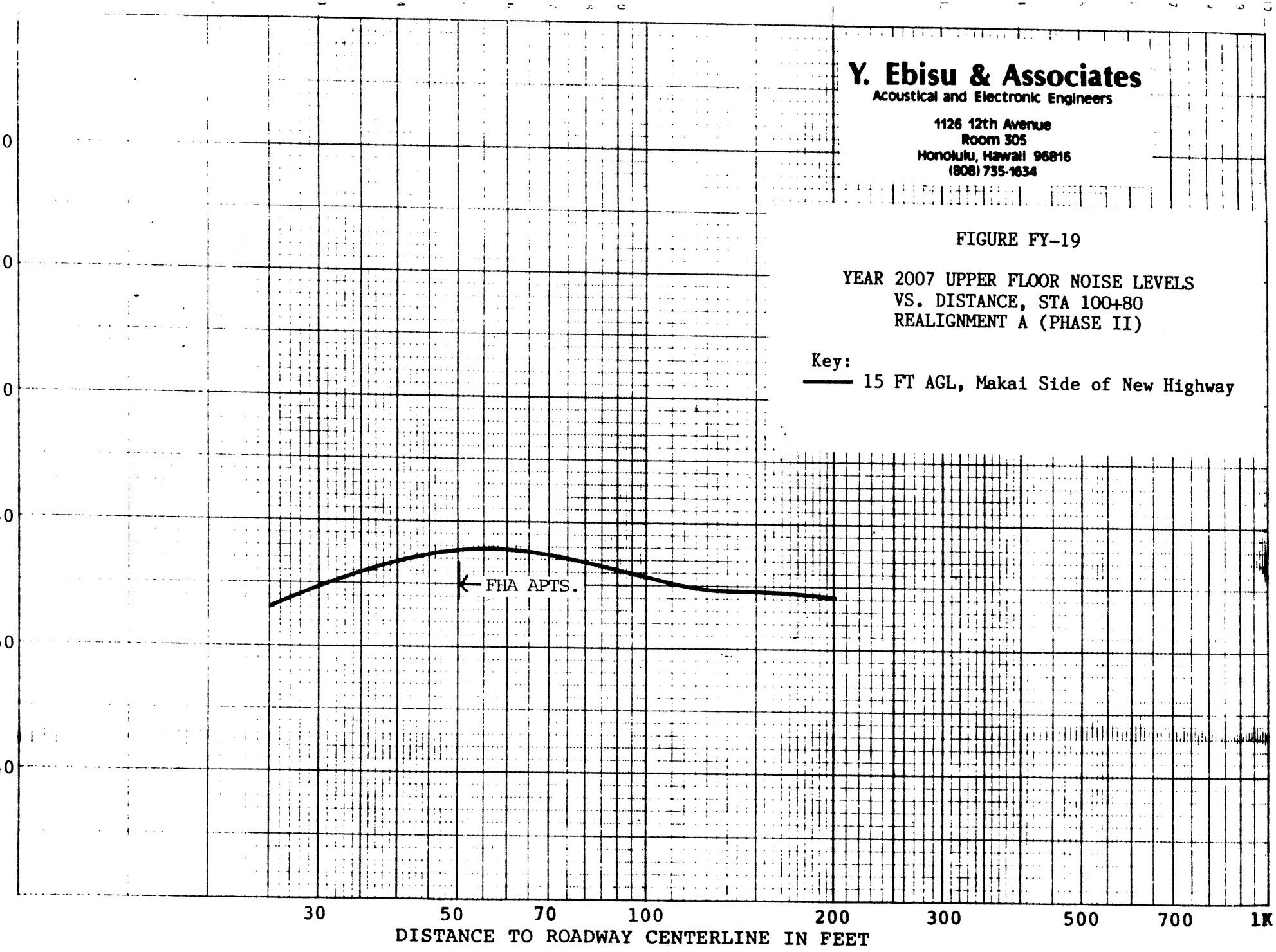

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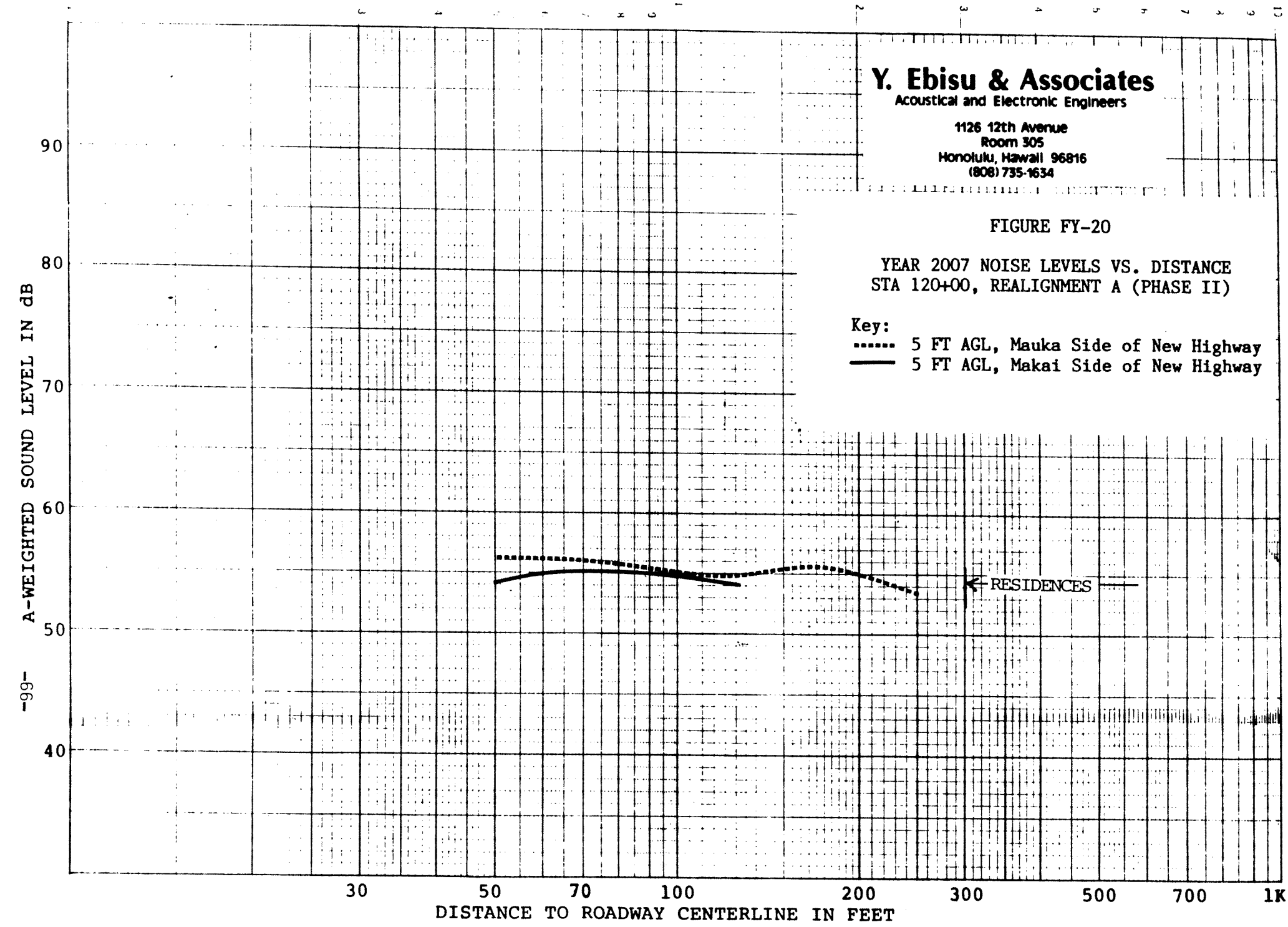
FIGURE FY-20

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 120+00, REALIGNMENT A (PHASE II)



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Room 305
Honolulu, Hawaii 96816
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FIGURE FY-21

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 130+00, REALIGNMENT A (PHASE I)

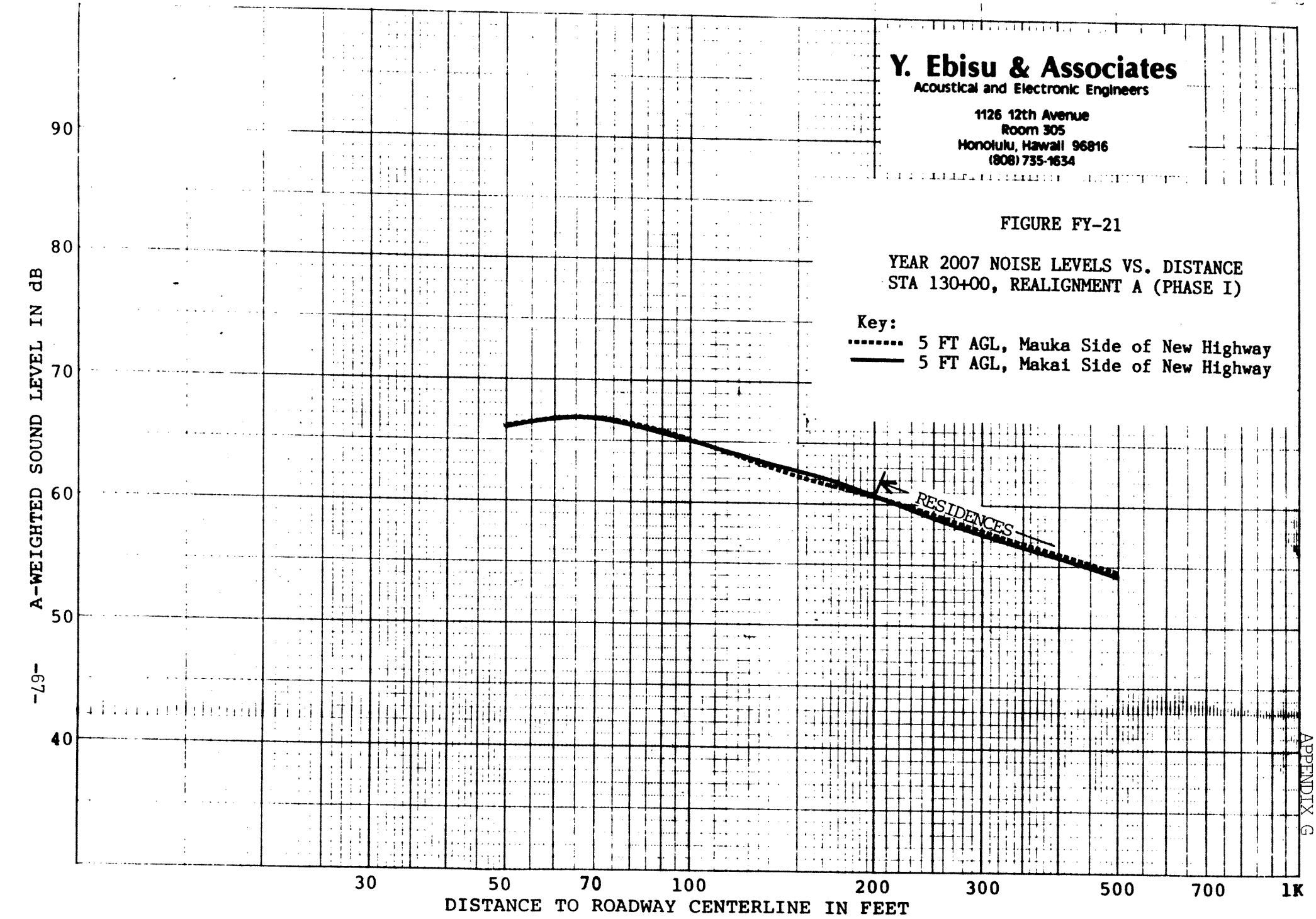

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FIGURE FY-22

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 140+00, REALIGNMENT A (PHASE I)

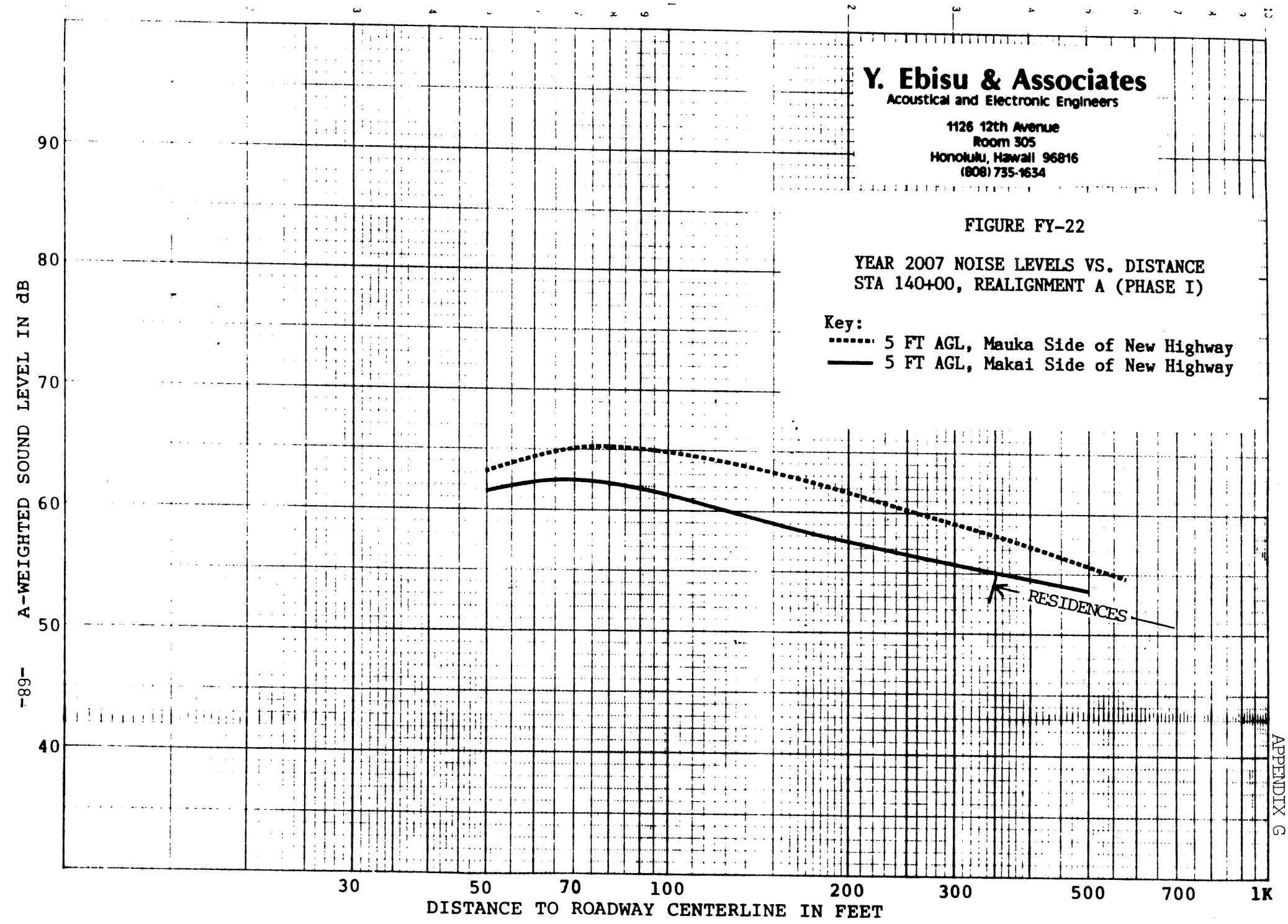

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FIGURE FY-23

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 150+00, REALIGNMENT A (PHASE I)

Key:
..... 5 FT AGL, Mauka Side of New Highway
——— 5 FT AGL, Makai Side of New Highway

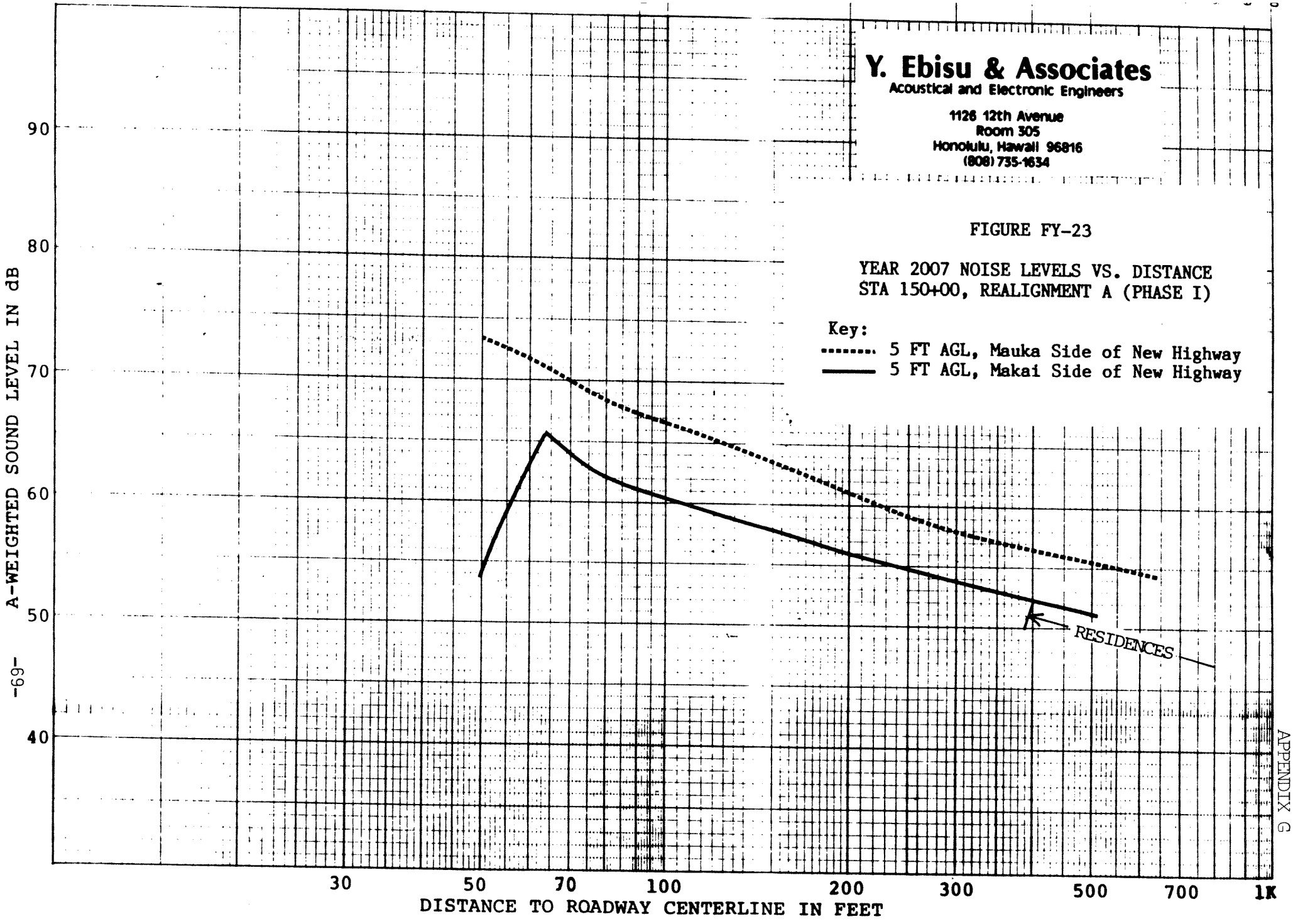

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FIGURE FY-24

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 170+00, REALIGNMENT A (PHASE I)

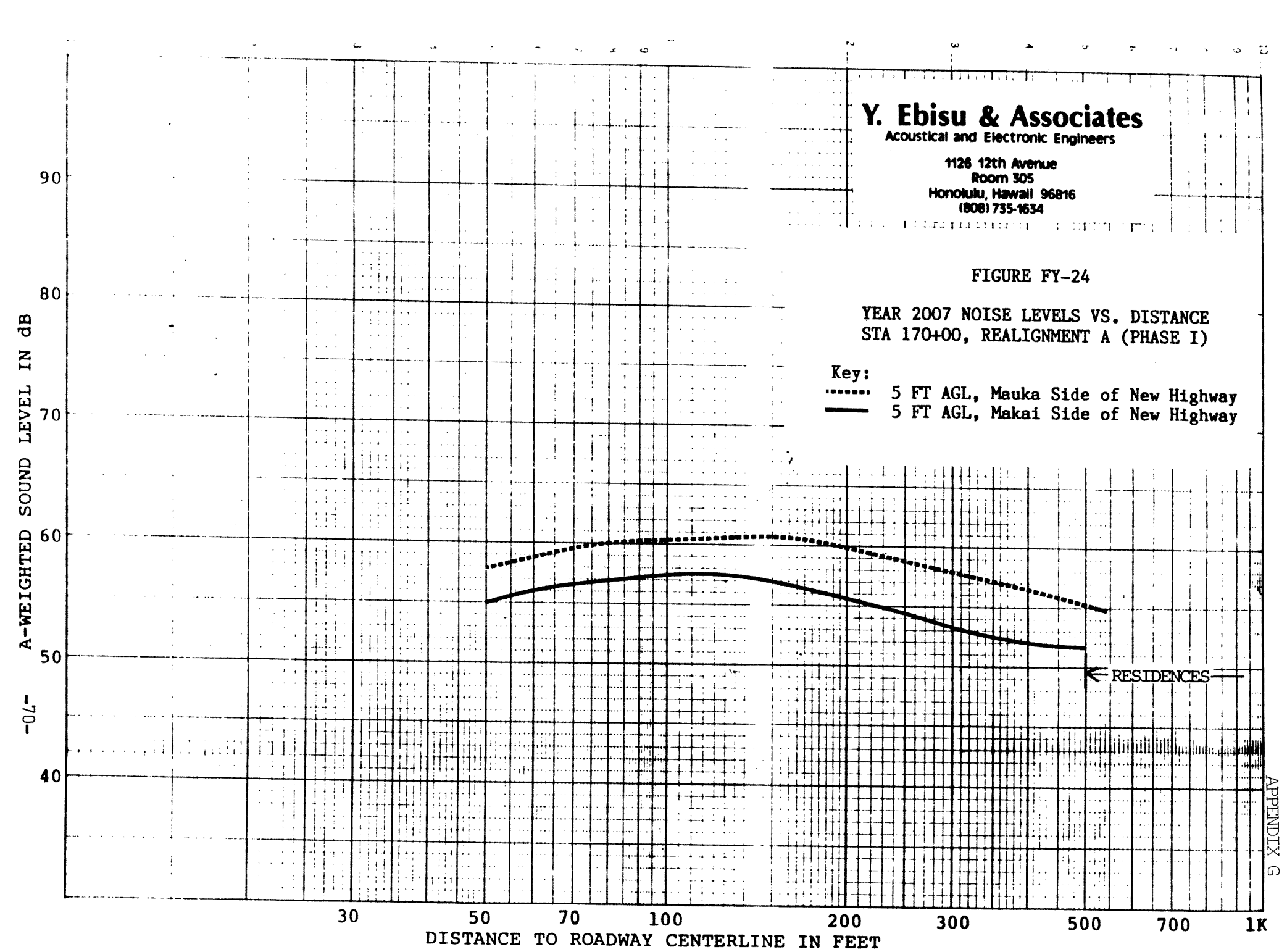

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FIGURE FY-25

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 180+00, REALIGNMENT A (PHASE I)

Key:
..... 5 FT AGL, Mauka Side of New Highway
——— 5 FT AGL, Makai Side of New Highway

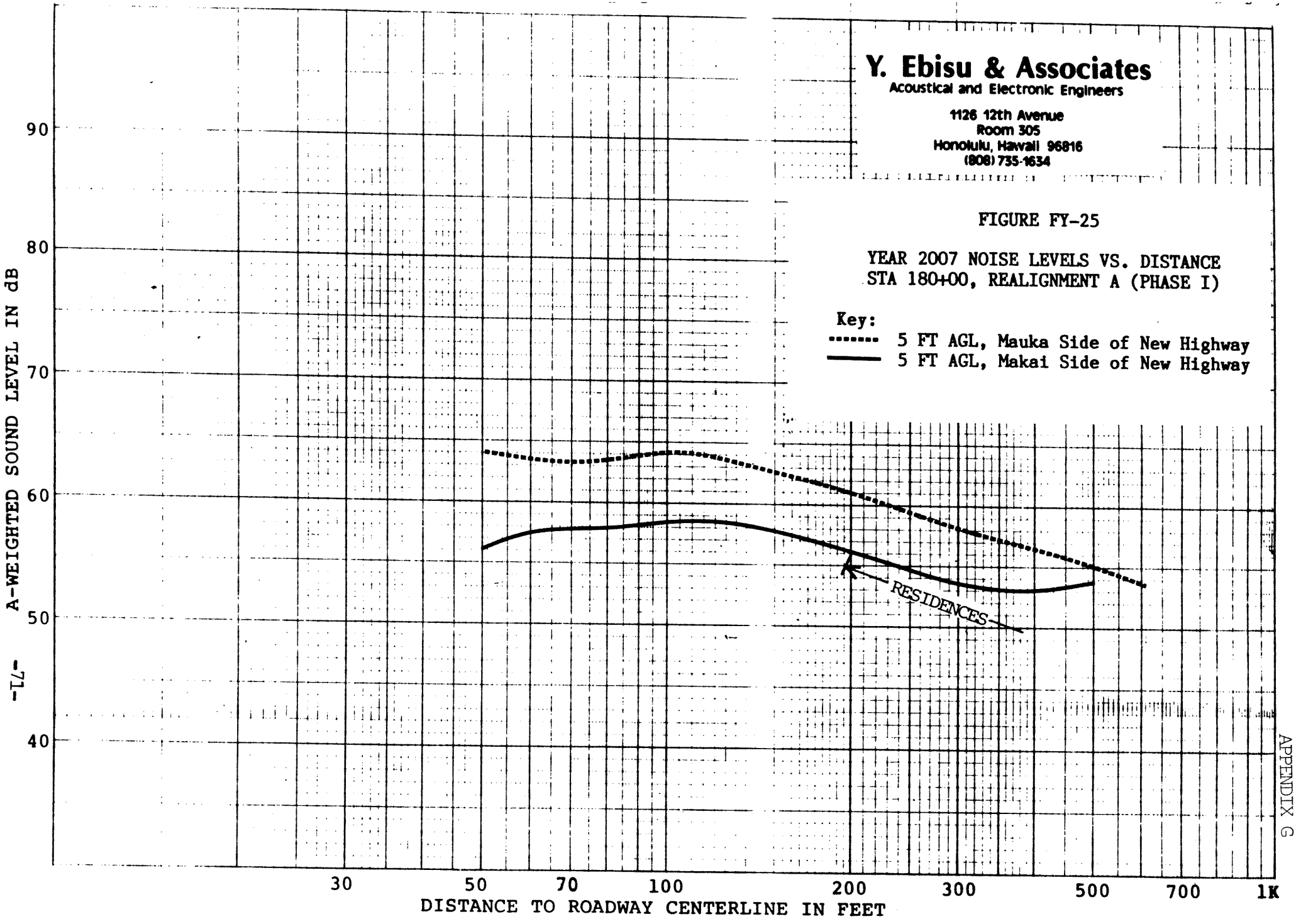

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FIGURE FY-26

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 190+00, REALIGNMENT A (PHASE I)

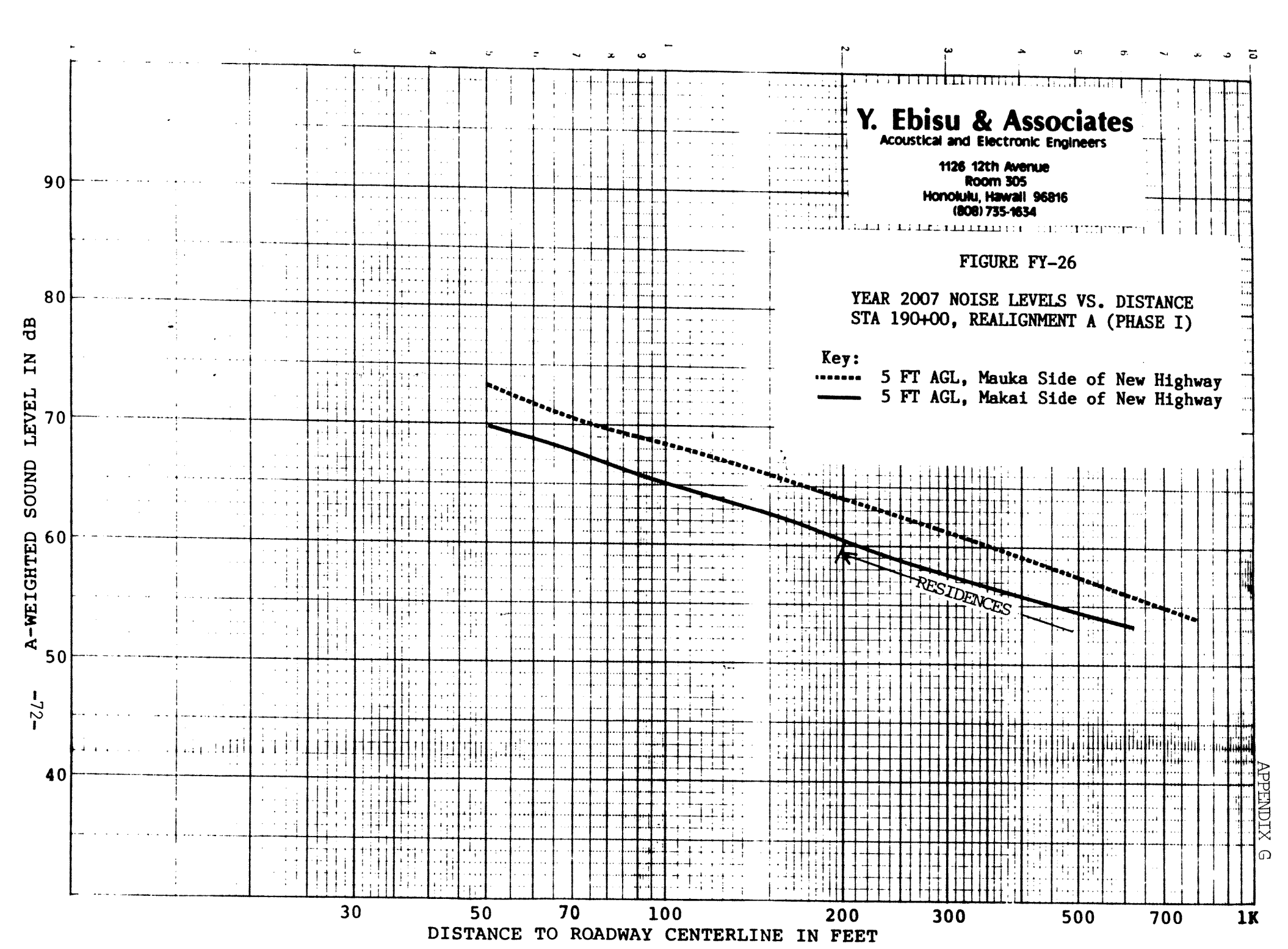

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FIGURE FY-27

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 220+00, REALIGNMENT A (PHASE I)

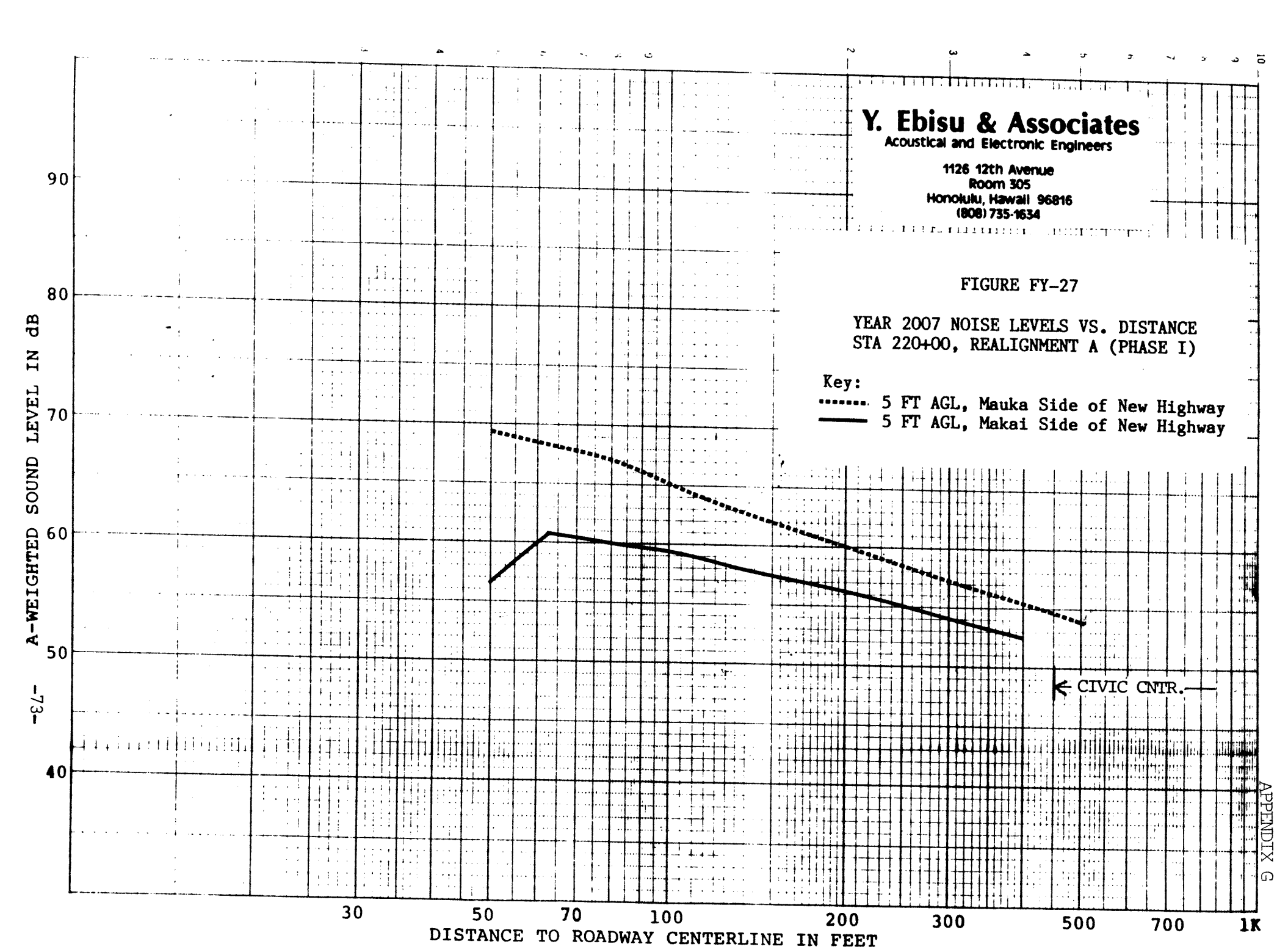

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FIGURE FY-28

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 70+00, REALIGNMENT B

Key:
..... 5 FT AGL, Mauka Side of New Highway
——— 5 FT AGL, Makai Side of New Highway

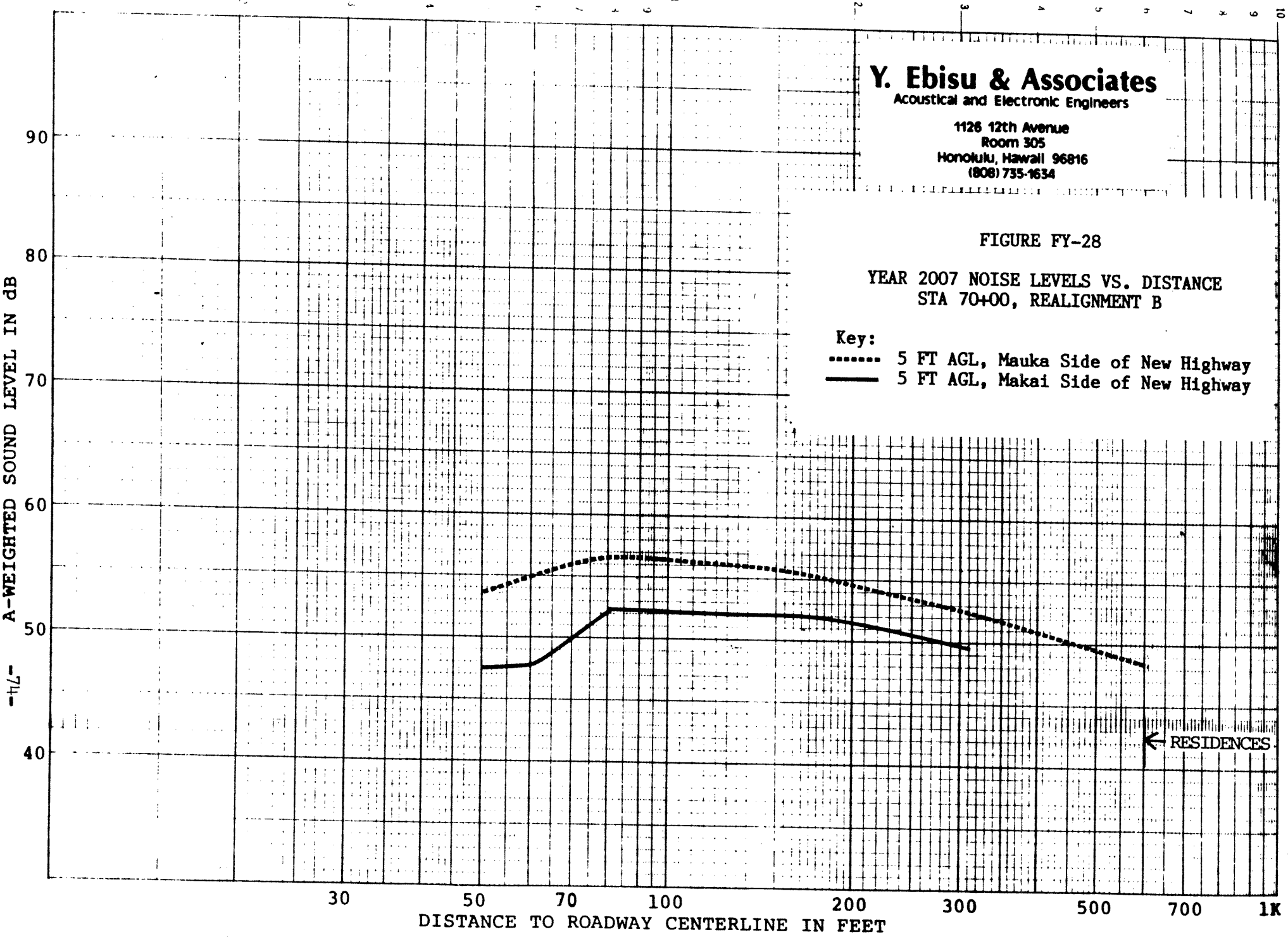

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FIGURE FY-29

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 130+00, REALIGNMENT B

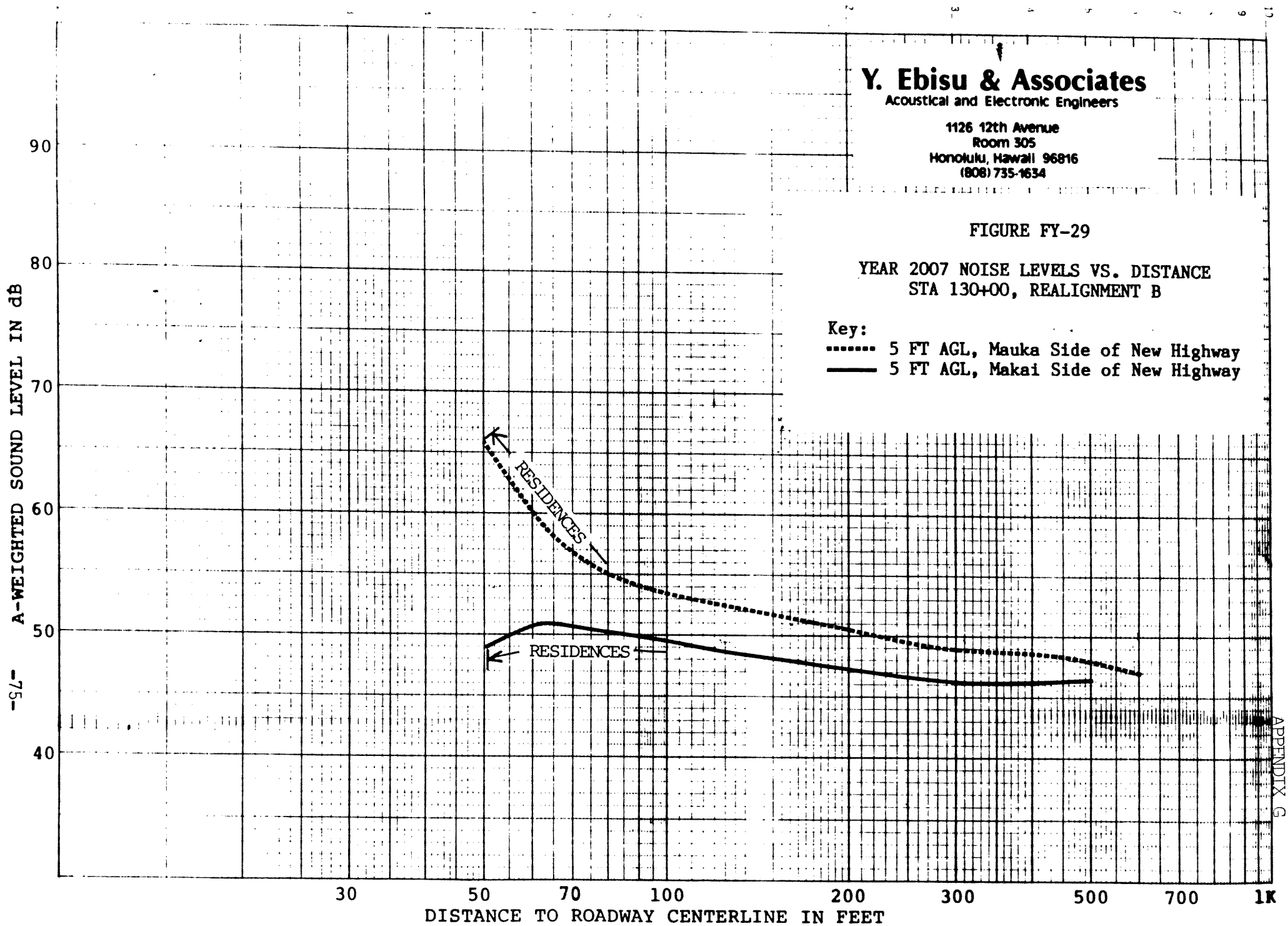

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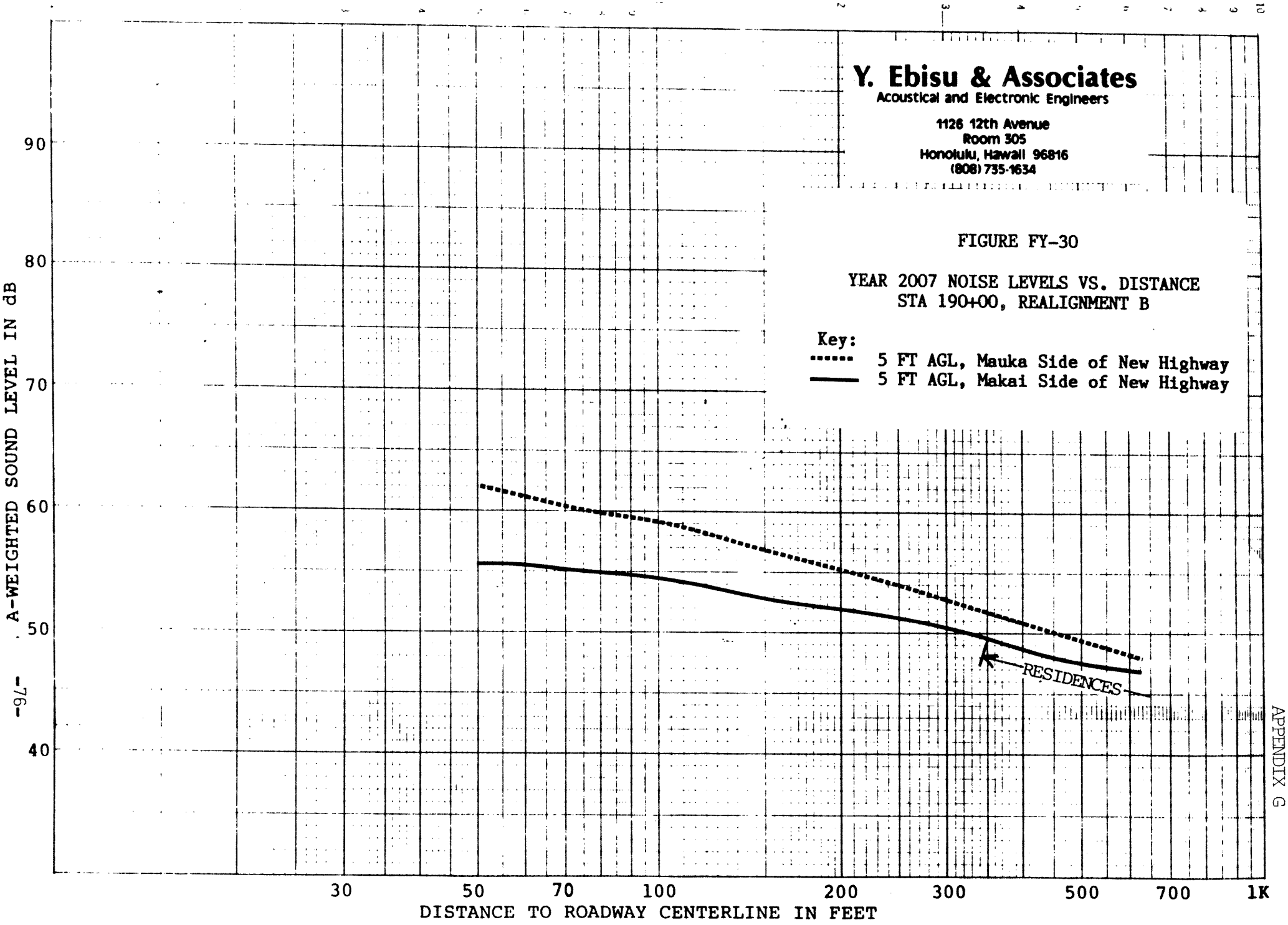
FIGURE FY-30

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 190+00, REALIGNMENT B

Key:
------ 5 FT AGL, Mauka Side of New Highway
——— 5 FT AGL, Makai Side of New Highway



A. REFERENCES

1. Barry, T. and J. Reagan; "FHWA Highway Traffic Noise Prediction Model," FHWA-RD-77-108; Federal Highway Administration; Washington, D.C.; December 1978.

2. Hawaii State Department of Transportation, Highways Division, Planning Branch; "Traffic Assignment, Project TA 85-15, Honoapiilani Highway, Kaanapali to Puamana;" February, 1986.

3. October 4, 1985 Vehicle Type Classification, Station 12-A, Honoapiilani Highway at Kaanapali Road and Halelo Street: South Leg; State Department of Transportation.

4. October 30, 1985 Vehicle Type Classification, Station 10, Honoapiilani Highway at Kihei Road Junction; State Department of Transportation.

5. September 30 - October 1, 1985 24-Hour Traffic Counts, Station 25-E, Honoapiilani Highway at Front Street (South Junction); State Department of Transportation.

6. October 2-3, 1985 24-Hour Traffic Counts, Station 25-C, Honoapiilani Highway at Lahainaluna Road; State Department of Transportation.

7. October 3-4, 1985 24-Hour Traffic Counts, Station 25-D, Honoapiilani Highway at Papalaua Street; State Department of Transportation.

8. September 30 - October 1, 1985 24-Hour Traffic Counts, Station 25-F, Honoapiilani Highway at Fleming Road and Front Street (North Junction); State Department of Transportation.

9. Federal Highway Administration; "Procedures for Abatement of Highway Traffic Noise and Construction Noise;" 23 CFR Chapter I, Subchapter J, Part 772; July 8, 1982.

10. Hawaii State Department of Transportation, Highways Division, Planning Branch; "Traffic Assignment, Project TA 85-15, Honoapiilani Highway, Kaanapali to Puamana;" March, 1986.

11. Hawaii State Department of Health; "Title 11, Administrative Rules, Chapter 43, Community Noise Control for Oahu;" November 6, 1981.

HOUR	SPEED (MPH)	VPH	% AUTOS	% MT	% HT	**** LEQ(h) IN dB @ 50' **** AUTO	MT	HT	ALL VEH	*** HOURLY LEQ(h) IN dB @ 100 FT. AUTO	MT	HT	ALL VEH
0000-0100	40	106	95	2.6	2.4	50.8	46.6	51.5	54.9	46.3	42.0	47.0	50.3
0100-0200	40	59	95	2.6	2.4	48.3	44.0	49.0	52.3	43.7	39.5	44.4	47.8
0200-0300	40	51	95	2.6	2.4	47.6	43.4	48.3	51.7	43.1	38.9	43.8	47.2
0300-0400	40	56	95	2.6	2.4	48.0	43.8	48.7	52.1	43.5	39.3	44.2	47.6
0400-0500	40	75	95	2.6	2.4	49.3	45.1	50.0	53.4	44.8	40.5	45.5	48.8
0500-0600	40	240	95	2.6	2.4	54.4	50.1	55.0	58.4	49.8	45.6	50.5	53.9
0600-0700	40	608	95	2.6	2.4	58.4	54.1	59.1	62.5	53.9	49.6	54.6	57.9
0700-0800	40	1,242	95	2.6	2.4	61.5	57.2	62.2	65.6	57.0	52.7	57.7	61.0
0800-0900	40	1,106	95	2.6	2.4	61.0	56.7	61.7	65.1	56.5	52.2	57.2	60.5
0900-1000	40	1,128	95	2.6	2.4	61.1	56.8	61.8	65.1	56.6	52.3	57.2	60.6
1000-1100	40	1,119	95	2.6	2.4	61.0	56.8	61.7	65.1	56.5	52.3	57.2	60.6
1100-1200	40	1,048	95	2.6	2.4	60.8	56.5	61.4	64.8	56.2	52.0	56.9	60.3
1200-1300	40	1,039	95	2.6	2.4	60.7	56.5	61.4	64.8	56.2	52.0	56.9	60.3
1300-1400	40	1,193	95	2.6	2.4	61.3	57.1	62.0	65.4	56.8	52.6	57.5	60.9
1400-1500	40	1,207	95	2.6	2.4	61.4	57.1	62.1	65.4	56.9	52.6	57.5	60.9
1500-1600	40	1,382	95	2.6	2.4	62.0	57.7	62.7	66.0	57.4	53.2	58.1	61.5
1600-1700	40	1,443	95	2.6	2.4	62.1	57.9	62.8	66.2	57.6	53.4	58.3	61.7
1700-1800	40	1,130	95	2.6	2.4	61.1	56.8	61.8	65.1	56.6	52.3	57.3	60.6
1800-1900	40	813	95	2.6	2.4	59.7	55.4	60.3	63.7	55.1	50.9	55.8	59.2
1900-2000	40	475	95	2.6	2.4	57.3	53.1	58.0	61.4	52.8	48.6	53.5	56.9
2000-2100	40	373	95	2.6	2.4	56.3	52.0	57.0	60.3	51.8	47.5	52.4	55.8
2100-2200	40	371	95	2.6	2.4	56.2	52.0	56.9	60.3	51.7	47.5	52.4	55.8
2200-2300	40	327	95	2.6	2.4	55.7	51.5	56.4	59.8	51.2	46.9	51.9	55.2
2300-2400	40	210	95	2.6	2.4	53.8	49.5	54.5	57.8	49.3	45.0	49.9	53.3

HONOAPIILANI HIGHWAY @ FRONT ST.(SOUTH JUNCTION), SOUTHEAST LEG
STATION 25-E, SEPTEMBER 30 - OCTOBER 1, 1985

TOTAL VPD:	16,801	LDN @ 50 FT:	61.9	57.6	62.5	65.9	LDN @	100 FT:		61.4

B. WORKSHEET #1

HOUR	SPEED (MPH)	VPH	% AUTOS	% MT	% HT	**** LEQ(h) IN dB @ 50' **** AUTO	MT	HT	ALL VEH	*** HOURLY LEQ(h) IN dB @ 100 FT. AUTO	MT	HT	ALL VEH
0000-0100	40	98	95	2.6	2.4	50.5	46.2	51.2	54.5	45.9	41.7	46.6	50.0
0100-0200	40	59	95	2.6	2.4	48.3	44.0	48.9	52.3	43.7	39.5	44.4	47.8
0200-0300	40	52	95	2.6	2.4	47.7	43.5	48.4	51.8	43.2	38.9	43.9	47.2
0300-0400	40	52	95	2.6	2.4	47.7	43.5	48.4	51.8	43.2	38.9	43.9	47.2
0400-0500	40	64	95	2.6	2.4	48.6	44.4	49.3	52.7	44.1	39.9	44.8	48.2
0500-0600	40	211	95	2.6	2.4	53.8	49.6	54.5	57.9	49.3	45.0	50.0	53.3
0600-0700	40	539	95	2.6	2.4	57.9	53.6	58.6	61.9	53.3	49.1	54.0	57.4
0700-0800	40	1,119	95	2.6	2.4	61.0	56.8	61.7	65.1	56.5	52.3	57.2	60.6
0800-0900	40	976	95	2.6	2.4	60.4	56.2	61.1	64.5	55.9	51.7	56.6	60.0
0900-1000	40	1,031	95	2.6	2.4	60.7	56.4	61.4	64.7	56.2	51.9	56.9	60.2
1000-1100	40	1,038	95	2.6	2.4	60.7	56.5	61.4	64.8	56.2	52.0	56.9	60.3
1100-1200	40	944	95	2.6	2.4	60.3	56.1	61.0	64.4	55.8	51.5	56.5	59.8
1200-1300	40	917	95	2.6	2.4	60.2	55.9	60.9	64.2	55.7	51.4	56.3	59.7
1300-1400	40	982	95	2.6	2.4	60.5	56.2	61.2	64.5	56.0	51.7	56.6	60.0
1400-1500	40	1,193	95	2.6	2.4	61.3	57.1	62.0	65.4	56.8	52.6	57.5	60.9
1500-1600	40	1,211	95	2.6	2.4	61.4	57.1	62.1	65.4	56.9	52.6	57.6	60.9
1600-1700	40	1,254	95	2.6	2.4	61.5	57.3	62.2	65.6	57.0	52.8	57.7	61.1
1700-1800	40	1,011	95	2.6	2.4	60.6	56.4	61.3	64.7	56.1	51.8	56.8	60.1
1800-1900	40	717	95	2.6	2.4	59.1	54.9	59.8	63.2	54.6	50.3	55.3	58.6
1900-2000	40	438	95	2.6	2.4	57.0	52.7	57.7	61.0	52.4	48.2	53.1	56.5
2000-2100	40	319	95	2.6	2.4	55.6	51.3	56.3	59.6	51.1	46.8	51.8	55.1
2100-2200	40	331	95	2.6	2.4	55.7	51.5	56.4	59.8	51.2	47.0	51.9	55.3
2200-2300	40	295	95	2.6	2.4	55.2	51.0	55.9	59.3	50.7	46.5	51.4	54.8
2300-2400	40	199	95	2.6	2.4	53.5	49.3	54.2	57.6	49.0	44.8	49.7	53.1

HONOAPILLANI HIGHWAY @ FRONT ST.(SOUTH JUNCTION), NORTHWEST LEG
STATION 25-E, SEPTEMBER 30 - OCTOBER 1, 1985

TOTAL VPD:	15,050	LDN @ 50 FT:	61.4	57.2	62.1	65.5	LDN @	100 FT:		60.9

B. (CONT.) WORKSHEET #2

HOUR	SPEED (MPH)	VPH	% AUTOS	% MT	% HT	**** LEQ(h) IN dB @ 50' **** AUTO	MT	HT	ALL VEH	*** HOURLY LEQ(h) IN dB @ 100 FT. AUTO	MT	HT	ALL VEH
0000-0100	35	129	95	2.6	2.4	49.5	45.5	50.9	53.9	44.9	40.9	46.4	49.4
0100-0200	35	83	95	2.6	2.4	47.5	43.5	49.0	52.0	43.0	39.0	44.5	47.5
0200-0300	35	58	95	2.6	2.4	46.0	42.0	47.5	50.5	41.5	37.5	42.9	45.9
0300-0400	35	67	95	2.6	2.4	46.6	42.6	48.1	51.1	42.1	38.1	43.6	46.6
0400-0500	35	74	95	2.6	2.4	47.0	43.0	48.5	51.5	42.5	38.5	44.0	47.0
0500-0600	35	245	95	2.6	2.4	52.2	48.2	53.7	56.7	47.7	43.7	49.2	52.2
0600-0700	35	679	95	2.6	2.4	56.7	52.7	58.1	61.1	52.1	48.1	53.6	56.6
0700-0800	35	1,222	95	2.6	2.4	59.2	55.2	60.7	63.7	54.7	50.7	56.2	59.2
0800-0900	35	1,159	95	2.6	2.4	59.0	55.0	60.5	63.5	54.5	50.5	55.9	58.9
0900-1000	35	1,046	95	2.6	2.4	58.5	54.5	60.0	63.0	54.0	50.0	55.5	58.5
1000-1100	35	1,008	95	2.6	2.4	58.4	54.4	59.9	62.9	53.9	49.9	55.3	58.3
1100-1200	35	933	95	2.6	2.4	58.0	54.0	59.5	,2.5	53.5	49.5	55.0	58.0
1200-1300	35	1,042	95	2.6	2.4	58.5	54.5	60.0	63.0	54.0	50.0	55.5	58.5
1300-1400	35	1,131	95	2.6	2.4	58.9	54.9	60.4	63.4	54.4	50.4	55.8	58.8
1400-1500	35	1,236	95	2.6	2.4	59.3	55.3	60.7	63.7	54.7	50.7	56.2	59.2
1500-1600	35	1,349	95	2.6	2.4	59.6	55.6	61.1	64.1	55.1	51.1	56.6	59.6
1600-1700	35	1,451	95	2.6	2.4	60.0	56.0	61.4	64.4	55.4	51.4	56.9	59.9
1700-1800	35	1,101	95	2.6	2.4	58.8	54.8	60.2	63.2	54.2	50.2	55.7	58.7
1800-1900	35	935	95	2.6	2.4	58.1	54.1	59.5	62.5	53.5	49.5	55.0	58.0
1900-2000	35	577	95	2.6	2.4	56.0	52.0	57.4	60.4	51.4	47.4	52.9	55.9
2000-2100	35	456	95	2.6	2.4	54.9	50.9	56.4	59.4	50.4	46.4	51.9	54.9
2100-2200	35	416	95	2.6	2.4	54.5	50.5	56.0	59.0	50.0	46.0	51.5	54.5
2200-2300	35	397	95	2.6	2.4	54.3	50.3	55.8	58.8	49.8	45.8	51.3	54.3
2300-2400	35	246	95	2.6	2.4	52.3	48.3	53.7	56.7	47.7	43.7	49.2	52.2

HONOAPILLANI HIGHWAY @ LAHAINALUNA ROAD, SOUTHEAST LEG
STATION 25-C, OCTOBER 2-3, 1985

TOTAL VPD: 17,040	LDN @ 50 FT:	60.0	56.0	61.4	64.4	LDN @	100 FT:	59.9

B. (CONT.) WORKSHEET #3

HOUR	SPEED (MPH)	VPH	% AUTOS	% MT	% HT	**** LEQ(h) IN dB @ 50' **** AUTO	MT	HT	ALL VEH	*** HOURLY LEQ(h) IN dB @ 100 FT. AUTO	MT	HT	ALL VEH
0000-0100	35	184	95	2.6	2.4	50.6	46.6	52.1	55.1	46.1	42.1	47.6	50.6
0100-0200	35	125	95	2.6	2.4	48.9	44.9	50.4	53.4	44.4	40.4	45.9	48.9
0200-0300	35	87	95	2.6	2.4	47.4	43.4	48.8	51.8	42.8	38.8	44.3	47.3
0300-0400	35	88	95	2.6	2.4	47.4	43.4	48.9	51.9	42.9	38.9	44.4	47.4
0400-0500	35	112	95	2.6	2.4	48.5	44.5	49.9	52.9	43.9	39.9	45.4	48.4
0500-0600	35	338	95	2.6	2.4	53.3	49.3	54.7	57.7	48.7	44.7	50.2	53.2
0600-0700	35	917	95	2.6	2.4	57.6	53.6	59.1	62.1	53.1	49.1	54.5	57.5
0700-0800	35	1,526	95	2.6	2.4	59.8	55.8	61.3	64.3	55.3	51.3	56.7	59.7
0800-0900	35	1,261	95	2.6	2.4	59.0	55.0	60.4	63.4	54.4	50.4	55.9	58.9
0900-1000	35	1,117	95	2.6	2.4	58.4	54.4	59.9	62.9	53.9	49.9	55.4	58.4
1000-1100	35	1,209	95	2.6	2.4	58.8	54.8	60.3	63.3	54.3	50.3	55.7	58.7
1100-1200	35	1,042	95	2.6	2.4	58.1	54.1	59.6	62.6	53.6	49.6	55.1	58.1
1200-1300	35	1,180	95	2.6	2.4	58.7	54.7	60.2	63.2	54.2	50.2	55.6	58.6
1300-1400	35	1,288	95	2.6	2.4	59.1	55.1	60.5	63.5	54.5	50.5	56.0	59.0
1400-1500	35	1,381	95	2.6	2.4	59.4	55.4	60.8	63.8	54.8	50.8	56.3	59.3
1500-1600	35	1,562	95	2.6	2.4	59.9	55.9	61.4	64.4	55.4	51.4	56.8	59.8
1600-1700	35	1,718	95	2.6	2.4	60.3	56.3	61.8	64.8	55.8	51.8	57.3	60.3
1700-1800	35	1,245	95	2.6	2.4	58.9	54.9	60.4	63.4	54.4	50.4	55.9	58.9
1800-1900	35	1,088	95	2.6	2.4	58.3	54.3	59.8	62.8	53.8	49.8	55.3	58.3
1900-2000	35	689	95	2.6	2.4	56.3	52.3	57.8	60.8	51.8	47.8	53.3	56.3
2000-2100	35	560	95	2.6	2.4	55.4	51.4	56.9	59.9	50.9	46.9	52.4	55.4
2100-2200	35	575	95	2.6	2.4	55.6	51.6	57.0	60.0	51.0	47.0	52.5	55.5
2200-2300	35	559	95	2.6	2.4	55.4	51.4	56.9	59.9	50.9	46.9	52.4	55.4
2300-2400	35	370	95	2.6	2.4	53.6	49.6	55.1	58.1	49.1	45.1	50.6	53.6

HONOAPIILANI HIGHWAY @ LAHAINALUNA ROAD, NORTHWEST LEG
STATION 25-C, OCTOBER 2-3, 1985

TOTAL VPD:	20,221	LDN @ 50 FT:	60.7	56.7	62.2	65.2	LDN @	100 FT:		60.7

B. (CONT.) WORKSHEET #4

HOUR	SPEED (MPH)	VPH	% AUTOS	% MT	% HT	**** LEQ(h) IN dB @ 50' **** AUTO	MT	HT	ALL VEH	*** HOURLY LEQ(h) IN dB @ 100 FT. AUTO	MT	HT	ALL VEH
0000-0100	35	236	95	2.6	2.4	52.1	48.1	53.5	56.6	47.6	43.6	49.0	52.0
0100-0200	35	138	95	2.6	2.4	49.8	45.7	51.2	54.2	45.2	41.2	46.7	49.7
0200-0300	35	93	95	2.6	2.4	48.0	44.0	49.5	52.5	43.5	39.5	45.0	48.0
0300-0400	35	102	95	2.6	2.4	48.4	44.4	49.9	52.9	43.9	39.9	45.4	48.4
0400-0500	35	123	95	2.6	2.4	49.3	45.2	50.7	53.7	44.7	40.7	46.2	49.2
0500-0600	35	336	95	2.6	2.4	53.6	49.6	55.1	58.1	49.1	45.1	50.6	53.6
0600-0700	35	917	95	2.6	2.4	58.0	54.0	59.4	62.4	53.5	49.4	54.9	57.9
0700-0800	35	1,639	95	2.6	2.4	60.5	56.5	62.0	65.0	56.0	52.0	57.4	60.4
0800-0900	35	1,473	95	2.6	2.4	60.0	56.0	61.5	64.5	55.5	51.5	57.0	60.0
0900-1000	35	1,460	95	2.6	2.4	60.0	56.0	61.5	64.5	55.5	51.5	56.9	59.9
1000-1100	35	1,470	95	2.6	2.4	60.0	56.0	61.5	64.5	55.5	51.5	57.0	60.0
1100-1200	35	1,500	95	2.6	2.4	60.1	56.1	61.6	64.6	55.6	51.6	57.1	60.1
1200-1300	35	1,570	95	2.6	2.4	60.3	56.3	61.8	64.8	55.8	51.8	57.3	60.3
1300-1400	35	1,700	95	2.6	2.4	60.7	56.6	62.1	65.1	56.1	52.1	57.6	60.6
1400-1500	35	1,907	95	2.6	2.4	61.2	57.1	62.6	65.6	56.6	52.6	58.1	61.1
1500-1600	35	1,997	95	2.6	2.4	61.4	57.3	62.8	65.8	56.8	52.8	58.3	61.3
1600-1700	35	1,914	95	2.6	2.4	61.2	57.2	62.6	65.6	56.7	52.6	58.1	61.1
1700-1800	35	1,677	95	2.6	2.4	60.6	56.6	62.1	65.1	56.1	52.1	57.5	60.5
1800-1900	35	1,295	95	2.6	2.4	59.5	55.5	60.9	63.9	55.0	50.9	56.4	59.4
1900-2000	35	884	95	2.6	2.4	57.8	53.8	59.3	62.3	53.3	49.3	54.8	57.8
2000-2100	35	760	95	2.6	2.4	57.2	53.1	58.6	61.6	52.6	48.6	54.1	57.1
2100-2200	35	706	95	2.6	2.4	56.8	52.8	58.3	61.3	52.3	48.3	53.8	56.8
2200-2300	35	631	95	2.6	2.4	56.4	52.3	57.8	60.8	51.8	47.8	53.3	56.3
2300-2400	35	430	95	2.6	2.4	54.7	50.7	56.1	59.2	50.2	46.2	51.6	54.6

HONOAPIILANI HIGHWAY @ PAPALAUA ST., NORTHWEST LEG
STATION 25-D, OCTOBER 3-4, 1985

TOTAL VPD:	24,958	LDN @ 50 FT:	61.7	57.7	63.2	66.2	LDN @	100 FT:		61.7

B. (CONT.) WORKSHEET #5

HOUR	SPEED (MPH)	VPH	% AUTOS	% MT	% HT	**** LEQ(h) IN dB @ 50' **** AUTO	MT	HT	ALL VEH	*** HOURLY LEQ(h) IN dB @ 100 FT. AUTO	MT	HT	ALL VEH
0000-0100	35	197	95	2.6	2.4	51.3	47.3	52.8	55.8	46.8	42.8	48.2	51.2
0100-0200	35	120	95	2.6	2.4	49.1	45.1	50.6	53.6	44.6	40.6	46.1	49.1
0200-0300	35	99	95	2.6	2.4	48.3	44.3	49.8	52.8	43.8	39.8	45.2	48.3
0300-0400	35	102	95	2.6	2.4	48.4	44.4	49.9	52.9	43.9	39.9	45.4	48.4
0400-0500	35	133	95	2.6	2.4	49.6	45.6	51.0	54.1	45.1	41.1	46.5	49.5
0500-0600	35	324	95	2.6	2.4	53.5	49.4	54.9	57.9	48.9	44.9	50.4	53.4
0600-0700	35	848	95	2.6	2.4	57.6	53.6	59.1	62.1	53.1	49.1	54.6	57.6
0700-0800	35	1,478	95	2.6	2.4	60.0	56.0	61.5	64.5	55.5	51.5	57.0	60.0
0800-0900	35	1,226	95	2.6	2.4	59.2	55.2	60.7	63.7	54.7	50.7	56.2	59.2
0900-1000	35	1,219	95	2.6	2.4	59.2	55.2	60.7	63.7	54.7	50.7	56.2	59.2
1000-1100	35	1,159	95	2.6	2.4	59.0	55.0	60.5	63.5	54.5	50.5	55.9	58.9
1100-1200	35	1,159	95	2.6	2.4	59.0	55.0	60.5	63.5	54.5	50.5	55.9	58.9
1200-1300	35	1,270	95	2.6	2.4	59.4	55.4	60.8	63.9	54.9	50.9	56.3	59.3
1300-1400	35	1,376	95	2.6	2.4	59.7	55.7	61.2	64.2	55.2	51.2	56.7	59.7
1400-1500	35	1,465	95	2.6	2.4	60.0	56.0	61.5	64.5	55.5	51.5	56.9	60.0
1500-1600	35	1,574	95	2.6	2.4	60.3	56.3	61.8	64.8	55.8	51.8	57.3	60.3
1600-1700	35	1,616	95	2.6	2.4	60.4	56.4	61.9	64.9	55.9	51.9	57.4	60.4
1700-1800	35	1,304	95	2.6	2.4	59.5	55.5	61.0	64.0	55.0	51.0	56.4	59.5
1800-1900	35	1,062	95	2.6	2.4	58.6	54.6	60.1	63.1	54.1	50.1	55.6	58.6
1900-2000	35	699	95	2.6	2.4	56.8	52.8	58.3	61.3	52.3	48.3	53.7	56.7
2000-2100	35	549	95	2.6	2.4	55.7	51.7	57.2	60.2	51.2	47.2	52.7	55.7
2100-2200	35	573	95	2.6	2.4	55.9	51.9	57.4	60.4	51.4	47.4	52.9	55.9
2200-2300	35	549	95	2.6	2.4	55.7	51.7	57.2	60.2	51.2	47.2	52.7	55.7
2300-2400	35	385	95	2.6	2.4	54.2	50.2	55.7	58.7	49.7	45.7	51.1	54.2

HONOAPIILANI HIGHWAY @ PAPALAUA ST., SOUTHEAST LEG
STATION 25-D, OCTOBER 3-4, 1985

TOTAL VPD:	20,486	LDN @ 50 FT:	61.1	57.1	62.6	65.6	LDN @	100 FT:		61.1

B. (CONT.) WORKSHEET #6

HOUR	SPEED (MPH)	VPH	% AUTOS	% MT	% HT	**** LEQ(h) IN dB @ 50' **** AUTO	MT	HT	ALL VEH	*** HOURLY LEQ(h) IN dB @ 100 FT. AUTO	MT	HT	ALL VEH
0000-0100	35	250	95.3	3	1.7	52.3	48.9	52.3	56.2	47.8	44.4	47.8	51.7
0100-0200	35	145	95.3	3	1.7	50.0	46.6	49.9	53.9	45.5	42.1	45.4	49.3
0200-0300	35	109	95.3	3	1.7	48.7	45.3	48.7	52.6	44.2	40.8	44.2	48.1
0300-0400	35	94	95.3	3	1.7	48.1	44.7	48.0	52.0	43.6	40.2	43.5	47.5
0400-0500	35	115	95.3	3	1.7	49.0	45.6	48.9	52.9	44.5	41.1	44.4	48.3
0500-0600	35	371	95.3	3	1.7	54.1	50.7	54.0	57.9	49.5	46.1	49.5	53.4
0600-0700	35	906	95.3	3	1.7	57.9	54.5	57.9	61.8	53.4	50.0	53.4	57.3
0700-0800	35	1,693	95.3	3	1.7	60.7	57.3	60.6	64.5	56.1	52.7	56.1	60.0
0800-0900	35	1,758	95.3	3	1.7	60.8	57.4	60.8	64.7	56.3	52.9	56.2	60.2
0900-1000	35	1,791	95.3	3	1.7	60.9	57.5	60.8	64.8	56.4	53.0	56.3	60.3
1000-1100	35	1,742	95.3	3	1.7	60.8	57.4	60.7	64.7	56.3	52.9	56.2	60.1
1100-1200	35	1,677	95.3	3	1.7	60.6	57.2	60.6	64.5	56.1	52.7	56.0	60.0
1200-1300	35	1,823	95.3	3	1.7	61.0	57.6	60.9	64.9	56.5	53.1	56.4	60.3
1300-1400	35	1,889	95.3	3	1.7	61.1	57.7	61.1	65.0	56.6	53.2	56.6	60.5
1400-1500	35	2,028	95.3	3	1.7	61.4	58.0	61.4	65.3	56.9	53.5	56.9	60.8
1500-1600	35	2,287	95.3	3	1.7	62.0	58.6	61.9	65.8	57.4	54.0	57.4	61.3
1600-1700	35	2,379	95.3	3	1.7	62.1	58.7	62.1	66.0	57.6	54.2	57.6	61.5
1700-1800	35	1,964	95.3	3	1.7	61.3	57.9	61.2	65.2	56.8	53.4	56.7	60.7
1800-1900	35	1,724	95.3	3	1.7	60.7	57.3	60.7	64.6	56.2	52.8	56.2	60.1
1900-2000	35	1,304	95.3	3	1.7	59.5	56.1	59.5	63.4	55.0	51.6	54.9	58.9
2000-2100	35	1,074	95.3	3	1.7	58.7	55.3	58.6	62.6	54.2	50.8	54.1	58.0
2100-2200	35	981	95.3	3	1.7	58.3	54.9	58.2	62.2	53.8	50.4	53.7	57.6
2200-2300	35	883	95.3	3	1.7	57.8	54.4	57.8	61.7	53.3	49.9	53.3	57.2
2300-2400	35	491	95.3	3	1.7	55.3	51.9	55.2	59.2	50.8	47.4	50.7	54.6

HONOAPILLANI HIGHWAY @ FLEMING RD. & FRONT ST.(NORTH JUNCTION), NORTH LEG
STATION 25-F, SEPTEMBER 30 - OCTOBER 1, 1985

TOTAL VPD:	29,478	LDN @ 50 FT:	62.3	58.9	62.3	66.2	LDN @	100 FT:		61.7

B. (CONT.) WORKSHEET #7

HOUR	SPEED (MPH)	VPH	% AUTOS	% MT	% HT	**** LEQ(h) IN dB @ 50' **** AUTO	MT	HT	ALL VEH	*** HOURLY LEQ(h) IN dB @ 100 FT. AUTO	MT	HT	ALL VEH
0000-0100	35	178	95.3	3	1.7	50.9	47.5	50.8	54.8	46.4	43.0	46.3	50.2
0100-0200	35	123	95.3	3	1.7	49.3	45.9	49.2	53.1	44.7	41.3	44.7	48.6
0200-0300	35	82	95.3	3	1.7	47.5	44.1	47.5	51.4	43.0	39.6	42.9	46.9
0300-0400	35	62	95.3	3	1.7	46.3	42.9	46.2	50.2	41.8	38.4	41.7	45.7
0400-0500	35	115	95.3	3	1.7	49.0	45.6	48.9	52.9	44.5	41.1	44.4	48.3
0500-0600	35	325	95.3	3	1.7	53.5	50.1	53.4	57.4	49.0	45.6	48.9	52.8
0600-0700	35	807	95.3	3	1.7	57.4	54.0	57.4	61.3	52.9	49.5	52.9	56.8
0700-0800	35	1,612	95.3	3	1.7	60.4	57.0	60.4	64.3	55.9	52.5	55.9	59.8
0800-0900	35	1,424	95.3	3	1.7	59.9	56.5	59.9	63.8	55.4	52.0	55.3	59.3
0900-1000	35	1,356	95.3	3	1.7	59.7	56.3	59.6	63.6	55.2	51.8	55.1	59.0
1000-1100	35	1,357	95.3	3	1.7	59.7	56.3	59.6	63.6	55.2	51.8	55.1	59.1
1100-1200	35	1,295	95.3	3	1.7	59.5	56.1	59.4	63.4	55.0	51.6	54.9	58.8
1200-1300	35	1,397	95.3	3	1.7	59.8	56.4	59.8	63.7	55.3	51.9	55.2	59.2
1300-1400	35	1,473	95.3	3	1.7	60.0	56.6	60.0	63.9	55.5	52.1	55.5	59.4
1400-1500	35	1,688	95.3	3	1.7	60.6	57.2	60.6	64.5	56.1	52.7	56.1	60.0
1500-1600	35	1,866	95.3	3	1.7	61.1	57.7	61.0	65.0	56.6	53.2	56.5	60.4
1600-1700	35	1,878	95.3	3	1.7	61.1	57.7	61.1	65.0	56.6	53.2	56.5	60.5
1700-1800	35	1,587	95.3	3	1.7	60.4	57.0	60.3	64.3	55.9	52.5	55.8	59.7
1800-1900	35	1,291	95.3	3	1.7	59.5	56.1	59.4	63.4	55.0	51.6	54.9	58.8
1900-2000	35	934	95.3	3	1.7	58.1	54.7	58.0	61.9	53.5	50.1	53.5	57.4
2000-2100	35	684	95.3	3	1.7	56.7	53.3	56.7	60.6	52.2	48.8	52.1	56.1
2100-2200	35	708	95.3	3	1.7	56.9	53.5	56.8	60.7	52.3	48.9	52.3	56.2
2200-2300	35	654	95.3	3	1.7	56.5	53.1	56.5	60.4	52.0	48.6	52.0	55.9
2300-2400	35	353	95.3	3	1.7	53.8	50.4	53.8	57.7	49.3	45.9	49.3	53.2

HONOAPIILANI HIGHWAY @ FLEMING RD. & FRONT ST.(NORTH JUNCTION), SOUTH LEG
STATION 25-F, SEPTEMBER 30 - OCTOBER 1, 1985

TOTAL VPD:	23,249	LDN @ 50 FT:	61.3	57.9	61.3	65.2	LDN @	100 FT:	60.7

B. (CONT.) WORKSHEET #8

APPENDIX H

TRAFFIC NOISE STUDY
(Alternative C and
Extension Plan)
Y. Ebisu & Associates

ADDENDUM TO
TRAFFIC NOISE STUDY
FOR THE PROPOSED IMPROVEMENTS TO
HONOAPIILANI HIGHWAY, PUAMANA TO KAANAPALI
WITH EXTENSION OF PROJECT FROM
KAANAPALI TO HONOKOWAI, AND
WITH REALIGNMENT ALTERNATIVE C

PREPARED FOR
ENVIRONMENTAL COMMUNICATIONS, INC.

BY
Y. EBISU & ASSOCIATES

MARCH, 1988

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I. SUMMARY

This study is a continuation of the original evaluation of potential noise impacts associated with the original design alternatives of the Honoapiilani Highway improvement project from Puamana Park to Kaanapali Parkway, at Lahaina, Maui. The results of the original evaluation were reported in Reference 1, for the Widening Alternative, and Realignment Alternatives A and B. This current report extends the acoustical evaluation from Kaanapali Parkway to Honokowai, and includes evaluations of the extension of the highway widening and realignment alternatives from Kaanapali Parkway to Honokowai. Additionally, the evaluation of a third possible realignment, Alternative C was also included in this current study.

In this addendum report, all of the tables in the original report which were updated to reflect the results of this current study are numbered identically to the original tables, but with the word "Appended" added after the table number. This was done to make it easier for the reader to examine the changes in the study results attributable to the extension of the study area to Honokowai as well as those associated with the addition of Realignment Alternative C.

The improvement alternatives evaluated in this addendum were: Highway Widening Alternative (Kaanapali to Honokowai); Extension of Highway Realignment A or B (Kaanapali to Honokowai); Highway Realignment C; and Extension of Highway Realignment C (Kaanapali to Honokowai).

Existing traffic noise levels along Honoapiilani Highway from Kaanapali to Honokowai do not exceed FHWA noise abatement criteria. If this section of the highway is widened by the Year 2007 to accommodate anticipated demand, FHWA noise abatement criteria would be exceeded at 26 or more single family dwellings, 5 apartment and 2 hotel complexes, 4 public use facilities, and 5 coastal parks. The construction of new sections of the highway inland of the existing highway would divert traffic from the

existing highway by varying amounts. The Realignment Alternatives A, B, and C are predicted to contribute to a future decrease of traffic noise along the existing Honoapiilani Highway from Puamana to Honokowai, with significant decreases projected upon completion of the realignment extension from Kaanapali to Honokowai.

Traffic noise mitigation measures in the form of noise barrier construction will probably be required along the existing highway if the Highway Widening Alternative is implemented from Puamana to Honokowai. Additional sound insulation of multistory apartments may also be required to meet FHWA noise abatement criteria. If the Realignment Alternative B is implemented, traffic noise mitigation measures may be required in the vicinity of the Ikena Avenue crossing. If the Realignment Alternative C is implemented, traffic noise mitigation measures may be required in the vicinity of the future classroom buildings of Lahainaluna High School. If the Realignment Alternative A is implemented, traffic noise mitigation measures will not be required.

II. GENERAL STUDY METHODOLOGY

The general methodology used in the January, 1987 noise study of the Honoapiilani Highway improvements from Puamana to Kaanapali Parkway were also used in this current study of the improvements from Kaanapali to Honokowai plus Realignment Alternative C. Base Year traffic noise contours were developed along Honoapiilani Highway using Base Year (1987) traffic volume data for the PM peak hour from References 2 and 3. Traffic mix by vehicle types for the section of the highway from Kaanapali to Honokowai were derived from Reference 4. The determination of the PM peak hour as the period of highest hourly traffic volumes on the highway was the same as in the original study (Reference 1). The Equivalent (or Average) Hourly Sound Level [Leq(h)] noise descriptor was used to generate the Base Year and all Future Year traffic noise contouors as was done in the original study. Topographic maps (where available) of the area were used to determine terrain, ground cover, and local shielding effects from building structures, which were entered into the FHWA noise prediction model.

FIGURE 1 (Appended) depicts the location of the project area and the proposed routes of the various realignment and extension alternatives. Future Year (2007) noise level vs. distance curves were then developed for the various Build Alternatives (highway widening, realignment, and extension) using the future traffic assignments of References 2 and 3, the topographic and existing development features described previously, the highway elevation profiles of the extensions, Realignment C (with and without extension), and typical highway sections at roadway cuts required for the realignments. Following development of the future traffic noise contours for the various Build Alternatives, general comparisons of the future traffic noise levels and impacts among the Build Alternatives were made. Comparisons of predicted traffic noise levels with FHWA noise abatement criteria (see TABLE 2 of Reference 1) were also made to

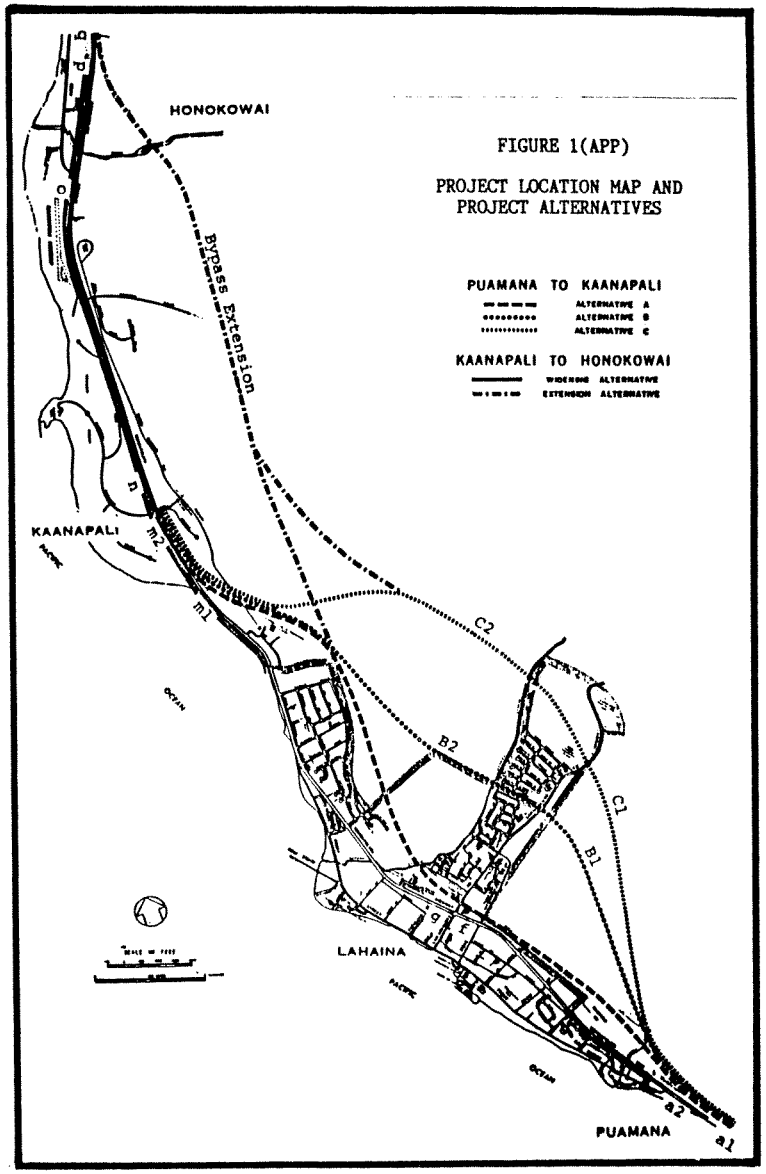

FIGURE 1(APP)

PROJECT LOCATION MAP AND PROJECT ALTERNATIVES

determine specific locations where noise abatement measures would be necessary. The exterior criteria of 67 Leq(h) was applied to all dwellings, hotels, and public parks/playgrounds along the highway. The interior criteria of 52 Leq(h) was applied to all churches and schools along the highway, with an estimated 8 dB of exterior to interior noise reduction assumed for naturally ventilated structures. At these specific locations, the use of noise barriers was tested to determine if barriers would be effective in mitigating adverse noise impacts. Other noise mitigation measures were also examined for their applicability to this project.

III. BASE YEAR (1987) TRAFFIC NOISE LEVELS

The Year 1987 was used as the Base Year for computing changes in traffic noise levels among the various Build Alternatives. The Base Year noise environment along the highway was described by computing the noise contours of Hourly Equivalent Sound Level [Leq(h)] for the 1987 time period. These sound level contours, expressed in decibels, represent the average level of traffic noise for a given hour of the day. The PM peak hour, which occurs between 3:30 to 4:30 PM, was used as the hour with the highest traffic noise levels.

TABLE 3 (Appended) presents the traffic volume, speed, and mix assumptions used to generate the Base Year noise contours along the various segments of the existing highway. Also shown in TABLE 3 (Appended) are the calculated Peak Hour Leq(h)'s at a reference distance of 50 FT from the centerline of the various roadway segments, and the calculated distances to the various noise contour lines (from 55 to 75 Leq) under unobstructed, line-of-sight conditions. The actual distances to the 60 and 55 Leq contour lines will generally be less than indicated in TABLE 3 (Appended) when intervening structures or walls exist between the highway and a receptor. This reduction (or shrinkage) of the traffic noise contour distances from the highway centerline are the result of noise shielding (or attenuation) affects caused by the intervening structures or walls.

By using the traffic assumptions of TABLE 3 (Appended), existing traffic noise contours were developed along the existing highway from Kaanapali Parkway to Honokowai. Only low resolution line drawings were available along this section of the highway so the noise contour lines developed in this area did not include shielding effects from intervening structures.

Along Honoapiilani Highway, the areas at which existing noise levels currently exceed FHWA noise abatement criteria are listed in TABLE 4 (Appended). Between Kaanapali Parkway to Honokowai, there are no impacted areas which are exposed to

TABLE 3(APPENDED)

HONOAPIILANI HWY.; BASE YEAR 1987; PM PEAK HR. SETBACK DISTANCES

SEGMENT	SPEED	MIX	VPH	LEQ(50') IN DB	DISTANCE (FT) FROM CENTERLINE					
					55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	1,569	66.6	295	137	64	30	14	47
(b)	40 MPH	95/2.6/2.4	1,391	66.1	273	127	59	27	13	43
(c)	40 MPH	95/2.6/2.4	1,391	66.1	273	127	59	27	13	43
(d)	40 MPH	95/2.6/2.4	1,369	66.0	270	125	58	27	13	43
(e)&(f)	40 MPH	95/2.6/2.4	1,369	66.0	270	125	58	27	13	43
(g)	37 MPH	95/2.6/2.4	1,911	66.4	286	133	62	29	13	45
(h)	35 MPH	95/2.6/2.4	2,164	66.2	278	129	60	28	13	44
(i)	37 MPH	95/2.6/2.4	2,164	66.9	311	144	67	31	14	49
(j)	37 MPH	95.3/3/1.7	2,148	66.3	285	132	61	29	13	45
(k)	37 MPH	95.3/3/1.7	2,703	67.3	332	154	72	33	15	53
(l)	37 MPH	95.3/3/1.7	2,684	67.3	330	153	71	33	15	52
(m1)	37 MPH	95.3/3/1.7	2,549	67.1	319	148	69	32	15	51
(m2)	37 MPH	95.3/3/1.7	2,549	67.1	319	148	69	32	15	51
(n)	43 MPH	96.6/1.7/1.7	1,667	67.0	315	146	68	31	15	50
(o)	43 MPH	96.6/1.7/1.7	1,577	66.8	304	141	65	30	14	48
(p)&(q)	43 MPH	96.6/1.7/1.7	1,203	65.6	254	118	55	25	12	40

TABLE 3(APPENDED) (CONT.)

HONOAPIILANI HWY.; BASE YEAR 1987; PM PEAK HR. SETBACK DISTANCES

SEGMENT	BOUNDING INTERSECTIONS
(a1)	South of Front Street or New Bypass
(a2)	Front Street & New Bypass
(b)	Front Street & Aholo Road
(c)	Aholo Road & Shaw Street
(d)	Shaw Street & Prison Street
(e)	Prison Street & Dickenson Street
(f)	Dickenson Street & Lahainaluna Road
(g)	Lahainaluna Road & Papalaua Street
(h)	Papalaua Street & Kenui Street
(i)	Kenui Street & Kapunakea Street
(j)	Kapunakea Street & Front Street
(k)	Front Street & Kaniau Road
(l)	Kaniau Road & Road to Civic Center
(m1)	Road to Civic Center & New Bypass
(m2)	Road to Civic Center (or New Bypass) & Kaanapali Parkway
(n)	Kaanapali Parkway & Puuokoli Road
(o)	Puuokoli Road & Old Honoapiilani Highway
(p)	Old Honoapiilani Hwy. & New Bypass Extension
(q)	North of New Bypass Extension

TABLE 4(APPENDED)

LIST OF EXISTING NOISE IMPACTED STRUCTURES AND LAND AREAS
DURING THE BASE YEAR PERIOD

HIGHWAY SEGMENT	------ NUMBER OF IMPACTED UNITS (BASE YEAR LEQ) ----- PRIVATE DWELLINGS	PUBLIC USE STRUCTURES	PARK LANDS
(a1)	None	None	None
(b)	None	None	None
(c)	None	None	None
(d)	None	None	None
(e)	None	None	None
(f)	None	1 School	None
(g)	None	None	None
(h)	None	None	None
(i)	None	None	None
(j)	None	1 Church*	None
(k)	None	None	1 Beach Park
(l)	None	None	1 Beach Park
(m2)	None	None	2 Beach Parks
(n)	None	None	None
(o)	None	None	None
(p)	None	None	None
(q)	None	None	None

Note:

* Presently air conditioned with window units.

traffic noise levels above FHWA criteria.

At areas removed from Honoapiilani Highway, such as the residential areas along Lahainaluna Road and to the east (mauka) of the highway, Base Year noise levels are very low. As the noise measurement results of the original study (Reference 1) indicated, Base Year noise levels in areas removed from Honoapiilani Highway are probably less than 55 Leq(h), and possibly as low as 40 Leq(h).

IV. COMPARISON OF FUTURE TRAFFIC NOISE LEVELS UNDER VARIOUS ALTERNATIVES

The future traffic noise levels along the existing Honoapiilani Highway from Kaanapali Parkway to Honokowai, as well as along the proposed Realignment C and extension were evaluated for the various Build Alternatives. These alternatives were: Honoapiilani Highway Widening Alternative; Extension of the highway Realignment A or B to Honokowai; and construction of Realignment C with and without an extension to Honokowai. The same methodology that was used to construct the Base Year noise contours was also used to construct the Year 2007 noise contours under the alternatives listed above. TABLE 5 (Appended) presents a comparison of the predicted changes in traffic noise levels along Honoapiilani Highway and along the new realignments as a result of the implementation of the various alternatives. TABLES 6 (Appended) and 7 (Appended) present comparisons of the corresponding changes in the setback distances to the 55 thru 75 Leq(h) noise contours under the various alternatives. TABLES 5 (Appended) thru 7 (Appended) are useful for presenting an overview of the changes in traffic noise levels that can be expected along Honoapiilani Highway as a result of the various Build Alternatives.

The future traffic volume, speed, and mix assumptions used for the Widening and Realignment Alternatives are shown in TABLE 7 (Appended). The roadway segment designations of TABLE 7 (Appended) are identical to those used in TABLE 3 (Appended). Also shown in TABLE 7 (Appended) are the future traffic noise levels at a reference distance of 50 FT from the roadways' centerlines, the change in traffic noise levels from the Base Year values along each highway segment, and the future setback distances to the 75 thru 55 Leq(h) noise contours for unobstructed, line-of-sight conditions.

The following general conclusions can be made in respect to the effects of the various alternatives on the existing traffic

TABLE 5(APPENDED)

COMPARISONS OF EXISTING AND FUTURE TRAFFIC NOISE LEVELS IN PROJECT ENVIRONS

LOCATION	SPEED (MPH)	VPH	*** HOURLY LEQ IN DB @ 50'*** AUTO	MT	HT	ALL VEH	DB INCREASE
YEAR 1987 PM PEAK HOUR TRAFFIC:							
Honoapiilani Hwy. (S. End)	40	1,569	62.5	58.3	63.2	66.6	-
Honoapiilani Hwy. (N. End)	43	1,203	62.6	56.3	61.3	65.6	-
YEAR 2007 PM PEAK HOUR TRAFFIC (Widening Alternative):							
Honoapiilani Hwy. (S. End)	40	3,186	65.6	61.3	66.3	69.6	3.1
Honoapiilani Hwy. (N. End)	43	2,308	65.5	59.2	64.1	68.4	2.8
YEAR 2007 PM PEAK HOUR TRAFFIC [Realignment Alternative A (Phase I)]:							
Honoapiilani Hwy. (S. End)	40	3,185	65.6	61.3	66.3	69.6	3.1
Honoapiilani Hwy. (N. End)	43	2,308	65.5	59.2	64.1	68.4	2.8
Bypass A	50	3,904	70.2	66.1	68.0	73.2	73.2
YEAR 2007 PM PEAK HOUR TRAFFIC [Realignment Alt. B or Alt. A (Phase II)]:							
Honoapiilani Hwy. (S. End)	40	3,185	65.6	61.3	66.3	69.6	3.1
Honoapiilani Hwy. (N. End)	43	2,308	65.5	59.2	64.1	68.4	2.8
Bypass A or B	50	1,028	64.4	60.3	62.2	67.4	67.4
YEAR 2007 PM PEAK HOUR TRAFFIC [Realignment Alternative B with Extension]:							
Honoapiilani Hwy. (S. End)	40	3,186	65.6	61.3	66.3	69.6	3.1
Honoapiilani Hwy. (N. End)	43	2,308	65.5	59.2	64.1	68.4	2.8
Bypass B Ext.	50	1,663	66.5	60.0	64.3	69.1	69.1

TABLE 5(APPENDED) (CONT.)

COMPARISONS OF EXISTING AND FUTURE TRAFFIC NOISE LEVELS IN PROJECT ENVIRONS

LOCATION	SPEED (MPH)	VPH	*** HOURLY LEQ IN DB @ 50'*** AUTO	MT	HT	ALL VEH	DB INCREASE
YEAR 2007 PM PEAK HOUR TRAFFIC [Realignment Alternative C]:							
Honoapiilani Hwy. (S. End)	40	3,184	65.6	61.3	66.3	69.6	3.1
Honoapiilani Hwy. (N. End)	43	2,308	65.5	59.2	64.1	68.4	2.8
Bypass C1 (south)	50	1,345	65.5	60.9	64.9	69.0	69.0
Bypass C2 (north)	50	1,743	66.7	62.6	64.5	69.7	69.7
YEAR 2007 PM PEAK HOUR TRAFFIC [Realignment Alternative C with Extension]:							
Honoapiilani Hwy. (S. End)	40	3,185	65.6	61.3	66.3	69.6	3.1
Honoapiilani Hwy. (N. End)	43	2,312	65.5	59.2	64.2	68.4	2.8
Bypass C Ext.	50	1,376	65.7	59.1	63.5	68.3	68.3

Notes:
Segment (a1) used for south end of Honoapiilani Hwy.
Segment (q) used for north end of Honoapiilani Hwy.

TABLE 6(APPENDED)

EXISTING AND FUTURE DISTANCES TO 57, 67, AND 72 Leq CONTOURS

STREET SECTION	57 Leq SETBACK (FT)		67 Leq SETBACK (FT)		72 Leq SETBACK(FT)	
	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE
YEAR 2007 PM PEAK HOUR TRAFFIC (Widening Alternative):						
Honoapiilani Hwy. (S. End)	217	348	47	75	22	35
Honoapiilani Hwy. (N. End)	187	288	40	62	19	29
YEAR 2007 PM PEAK HOUR TRAFFIC [Realignment Alternative A (Phase I)]:						
Honoapiilani Hwy. (S. End)	217	348	47	75	22	35
Honoapiilani Hwy. (N. End)	187	288	40	62	19	29
Bypass A	-	600	-	129	-	60
YEAR 2007 PM PEAK HOUR TRAFFIC [Realignment Alt. B or Alt. A (Phase II)]:						
Honoapiilani Hwy. (S. End)	217	348	47	75	22	35
Honoapiilani Hwy. (N. End)	187	288	40	62	19	29
Bypass A or B	-	247	-	53	-	25
YEAR 2007 PM PEAK HOUR TRAFFIC [Realignment Alternative B with Extension]:						
Honoapiilani Hwy. (S. End)	217	348	47	75	22	35
Honoapiilani Hwy. (N. End)	187	288	40	62	19	29
Bypass B Ext.	-	322	-	69	-	32
YEAR 2007 PM PEAK HOUR TRAFFIC [Realignment Alternative C]:						
Honoapiilani Hwy. (S. End)	217	348	47	75	22	35
Honoapiilani Hwy. (N. End)	187	288	40	62	19	29
Bypass C1 (south)	-	314	-	68	-	31
Bypass C2 (north)	-	351	-	76	-	35

TABLE 6(APPENDED) (CONT.)

EXISTING AND FUTURE DISTANCES TO 57, 67, AND 72 Leq CONTOURS

STREET SECTION	57 Leq SETBACK (FT)		67 Leq SETBACK (FT)		72 Leq SETBACK(FT)	
	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE
YEAR 2007 PM PEAK HOUR TRAFFIC [Realignment Alternative C with Extension]:						
Honoapiilani Hwy. (S. End)	217	348	47	75	22	35
Honoapiilani Hwy. (N. End)	187	288	40	62	19	29
Bypass C Ext.	-	284	-	61	-	28

Notes:
All setback distances are to the roadway centerlines. Setback distances are for unobstructed line-of-sight conditions.
Segment (a1) used for south end of Honoapiilani Hwy.
Segment (q) used for north end of Honoapiilani Hwy.

TABLE 7(APPENDED)

HONOAPIILANI WIDENING ALTERNATIVE; YEAR 2007; PM PEAK HR. SETBACK DISTANCES

				LEQ(50')		DISTANCE (FT) FROM CENTERLINE					
SEGMENT	SPEED	MIX	VPH	IN DB	CHANGE	55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	3,186	69.6	3.0	473	220	102	47	22	75
(b)	40 MPH	95/2.6/2.4	2,826	69.1	3.0	437	203	94	44	20	69
(c)	40 MPH	95/2.6/2.4	2,826	69.1	3.0	437	203	94	44	20	69
(d)	40 MPH	95/2.6/2.4	2,781	69.1	3.1	432	201	93	43	20	68
(e)&(f)	40 MPH	95/2.6/2.4	2,781	69.1	3.1	432	201	93	43	20	68
(g)	37 MPH	95/2.6/2.4	3,880	69.5	3.1	460	213	99	46	21	73
(h)	35 MPH	95/2.6/2.4	4,393	69.3	3.1	446	207	96	45	21	71
(i)	37 MPH	95/2.6/2.4	4,393	70.0	3.1	499	232	108	50	23	79
(j)	37 MPH	95.3/3/1.7	4,362	69.4	3.1	457	212	98	46	21	72
(k)	37 MPH	95.3/3/1.7	5,487	70.4	3.1	532	247	115	53	25	84
(l)	37 MPH	95.3/3/1.7	5,446	70.4	3.1	530	246	114	53	25	84
(m2)	37 MPH	95.3/3/1.7	5,173	70.2	3.1	512	237	110	51	24	81
(n)	43 MPH	96.6/1.7/1.7	3,382	70.1	3.1	505	234	109	50	23	80
(o)	43 MPH	96.6/1.7/1.7	3,022	69.6	2.8	469	218	101	47	22	74
(p)&(q)	43 MPH	96.6/1.7/1.7	2,308	68.4	2.8	391	182	84	39	18	62

TABLE 7(APPENDED) (CONT.)

HONOAPIILANI REALIGNMENT A (PHASE I); YEAR 2007; PM PEAK HR. SETBACK DISTANCES

SEGMENT	SPEED	MIX	VPH	LEQ(50') IN DB	CHANGE	DISTANCE (FT) FROM CENTERLINE 55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	3,185	69.6	3.0	473	220	102	47	22	75
(b)	40 MPH	95/2.6/2.4	3,035	69.4	3.3	458	213	99	46	21	73
(c)	40 MPH	95/2.6/2.4	2,976	69.4	3.3	453	210	97	45	21	72
(d)	40 MPH	95/2.6/2.4	3,098	69.5	3.5	464	216	100	46	22	74
(e)	40 MPH	95/2.6/2.4	3,323	69.8	3.8	487	226	105	49	23	77
(f)	37 MPH	95/2.6/2.4	3,375	68.8	2.8	418	194	90	42	19	66
(g)	37 MPH	95/2.6/2.4	3,947	69.5	3.1	464	216	100	46	22	74
(h)	35 MPH	95/2.6/2.4	1,139	63.4	(2.8)	181	84	39	18	8	29
(i)	37 MPH	95/2.6/2.4	936	63.3	(3.6)	178	83	38	18	8	28
(j)	37 MPH	95.3/3/1.7	896	62.5	(3.8)	159	74	34	16	7	25
(k)	37 MPH	95.3/3/1.7	1,861	65.7	(1.6)	259	120	56	26	12	41
(1)	37 MPH	95.3/3/1.7	1,820	65.6	(1.7)	255	118	55	26	12	40
(m1)	37 MPH	95.3/3/1.7	1,547	64.9	(2.2)	229	106	49	23	11	36
(m2)	37 MPH	95.3/3/1.7	4,993	70.0	2.9	500	232	108	50	23	79
Bypass A	50 MPH	95.3/3/1.7	3,904	73.2	73.2	816	379	176	82	38	129

TABLE 7(APPENDED) (CONT.)

HONOAPIILANI REALIGNMENT B; YEAR 2007; PM PEAK HR. SETBACK DISTANCES

				LEQ(50')		DISTANCE (FT) FROM CENTERLINE					
SEGMENT	SPEED	MIX	VPH	IN DB	CHANGE	55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	3,186	69.6	3.0	473	220	102	47	22	75
(a2)	40 MPH	95/2.6/2.4	2,158	68.0	1.4	365	169	79	37	17	58
(b)	40 MPH	95/2.6/2.4	2,007	67.6	1.5	348	162	75	35	16	55
(c)	40 MPH	95/2.6/2.4	1,948	67.5	1.4	341	158	74	34	16	54
(d)	40 MPH	95/2.6/2.4	2,070	67.8	1.8	355	165	76	36	16	56
(e)	40 MPH	95/2.6/2.4	2,295	68.2	2.2	380	177	82	38	18	60
(f)	37 MPH	95/2.6/2.4	2,347	67.3	1.3	328	152	71	33	15	52
(g)	37 MPH	95/2.6/2.4	2,919	68.2	1.8	380	176	82	38	18	60
(h)	35 MPH	95/2.6/2.4	3,585	68.4	2.2	389	180	84	39	18	62
(i)	37 MPH	95/2.6/2.4	3,534	69.0	2.1	431	200	93	43	20	68
(j)	37 MPH	95.3/3/1.7	3,494	68.5	2.2	394	183	85	39	18	62
(k)	37 MPH	95.3/3/1.7	4,459	69.5	2.2	464	215	100	46	22	74
(l)	37 MPH	95.3/3/1.7	4,418	69.5	2.2	461	214	99	46	21	73
(m1)	37 MPH	95.3/3/1.7	4,145	69.2	2.1	442	205	95	44	20	70
(m2)	37 MPH	95.3/3/1.7	5,173	70.2	3.1	512	237	110	51	24	81
Bypass B	50 MPH	95.3/3/1.7	1,028	67.4	67.4	335	156	72	34	16	53

TABLE 7(APPENDED) (CONT.)

HONOAPIILANI REALIGNMENT B WITH EXTENSION: YEAR 2007 PM PEAK HR. SETBACK DISTANCES

SEGMENT	SPEED	MIX	VPH	LEQ(50') IN DB	CHANGE	DISTANCE (FT) FROM CENTERLINE 55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	3,186	69.6	3.0	473	220	102	47	22	75
(a2)	40 MPH	95/2.6/2.4	1,911	67.4	0.8	336	156	72	34	16	53
(f)	37 MPH	95/2.6/2.4	2,100	66.8	0.8	305	142	66	31	14	48
(g)	37 MPH	95/2.6/2.4	2,161	66.9	0.5	311	144	67	31	14	49
(m1)	37 MPH	95.3/3/1.7	2,990	67.8	0.7	355	165	76	36	16	56
(m2)	37 MPH	95.3/3/1.7	3,508	68.5	1.4	395	184	85	40	18	63
(n)	43 MPH	96.6/1.7/1.7	1,717	67.1	0.1	321	149	69	32	15	51
(o)	43 MPH	96.6/1.7/1.7	1,357	66.1	(0.7)	275	128	59	27	13	44
(p)	43 MPH	96.6/1.7/1.7	1,193	65.5	(0.1)	252	117	54	25	12	40
(q)	43 MPH	96.6/1.7/1.7	2,308	68.4	2.8	391	182	84	39	18	62
Bypass B1	50 MPH	95/2.6/2.4	1,275	68.7	68.7	412	191	89	41	19	65
Bypass B2	50 MPH	95.3/3/1.7	2,218	70.7	70.7	560	260	121	56	26	89
Bypass Ext.	50 MPH	96.6/1.7/1.7	1,663	69.1	69.1	437	203	94	44	20	69

TABLE 7(APPENDED) (CONT.)

HONOAPIILANI REALIGNMENT C; YEAR 2007; PM PEAK HR. SETBACK DISTANCES

				LEQ(50')		DISTANCE (FT) FROM CENTERLINE					
SEGMENT	SPEED	MIX	VPH	IN DB	CHANGE	55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	3,184	69.6	3.0	473	220	102	47	22	75
(a2)	40 MPH	95/2.6/2.4	1,839	67.3	0.7	328	152	71	33	15	52
(f)	40 MPH	95/2.6/2.4	2,027	67.7	1.7	350	163	75	35	16	56
(g)	37 MPH	95/2.6/2.4	2,202	67.0	0.6	315	146	68	31	15	50
(m1)	37 MPH	95.3/3/1.7	3,519	68.5	1.4	396	184	85	40	18	63
(m2)	37 MPH	95.3/3/1.7	5,174	70.2	3.1	512	237	110	51	24	81
Bypass C1	50 MPH	95/2.6/2.4	1,345	69.0	69.0	427	198	92	43	20	68
Bypass C2	50 MPH	95.3/3/1.7	1,743	69.7	69.7	477	221	103	48	22	76

TABLE 7(APPENDED) (CONT.)

HONOAPIILANI REALIGNMENT C WITH EXTENSION: YEAR 2007 PM PEAK HR. SETBACK DISTANCES

SEGMENT	SPEED	MIX	VPH	LEQ(50') IN DB	CHANGE	DISTANCE (FT) FROM CENTERLINE 55 LEQ	60 LEQ	65 LEQ	70 LEQ	75 LEQ	67 LEQ
(a1)	40 MPH	95/2.6/2.4	3,185	69.6	3.0	473	220	102	47	22	75
(a2)	40 MPH	95/2.6/2.4	1,547	66.5	(0.1)	293	136	63	29	14	46
(f)	40 MPH	95/2.6/2.4	1,737	67.0	1.0	316	147	68	32	15	50
(g)	37 MPH	95/2.6/2.4	1,818	66.2	(0.2)	277	129	60	28	13	44
(m1)	37 MPH	95.3/3/1.7	2,814	67.5	0.4	341	158	74	34	16	54
(m2)	37 MPH	95.3/3/1.7	3,798	68.8	1.7	417	193	90	42	19	66
(n)	43 MPH	96.6/1.7/1.7	2,008	67.8	0.8	357	166	77	36	17	57
(o)	43 MPH	96.6/1.7/1.7	1,648	66.9	0.1	313	145	67	31	15	50
(p)	43 MPH	96.6/1.7/1.7	1,512	66.6	1.0	295	137	64	30	14	47
(q)	43 MPH	96.6/1.7/1.7	2,312	68.4	2.8	392	182	84	39	18	62
Bypass C1	50 MPH	95/2.6/2.4	1,638	69.8	69.8	486	226	105	49	23	77
Bypass C2	50 MPH	95.3/3/1.7	2,450	71.2	71.2	598	278	129	60	28	95
Bypass Ext.	50 MPH	96.6/1.7/1.7	1,376	68.3	68.3	386	179	83	39	18	61

noise levels along Honoapiilani Highway. The conclusions from the original study are repeated in this paragraph if they continued to be valid after this current study.

A. Under the Honoapiilani Highway Widening Alternative, traffic noise increases are expected to be the greatest along the entire Honoapiilani Highway corridor, at approximately 3.0 dB or Leq. Traffic noise impacts would be localized to the existing highway corridor, and would probably require noise mitigation measures.

B. Under the partial construction alternative of Realignment A (Phase I), traffic noise reductions of 1.7 to 3.8 dB are predicted to occur along the north sections of Honoapiilani Highway due to a significant diversion of traffic to the new realignment. South of the bypass, traffic noise increases along the existing highway are expected to be similar to the situation under the Widening Alternative.

C. Under the alternatives of complete construction of Realignments A (Phase II) or B, increases of 1.3 and 2.2 dB are predicted along the south and north sections of the existing highway. Under these alternatives, the rerouting of traffic from the existing highway are not sufficient to reduce traffic noise along the existing highway corridor to Base Year levels, but are predicted to reduce future traffic noise levels along the existing highway corridor by 1 to 2 dB.

D. Under the alternative of complete construction of Realignment B with Extension, only slight increases of 1.4 dB or less are predicted along the south and north sections of the existing highway. Under this alternative, the rerouting of traffic from the existing highway will be nearly sufficient to reduce traffic noise along the existing highway corridor to Base Year (1987) levels.

E. Under the alternative of partial construction of Realignment C, increases of 1.4 and 2.1 dB are predicted along the south and north sections of the existing highway. Under this alternative, the rerouting of traffic from the existing highway are not sufficient to reduce traffic noise along the existing highway corridor to Base Year levels, but are predicted to reduce future traffic noise levels along the existing highway corridor by 1 to 2 dB.

F. Under the alternative of complete construction of Realignment C with Extension, only slight increases of 1.4 dB or less are predicted along the south and north sections of the existing highway. Under this alternative, the rerouting of traffic from the existing highway will be nearly sufficient to reduce traffic noise along the existing highway corridor to Base Year levels.

Future traffic noise levels were also calculated along Realignment C (with and without extension to Honokowai), using 1" = 400' scale topographic maps, and highway plans and profiles. The noise shielding effects from proposed highway cuts, and from elevated roadway sections were included in these calculations. Typical results of the traffic noise vs. distance calculations are depicted in FIGURES FY-31 thru FY-80, which are keyed to the proposed highway station numbers along Realignment C and its extension to Honokowai. The relative location of noise sensitive structures to the highway centerlines and corresponding noise levels are also shown in the figures. These results were used to isolate structures and lands which may be impacted if the Realignment C and extension alternatives are completed.

The following general conclusions can be made in respect to the potential increases in traffic noise levels resulting from the realignment alternatives. Again, the conclusions from the original study are repeated in this paragraph if they continued to be valid after this current study.

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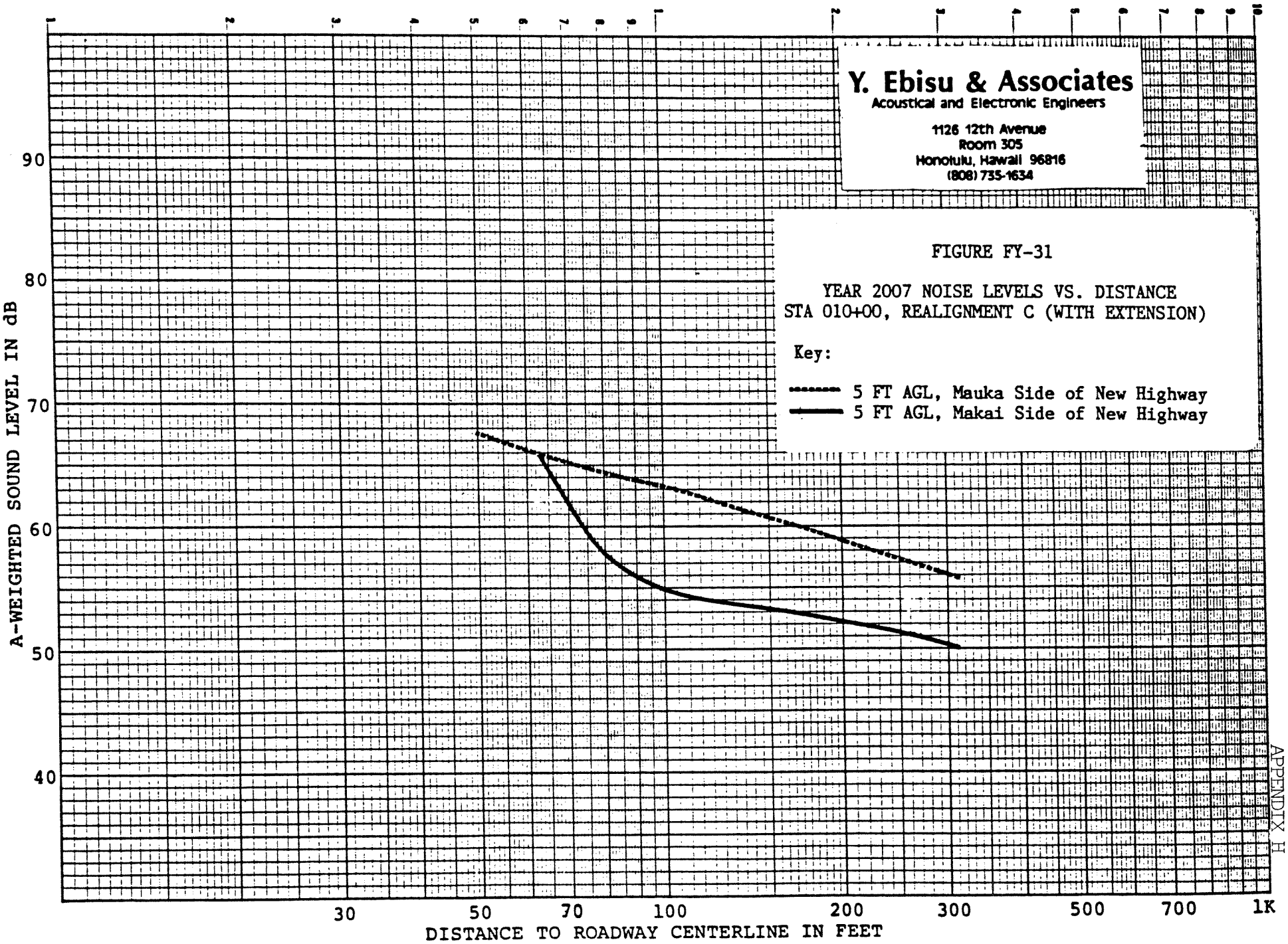
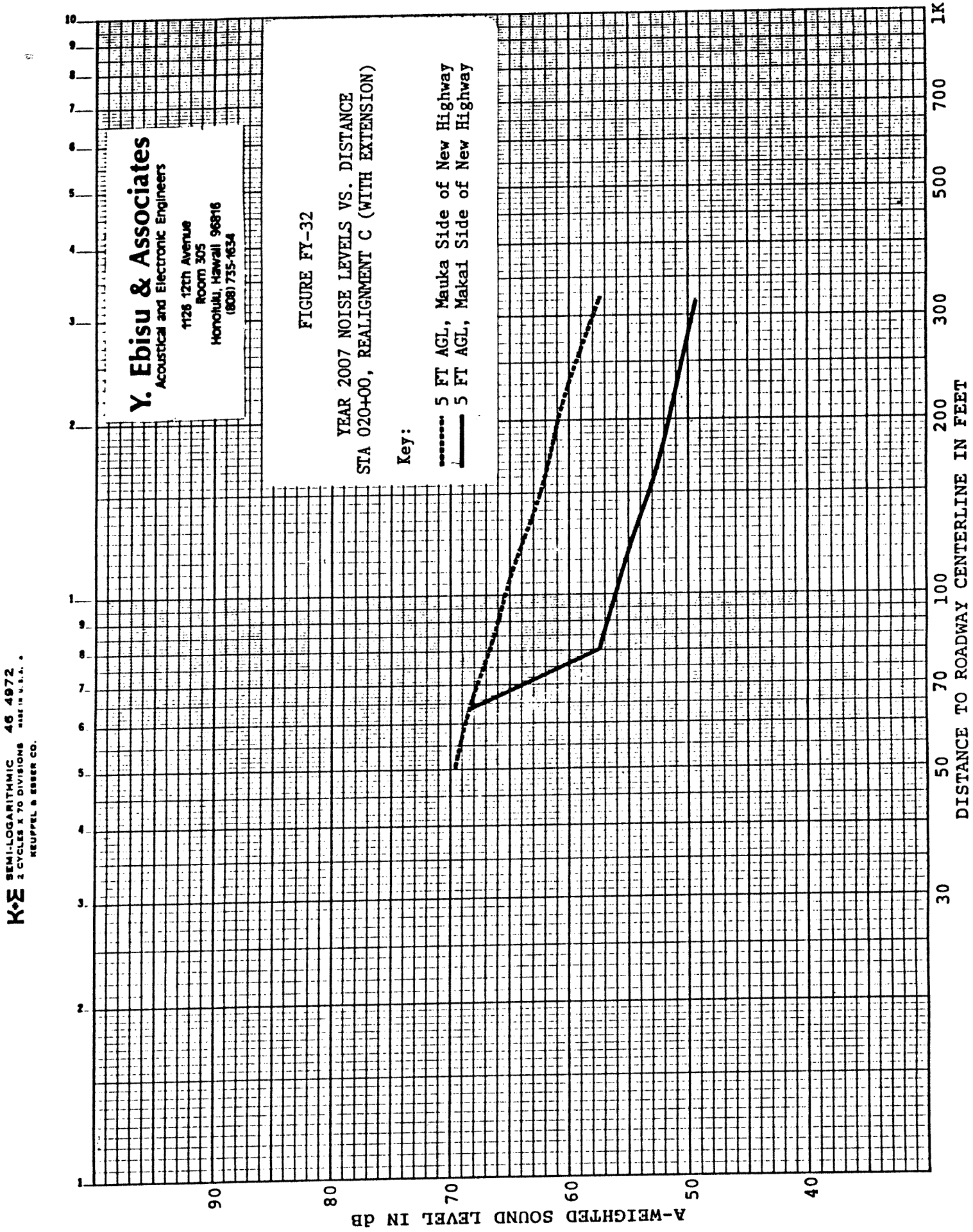
FIGURE FY-31

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 010+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway





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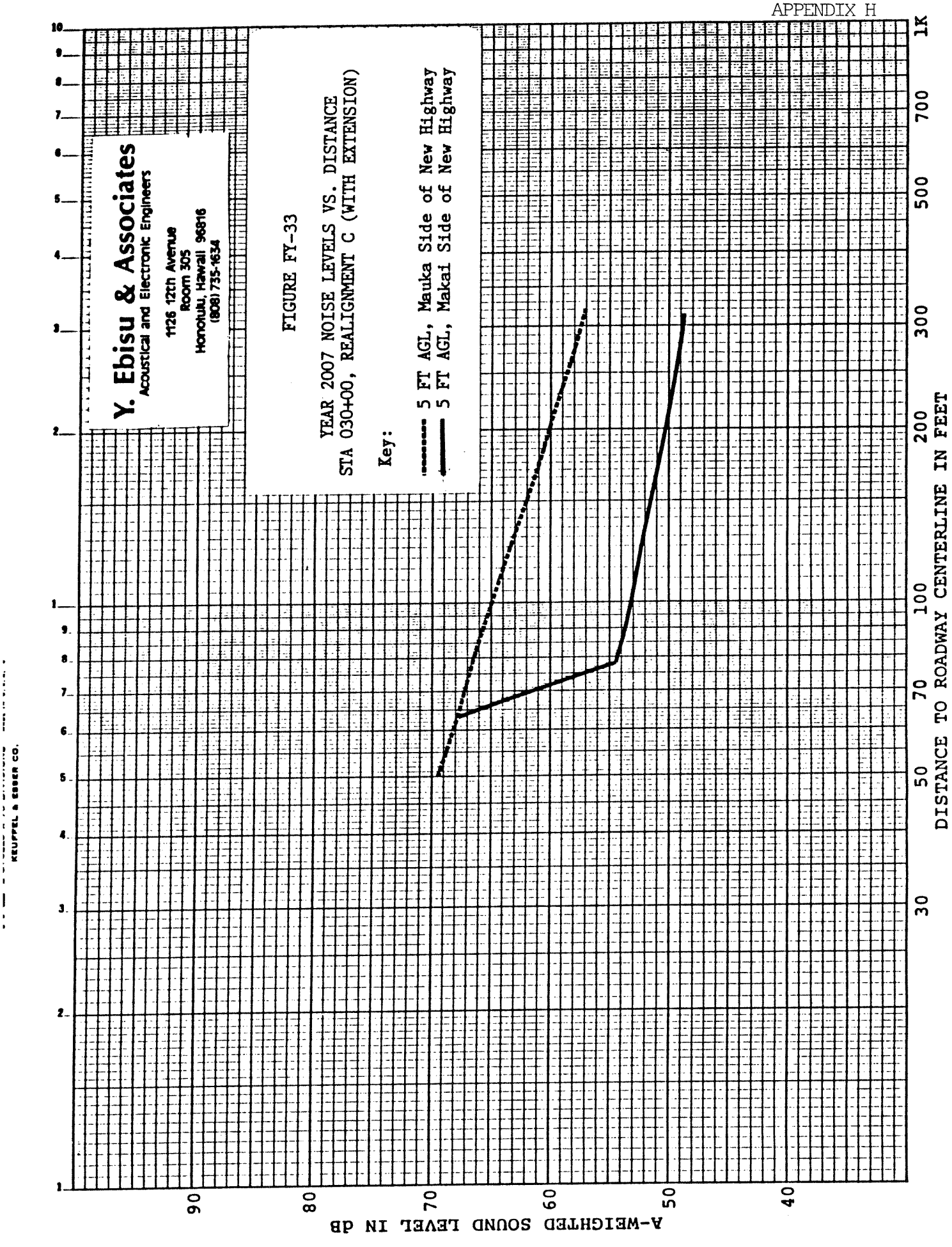
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FIGURE FY-33
YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 030+00, REALIGNMENT C (WITH EXTENSION)
Key:
5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway
A-WEIGHTED SOUND LEVEL IN dB
90
80
70
60
50
40
30
50
70
100
200
300
500
700
1K
DISTANCE TO ROADWAY CENTERLINE IN FEET

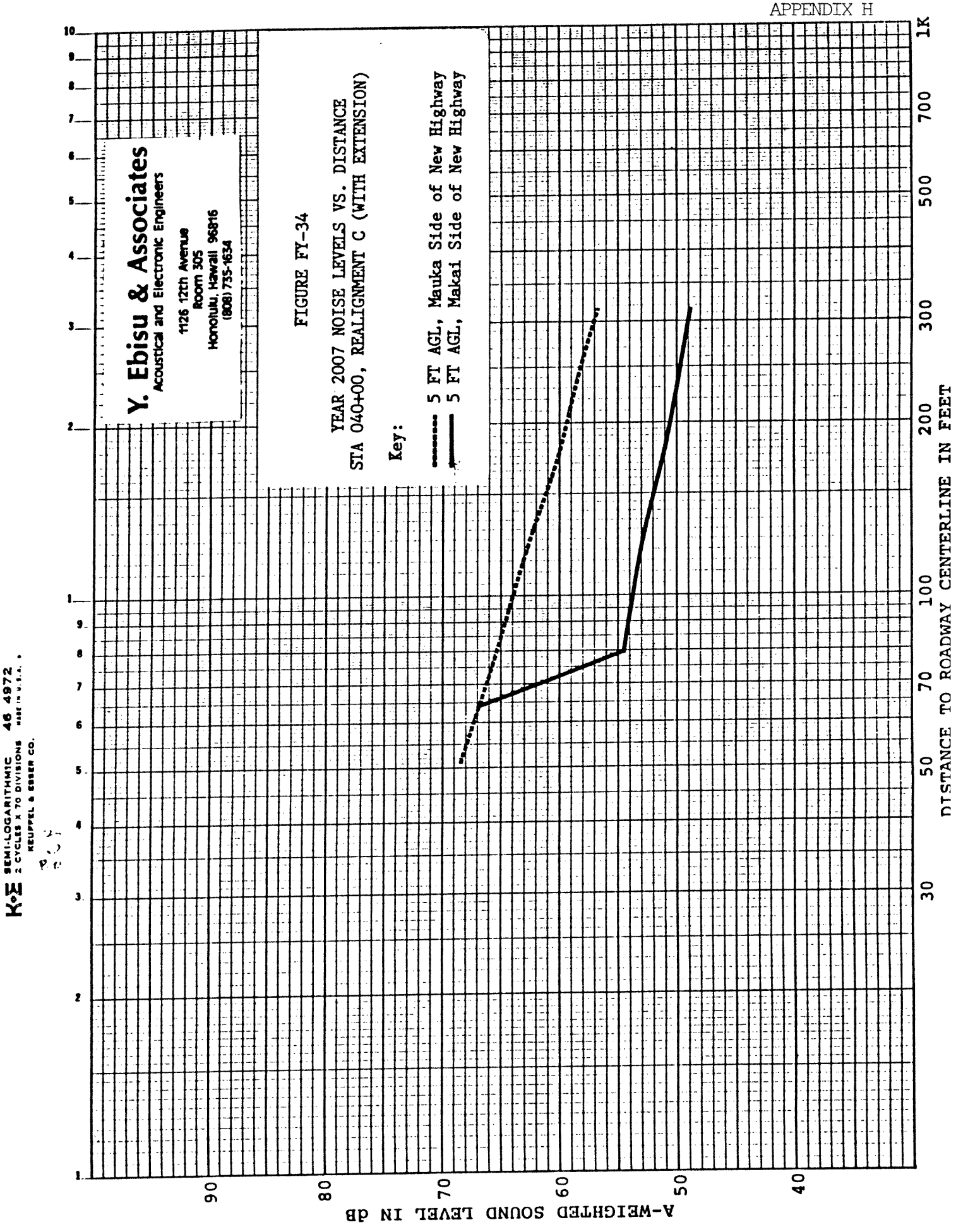
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FIGURE FY-34
YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 040+00, REALIGNMENT C (WITH EXTENSION)
Key:
5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway
A-WEIGHTED SOUND LEVEL IN dB
DISTANCE TO ROADWAY CENTERLINE IN FEET
90
80
70
60
50
40
30
70
50
100
200
300
500
700
1K

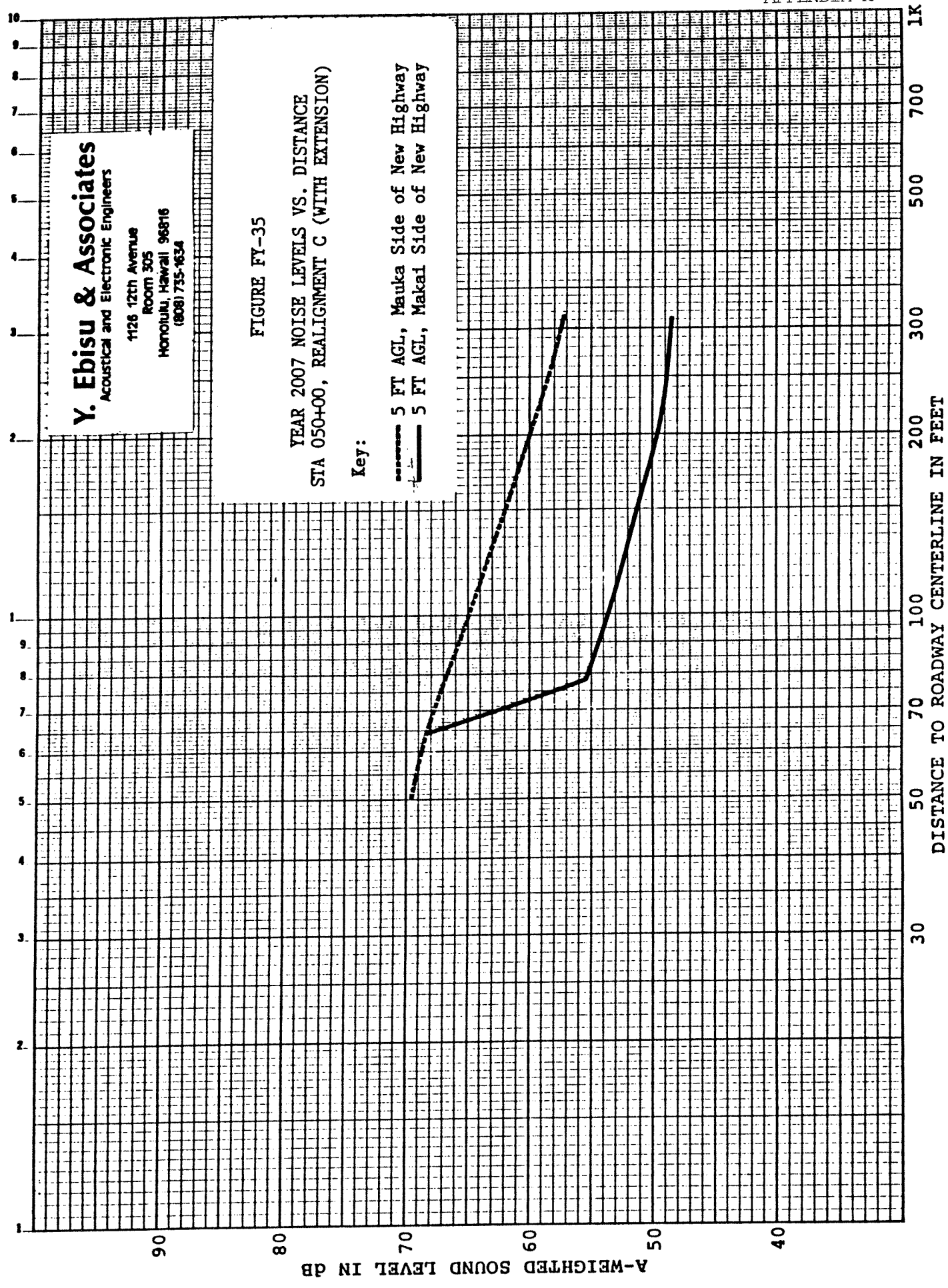
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FIGURE FT-35
YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 050+00, REALIGNMENT C (WITH EXTENSION)
Key:
5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway
A-WEIGHTED SOUND LEVEL IN dB
DISTANCE TO ROADWAY CENTERLINE IN FEET
90
80
70
60
50
40
30
50
70
100
200
300
500
700
1K

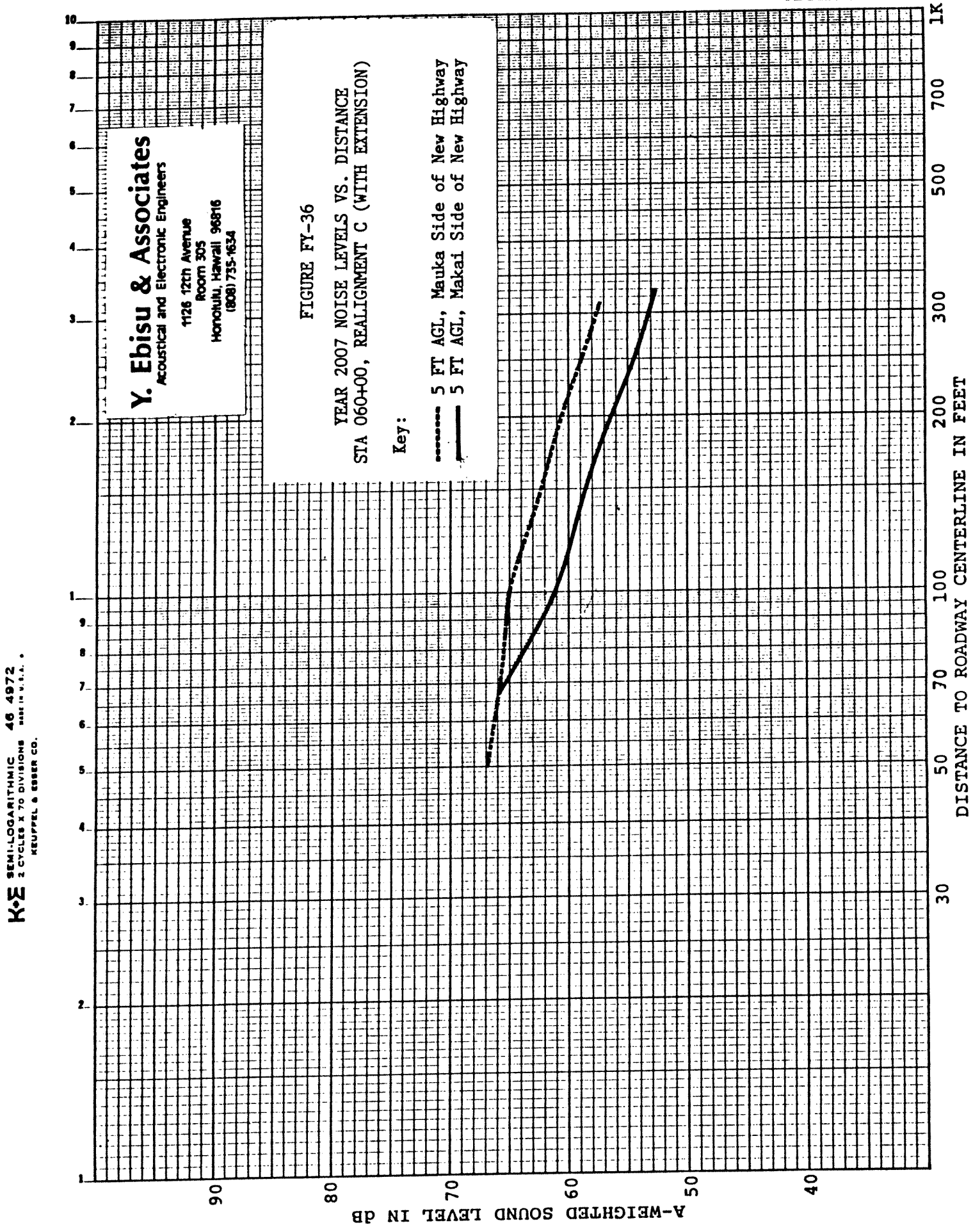

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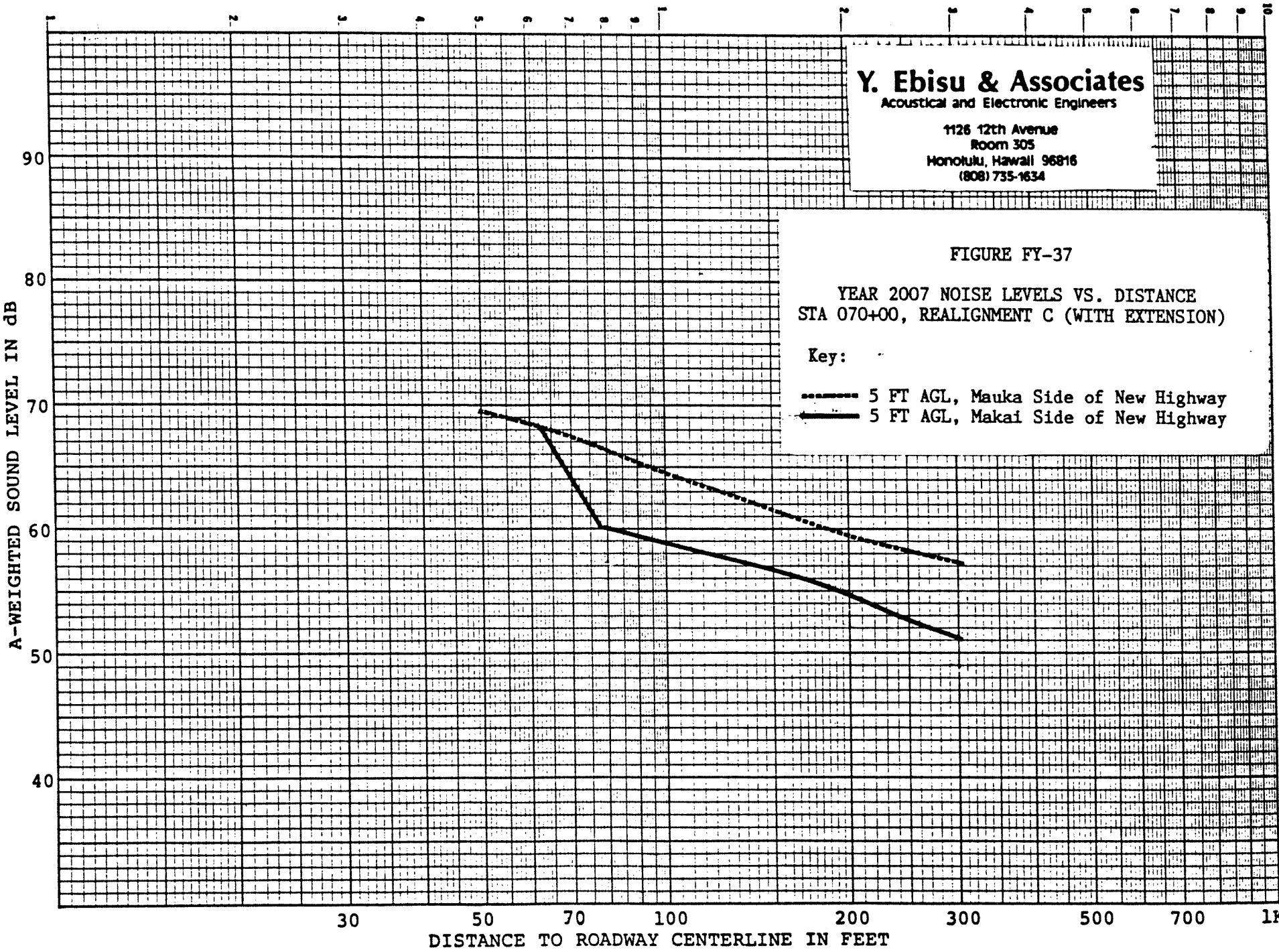
FIGURE FY-37

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 070+00, REALIGNMENT C (WITH EXTENSION)



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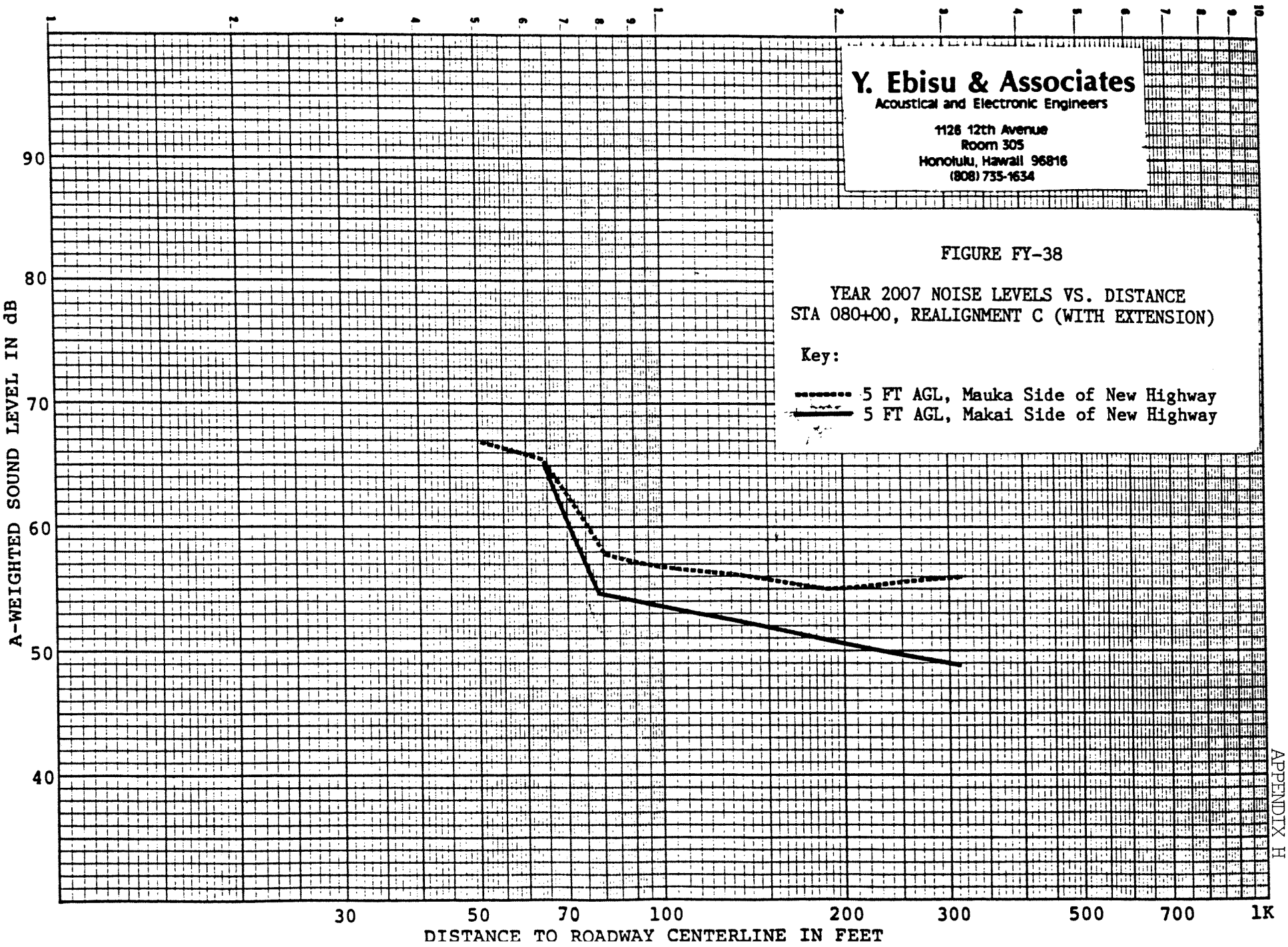

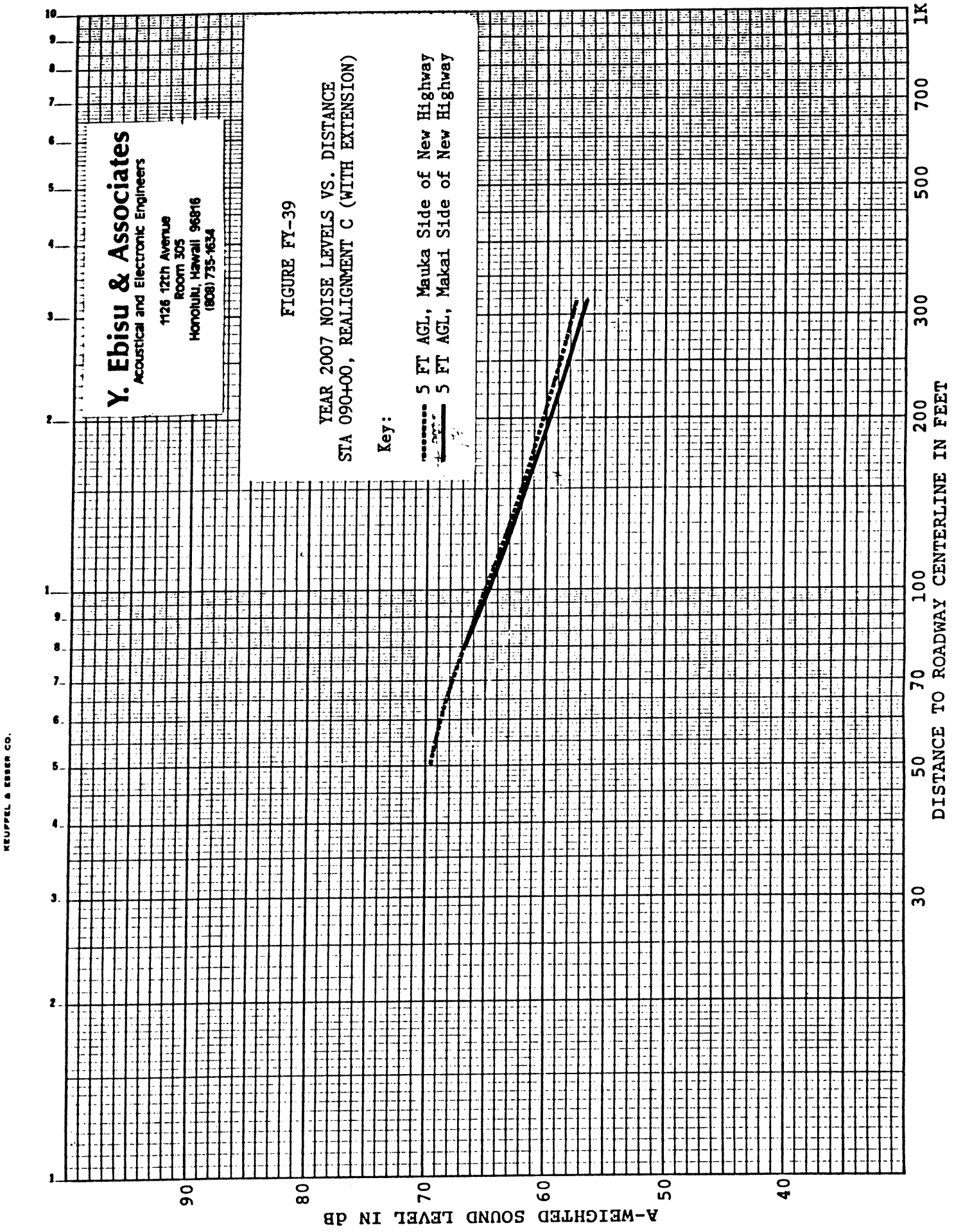
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FIGURE FY-39
YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 090+00, REALIGNMENT C (WITH EXTENSION)
Key:
5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway
A-WEIGHTED SOUND LEVEL IN dB
90
80
70
60
50
40
30
50
70
100
200
300
500
700
1K
DISTANCE TO ROADWAY CENTERLINE IN FEET
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FIGURE FY-40

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 100+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

A-WEIGHTED SOUND LEVEL IN dB

90
80
70
60
50
40

30 50 70 100 200 300 500 700 1K

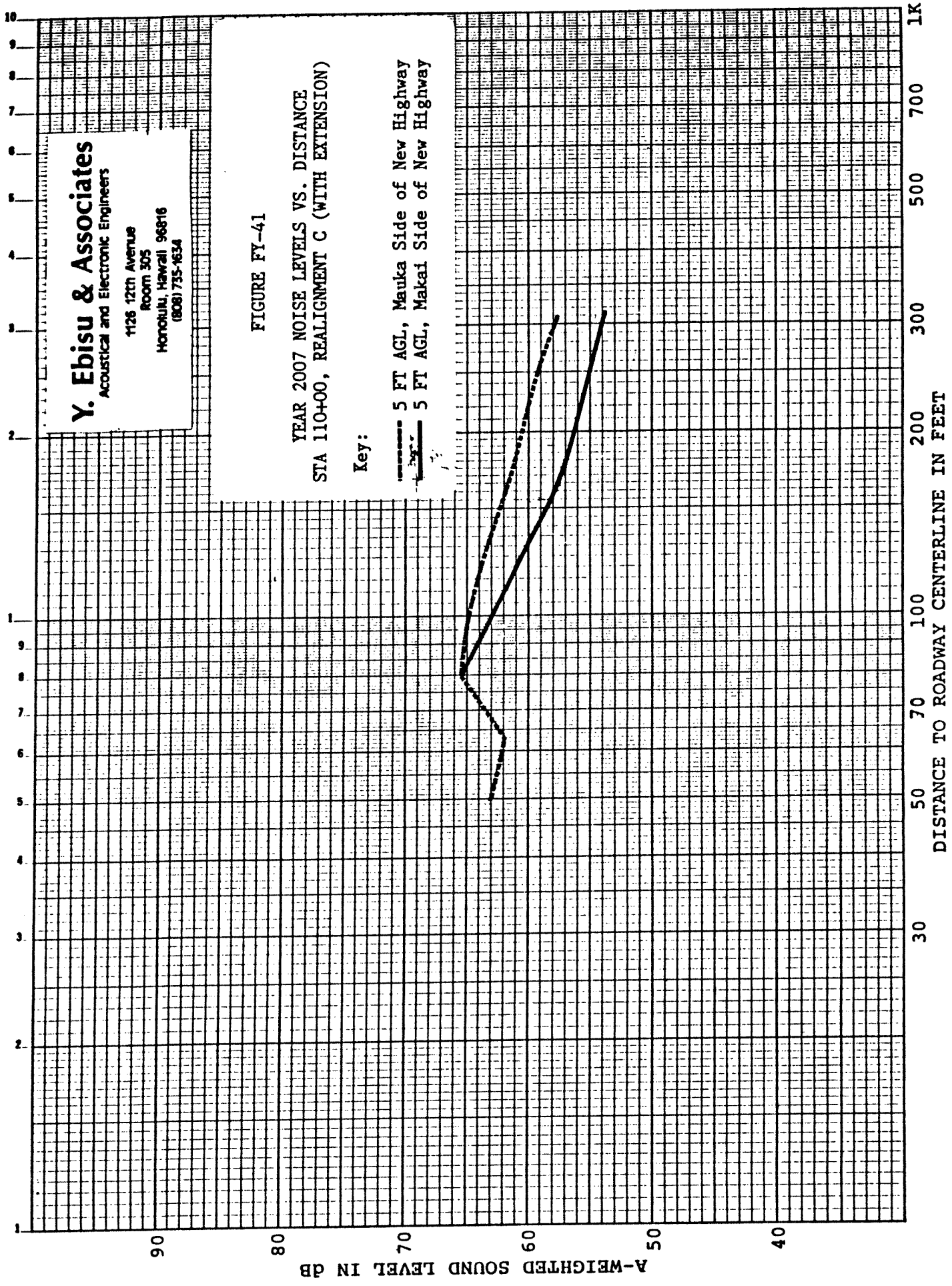
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FIGURE FY-41
YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 110+00, REALIGNMENT C (WITH EXTENSION)
Key:
5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway
A-WEIGHTED SOUND LEVEL IN dB
90
80
70
60
50
40
30
50
70
100
200
300
500
700
1K
DISTANCE TO ROADWAY CENTERLINE IN FEET

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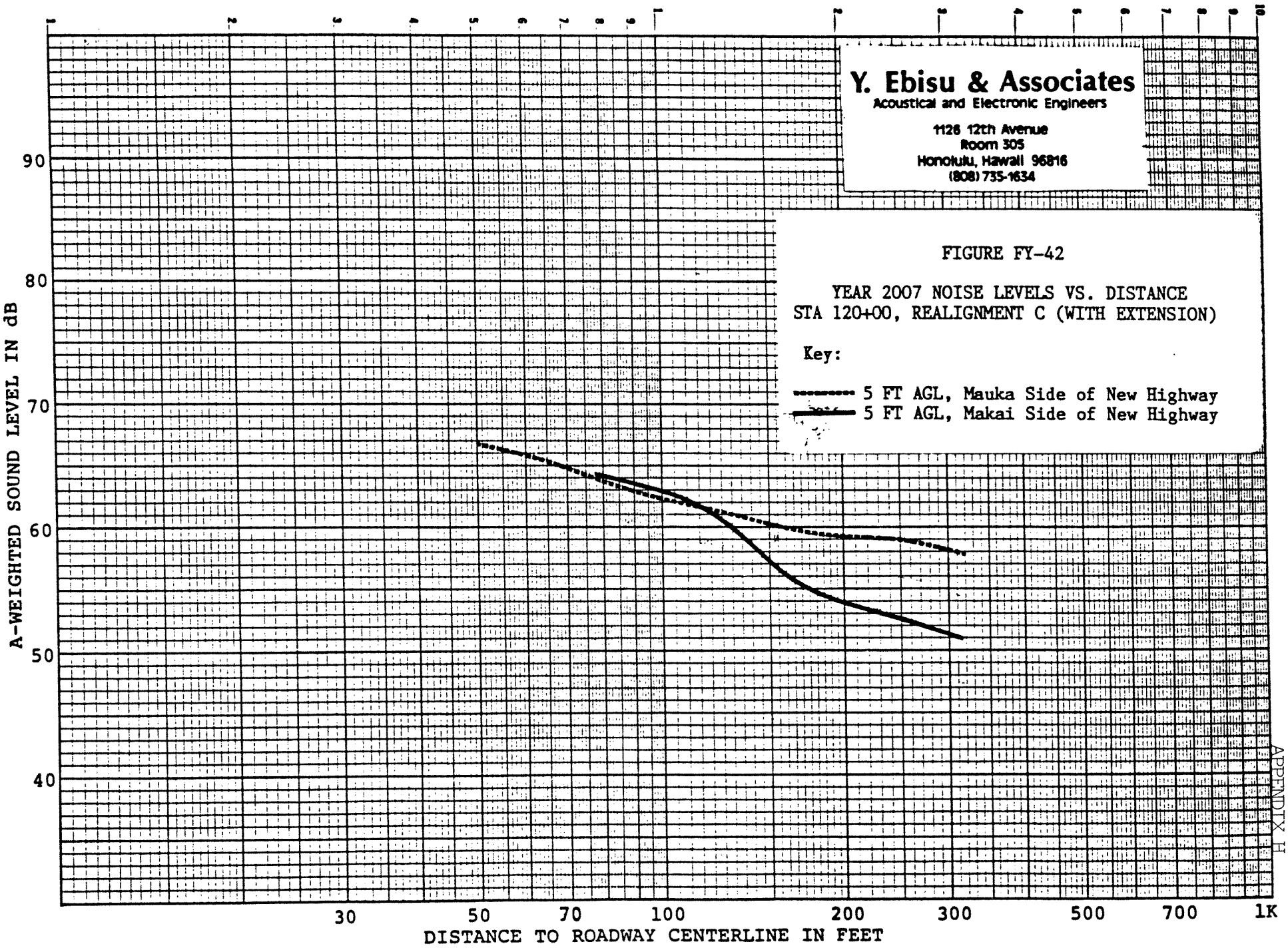

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FIGURE FY-43

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 130+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

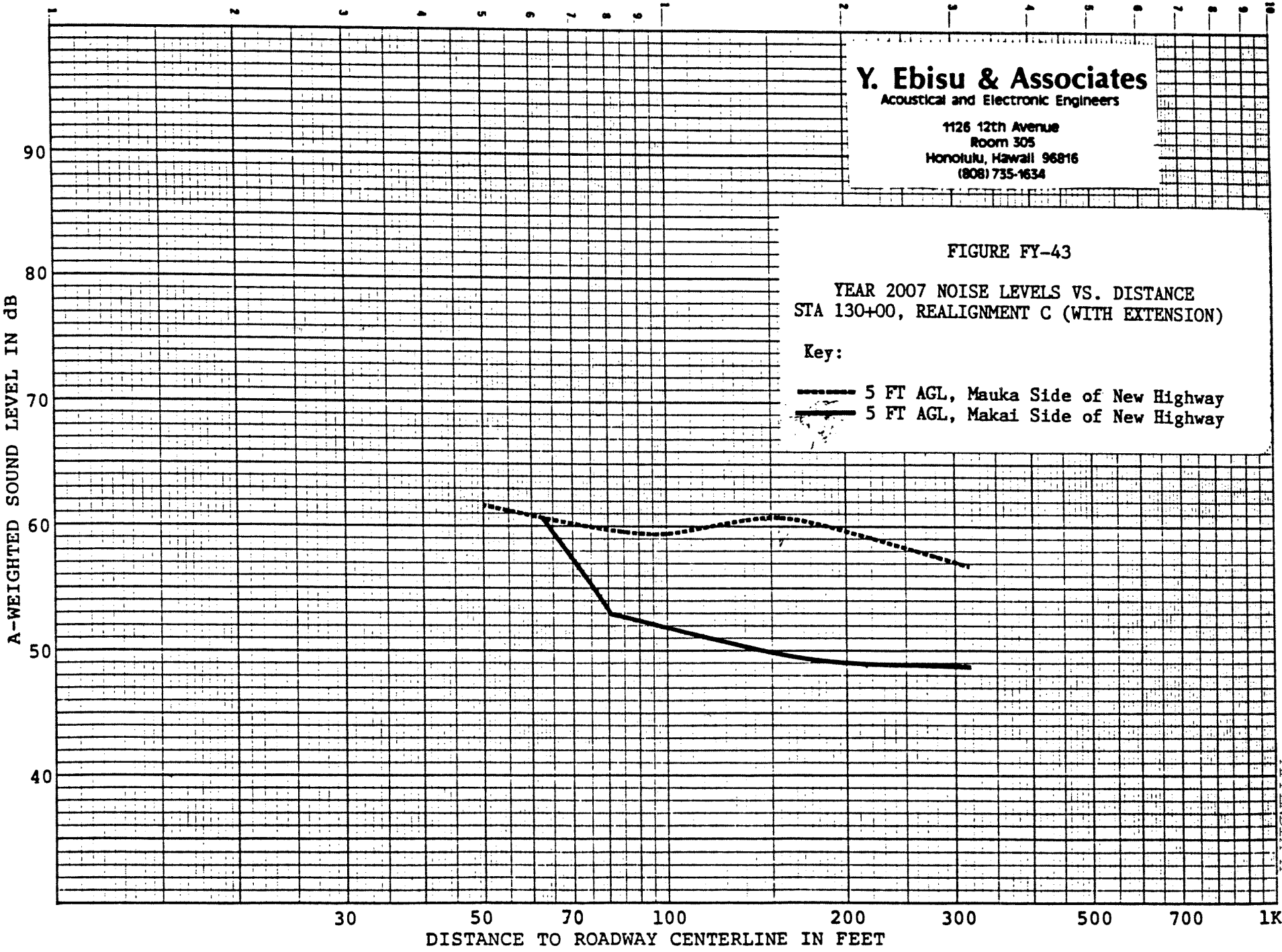

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FIGURE FY-44

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 140+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

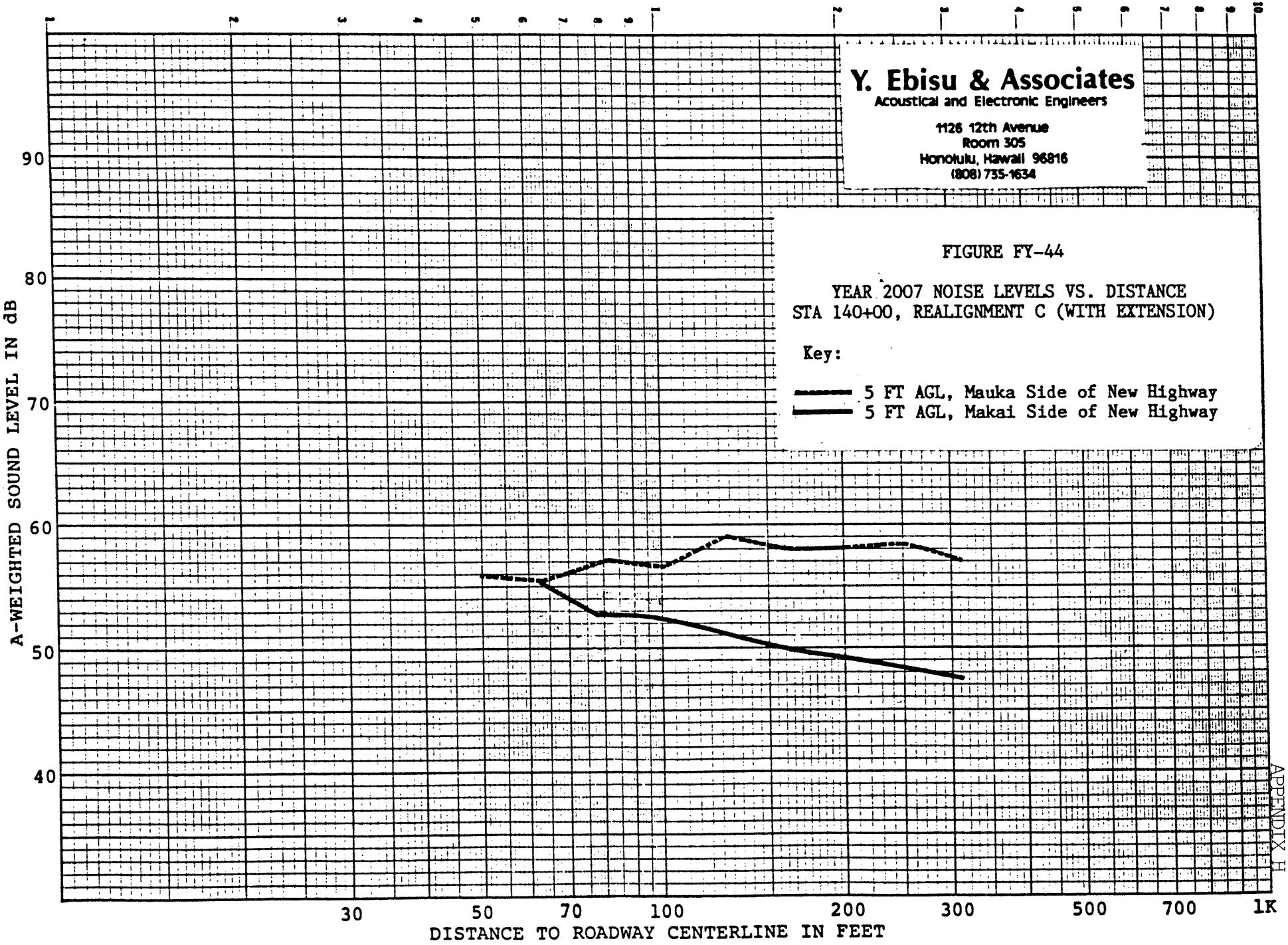

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FIGURE FY-45

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 145+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

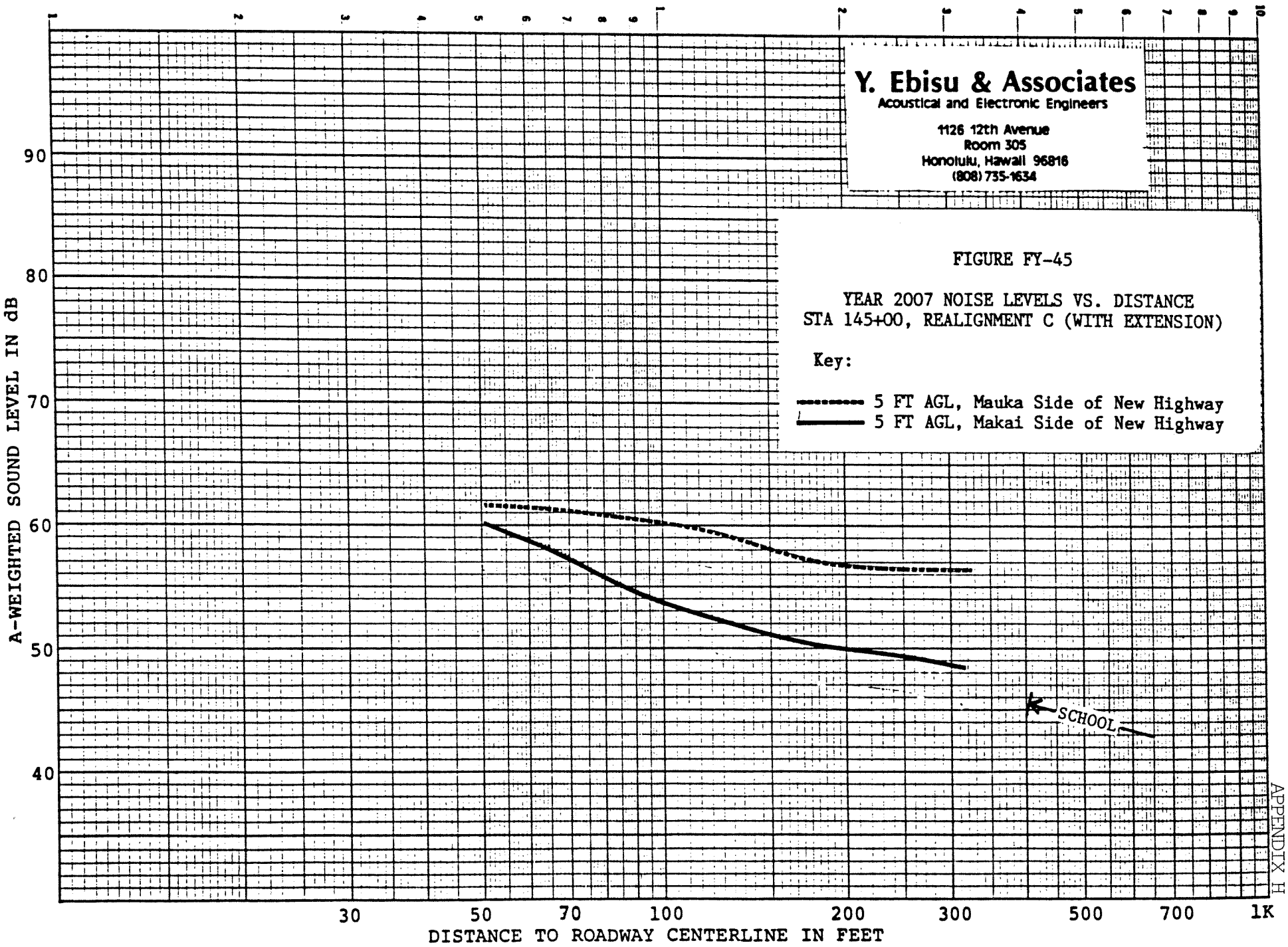

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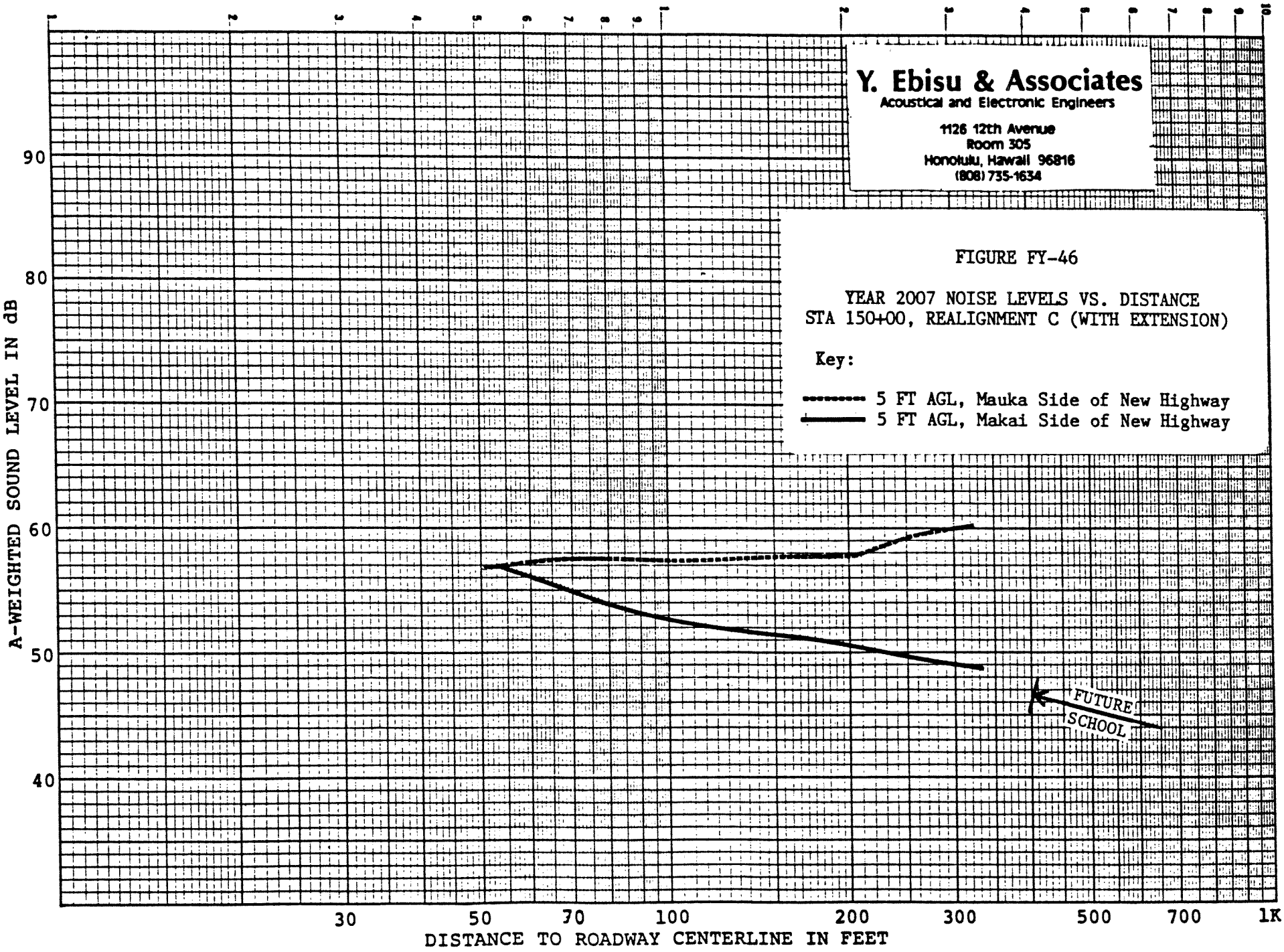
FIGURE FY-46

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 150+00, REALIGNMENT C (WITH EXTENSION)

Key:

- 5 FT AGL, Mauka Side of New Highway
- 5 FT AGL, Makai Side of New Highway



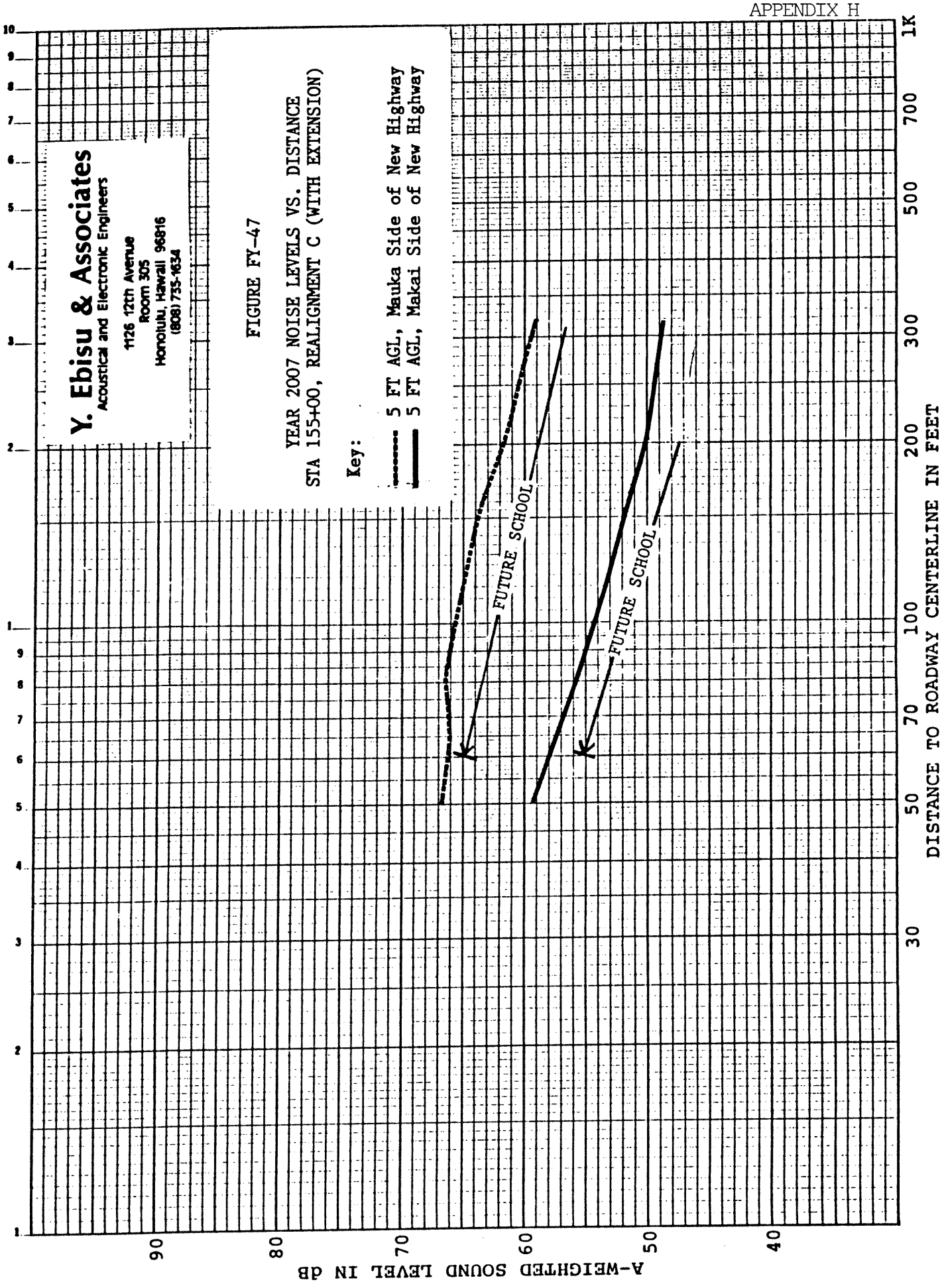

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FIGURE FY-47
YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 155+00, REALIGNMENT C (WITH EXTENSION)
Key:
5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway
FUTURE SCHOOL
FUTURE SCHOOL
A-WEIGHTED SOUND LEVEL IN dB
DISTANCE TO ROADWAY CENTERLINE IN FEET
90
80
70
60
50
40
30
50
70
100
200
300
500
700
1K

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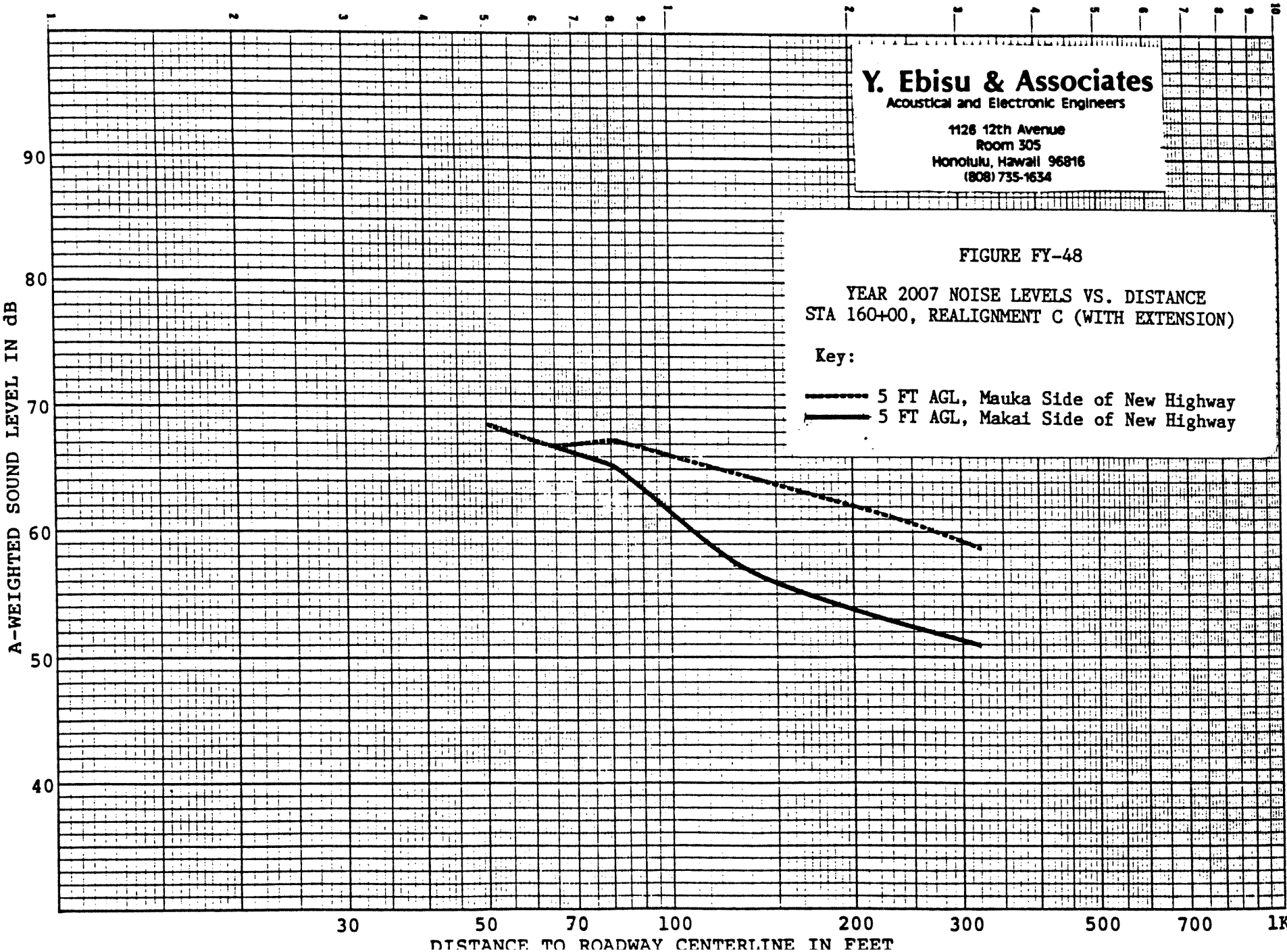
FIGURE FY-48

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 160+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway



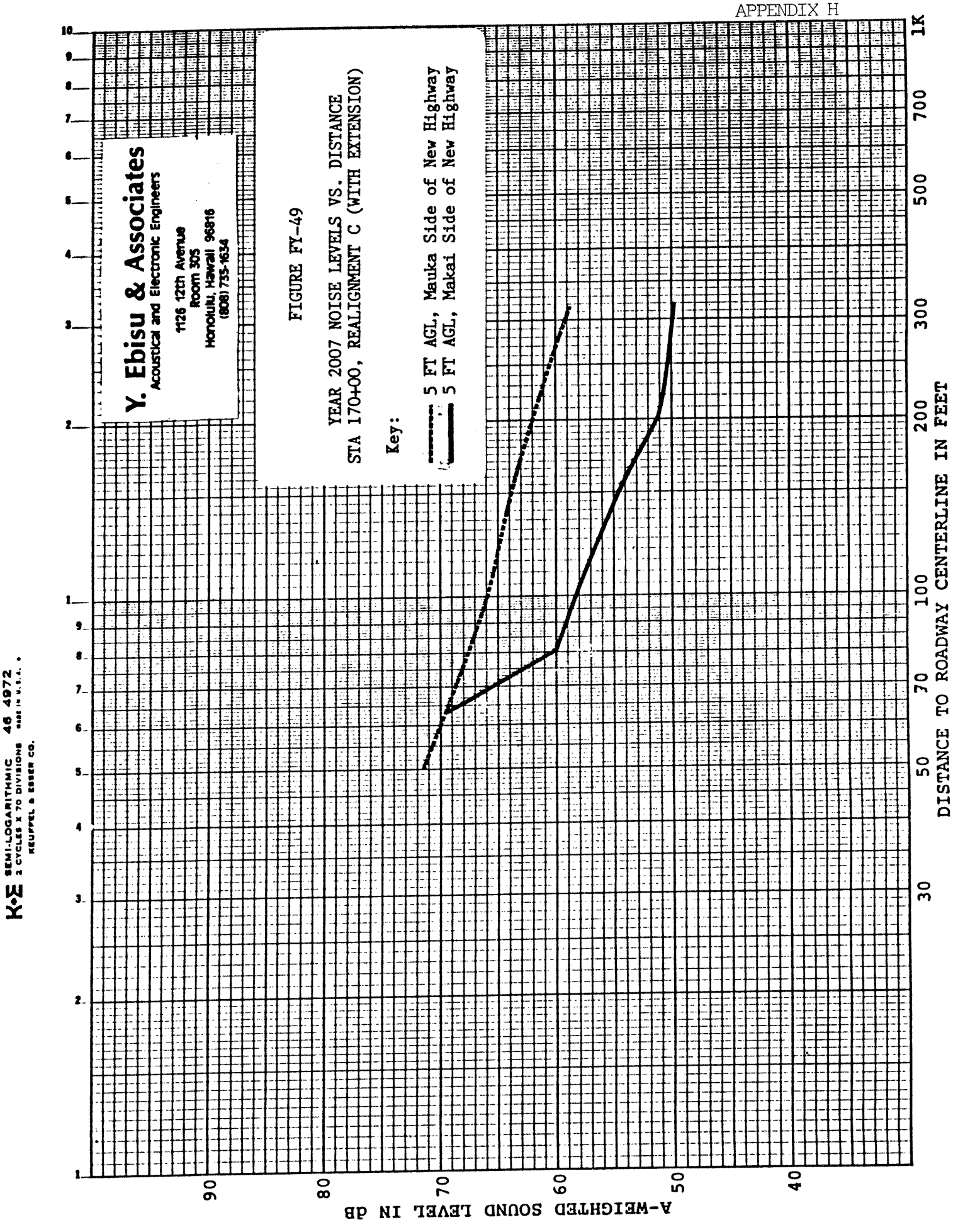


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FIGURE FY-50

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 180+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

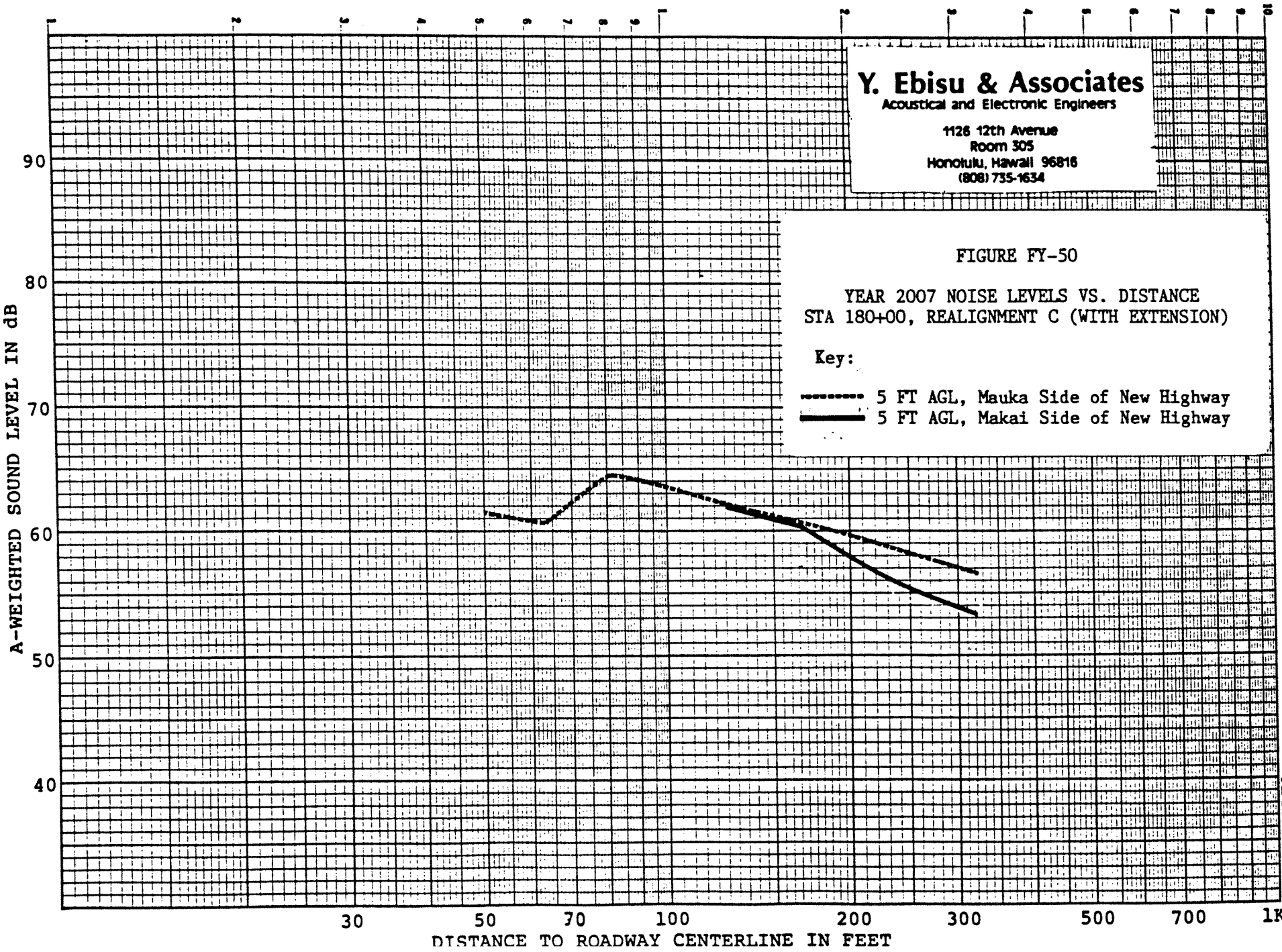

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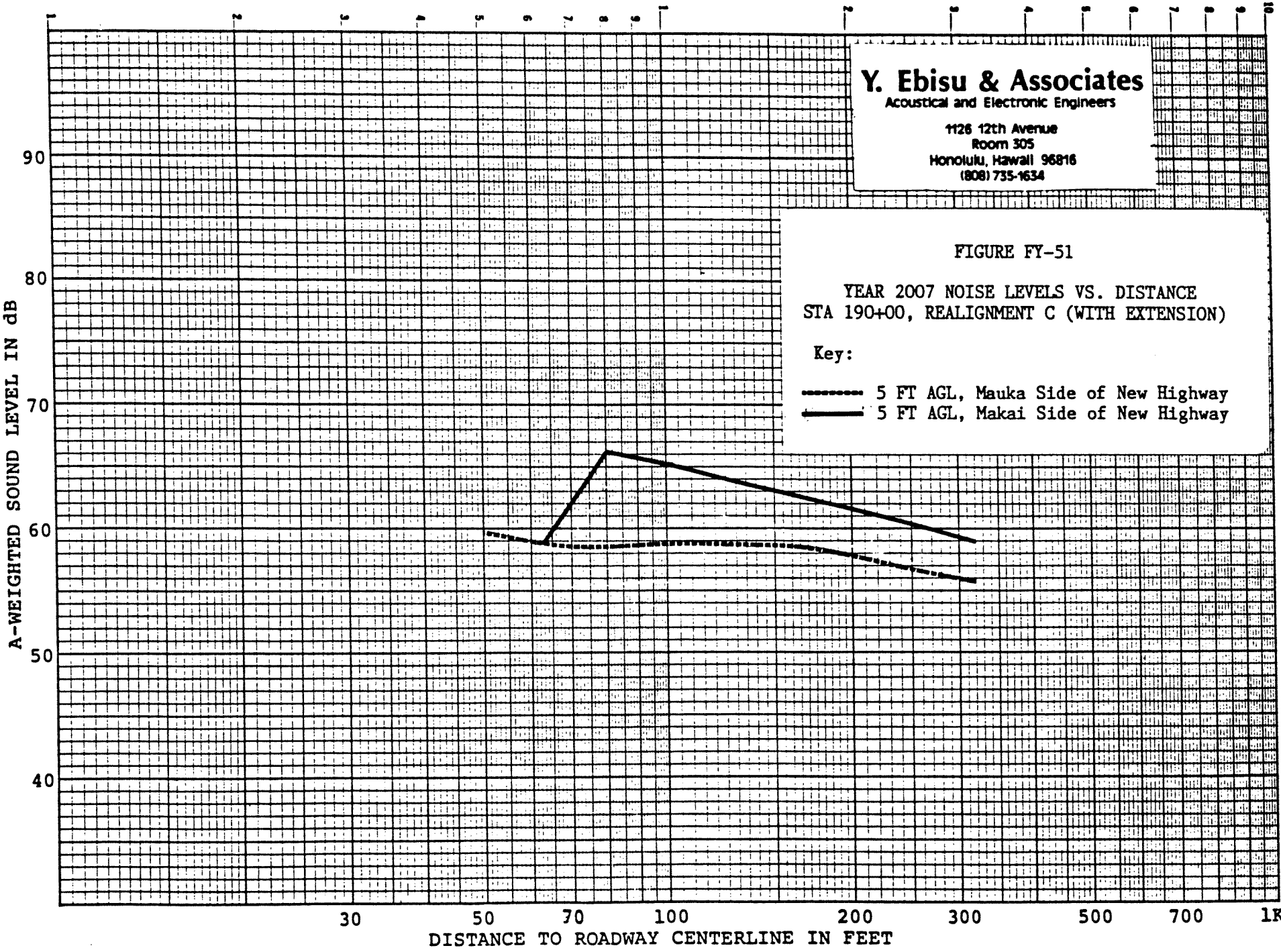
FIGURE FY-51

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 190+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway



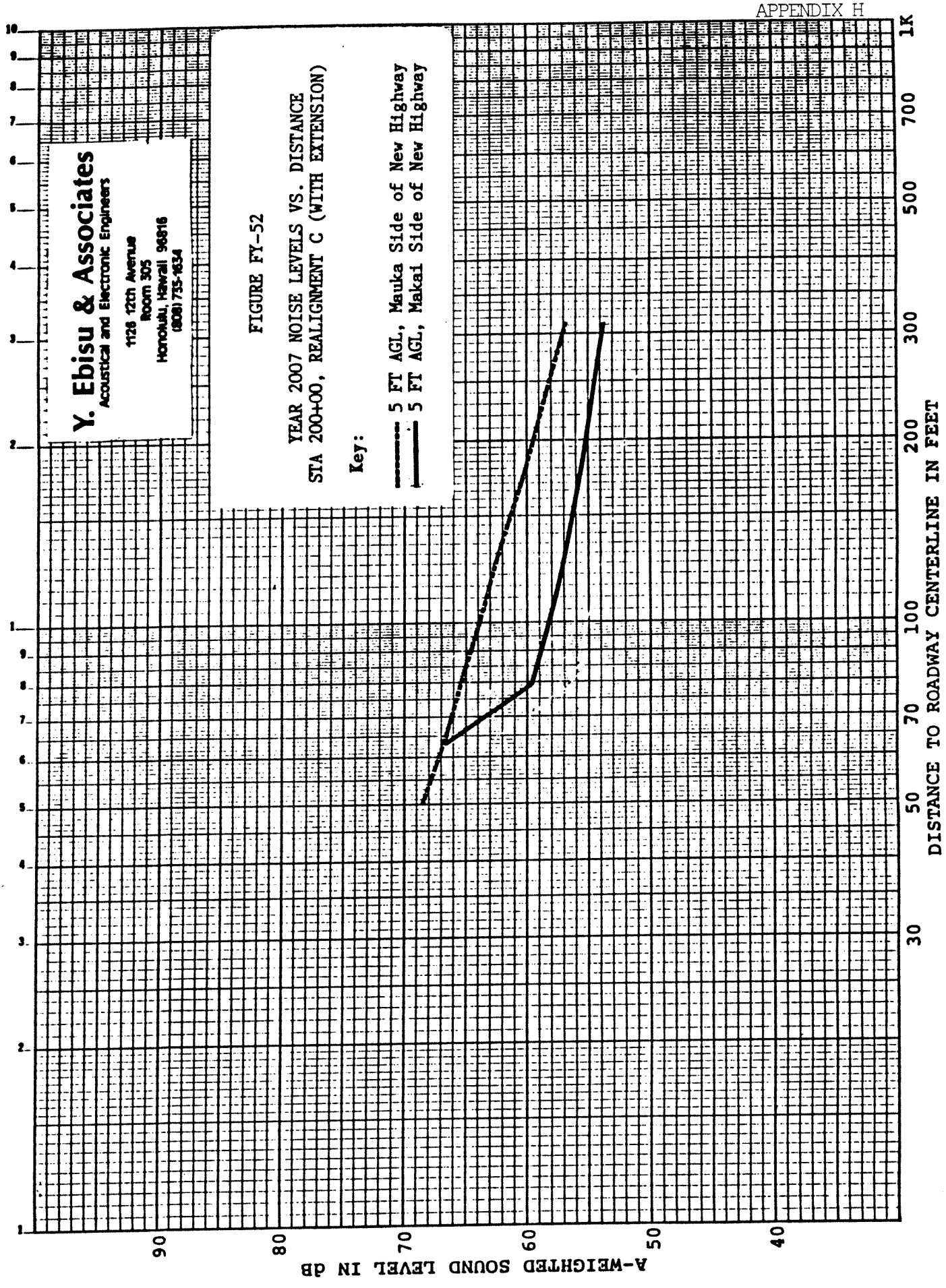


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FIGURE FY-53

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 210+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

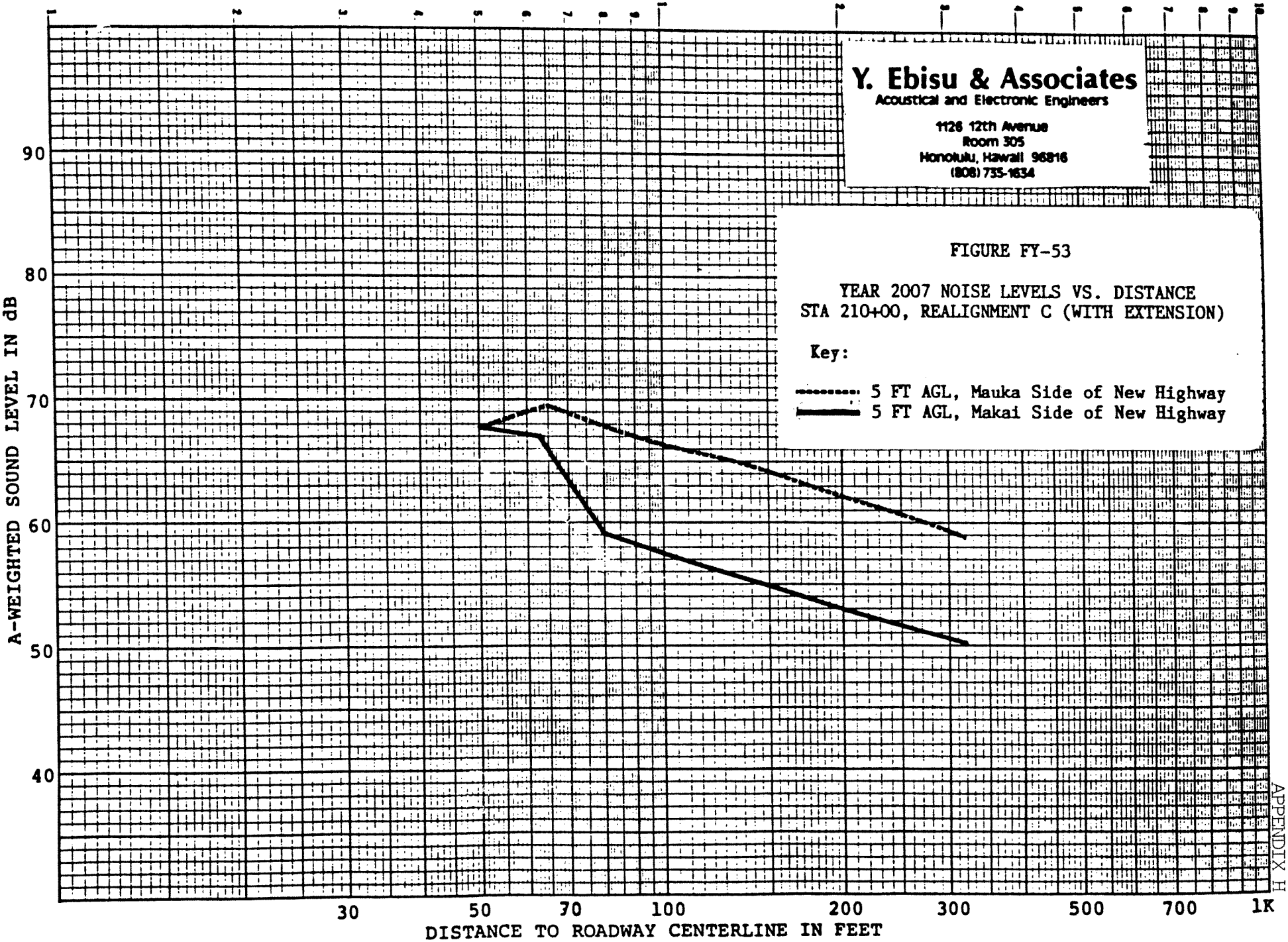

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FIGURE FY-54

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 220+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

A-WEIGHTED SOUND LEVEL IN dB

90
80
70
60
50
40

30 50 70 100 200 300 500 700 1K

DISTANCE TO ROADWAY CENTERLINE IN FEET

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FIGURE FY-55

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 230+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

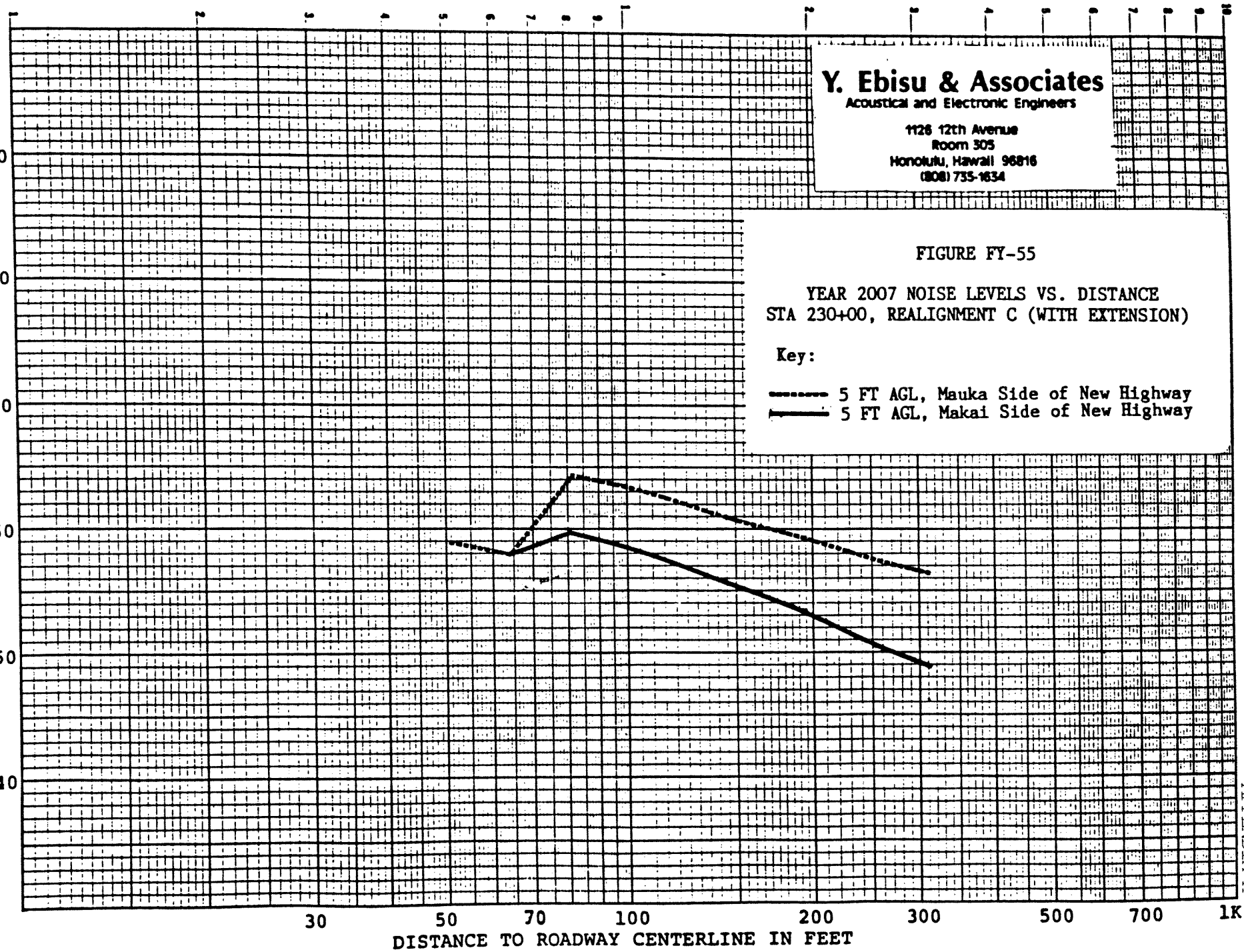

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FIGURE FY-56

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 240+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

A-WEIGHTED SOUND LEVEL IN dB

90
80
70
60
50
40

30 50 70 100 200 300 500 700 1K

DISTANCE TO ROADWAY CENTERLINE IN FEET

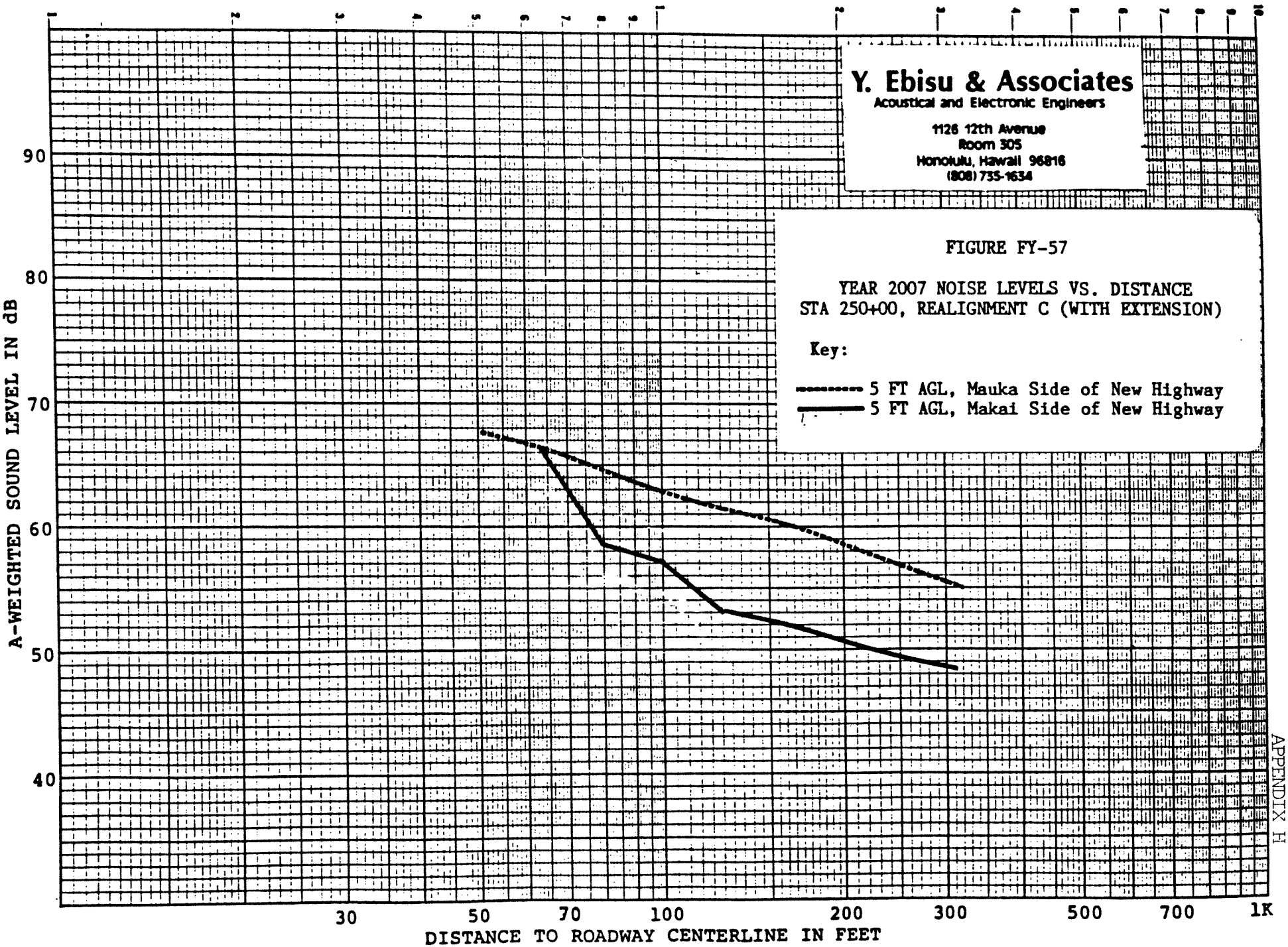
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FIGURE FY-57
YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 250+00, REALIGNMENT C (WITH EXTENSION)
Key:
5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway
A-WEIGHTED SOUND LEVEL IN dB
90
80
70
60
50
40
30
50
70
100
200
300
500
700
1K
DISTANCE TO ROADWAY CENTERLINE IN FEET

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FIGURE FY-58

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 260+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

A-WEIGHTED SOUND LEVEL IN dB

90
80
70
60
50
40

30 50 70 100 200 300 500 700 1K

DISTANCE TO ROADWAY CENTERLINE IN FEET

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FIGURE FY-59

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 270+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

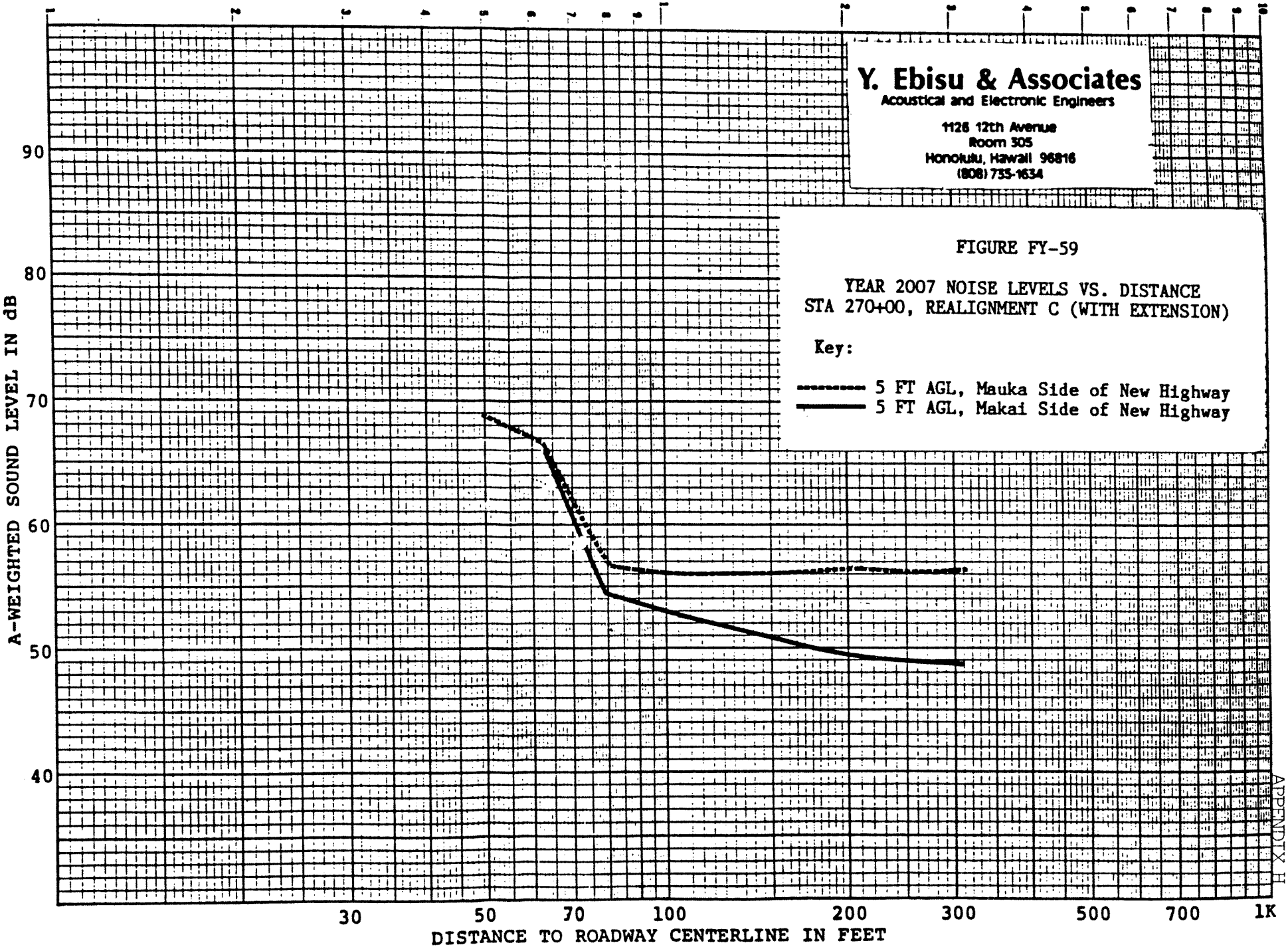

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FIGURE FY-60

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 280+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

A-WEIGHTED SOUND LEVEL IN dB

90
80
70
60
50
40

30 50 70 100 200 300 500 700 1K

DISTANCE TO ROADWAY CENTERLINE IN FEET

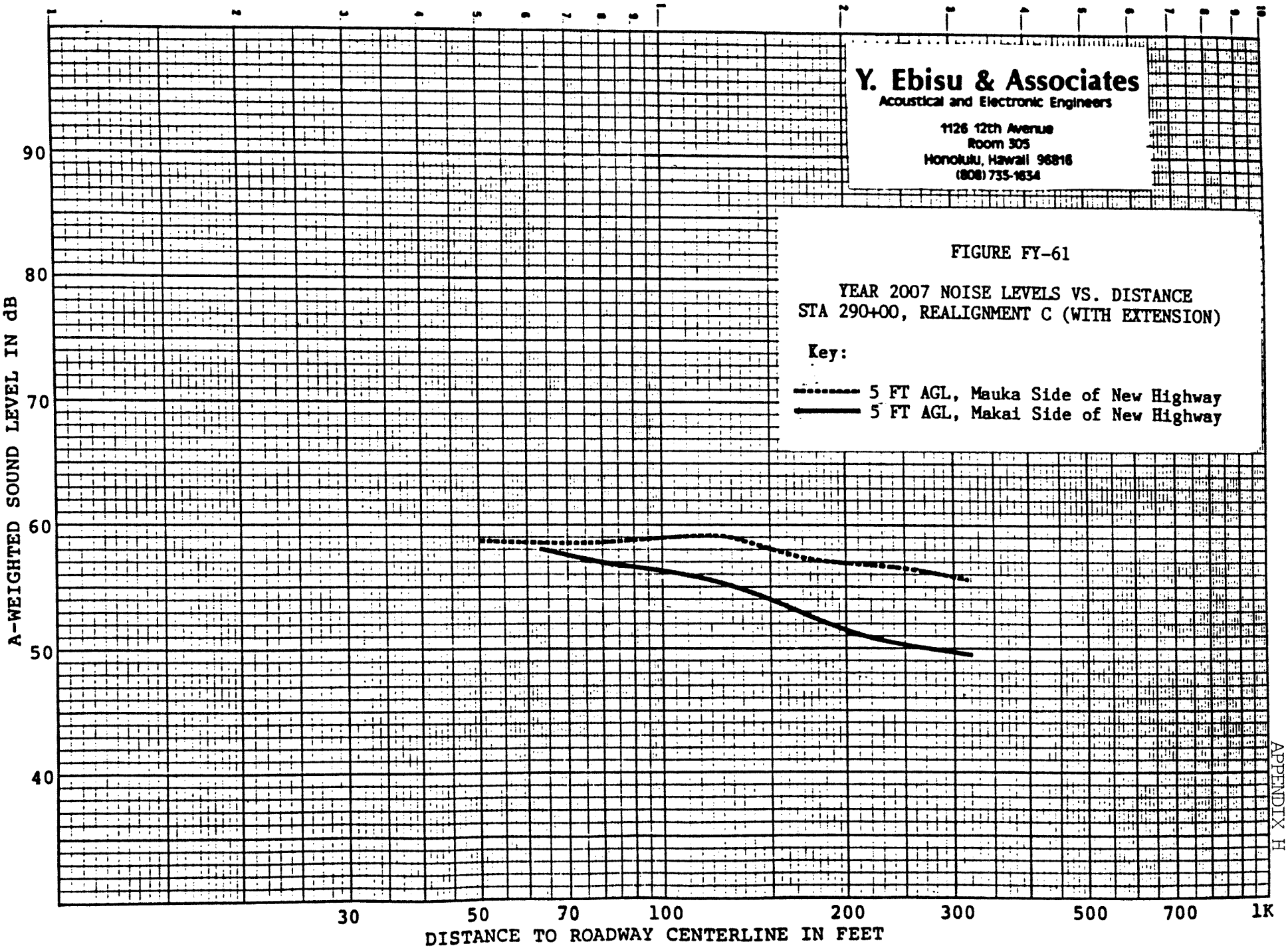
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FIGURE FY-61
YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 290+00, REALIGNMENT C (WITH EXTENSION)
Key:
5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway
A-WEIGHTED SOUND LEVEL IN dB
90
80
70
60
50
40
30
50
70
100
200
300
500
700
1K
DISTANCE TO ROADWAY CENTERLINE IN FEET

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FIGURE FY-62

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 300+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

A-WEIGHTED SOUND LEVEL IN dB

90
80
70
60
50
40

30 50 70 100 200 300 500 700 1K

DISTANCE TO ROADWAY CENTERLINE IN FEET

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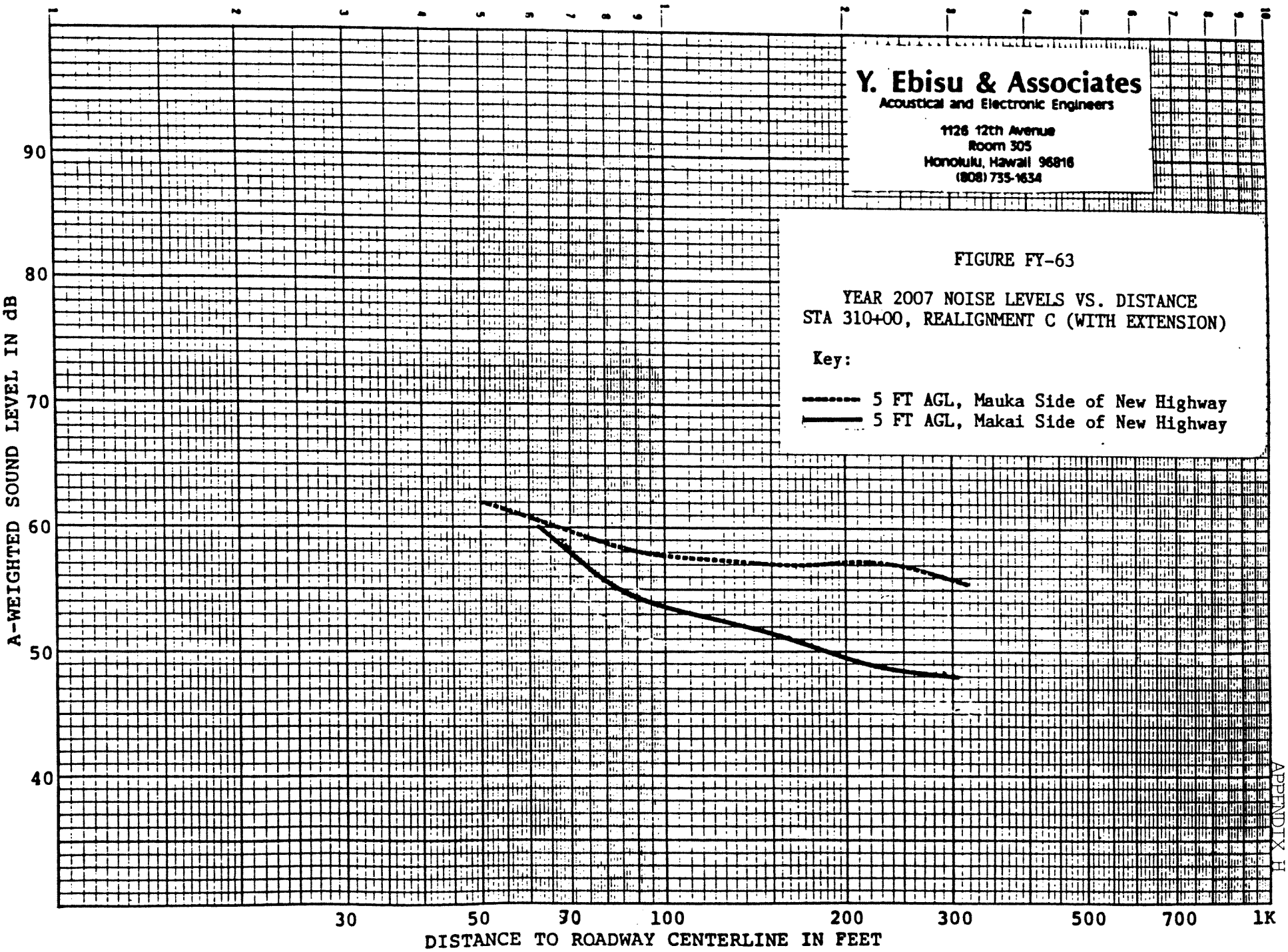
FIGURE FY-63

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 310+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway



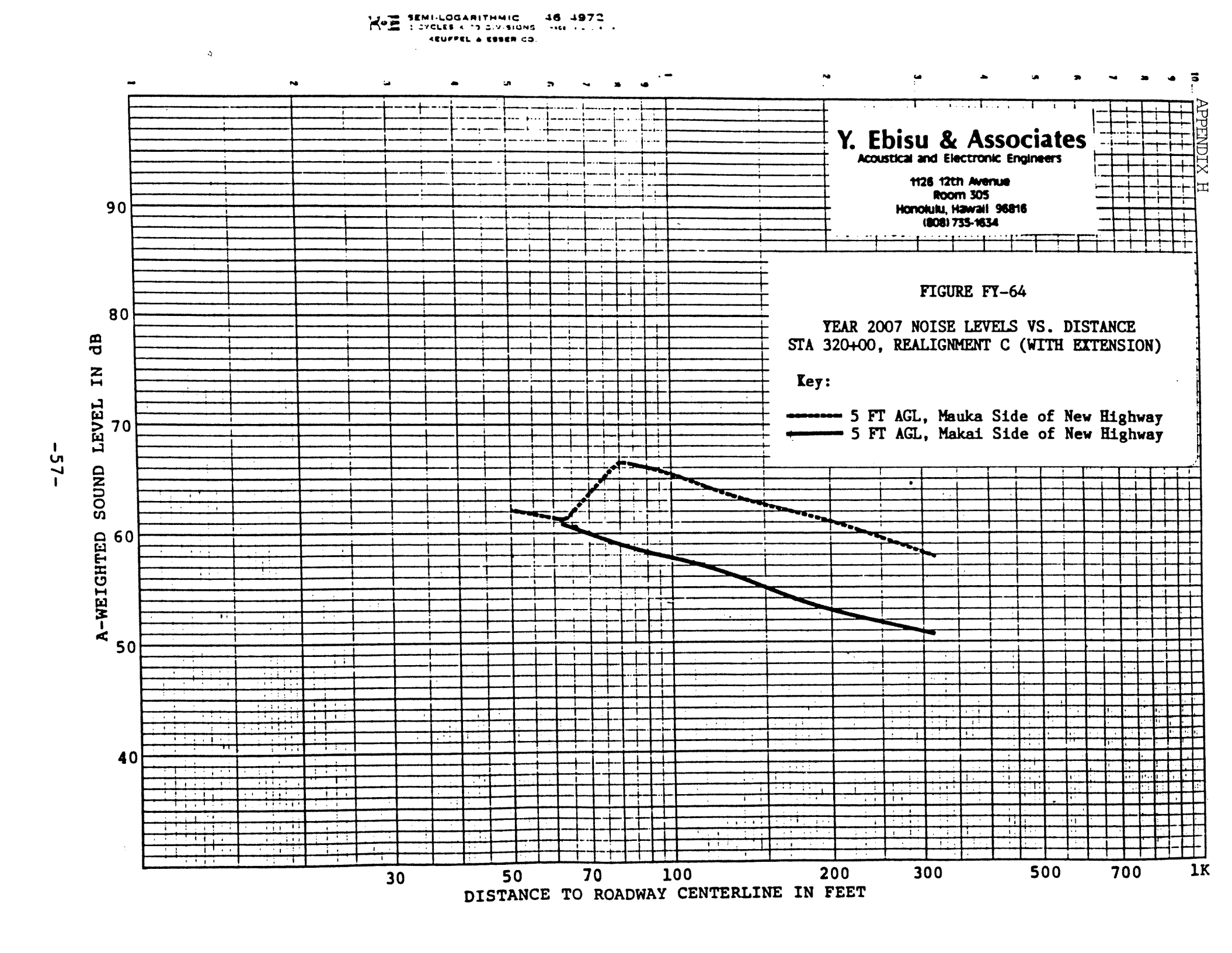

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FIGURE FY-64
YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 320+00, REALIGNMENT C (WITH EXTENSION)
Key:
5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway
A-WEIGHTED SOUND LEVEL IN dB
90
80
70
60
50
40
30
50
70
100
200
300
500
700
1K
DISTANCE TO ROADWAY CENTERLINE IN FEET

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FIGURE FY-65

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 330+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

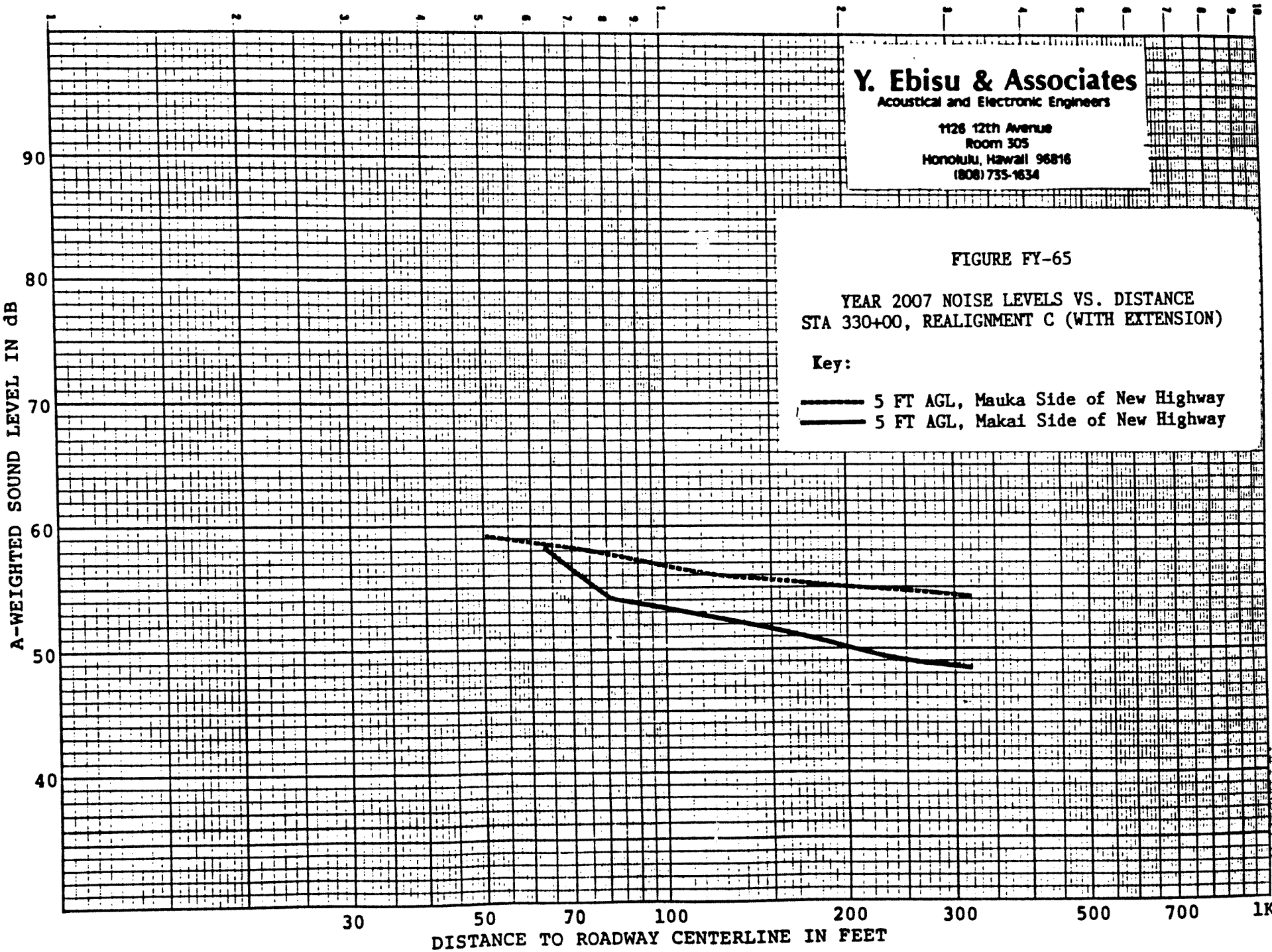

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FIGURE FY-66

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 340+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

A-WEIGHTED SOUND LEVEL IN dB

90
80
70
60
50
40

30 50 70 100 200 300 500 700 1K

DISTANCE TO ROADWAY CENTERLINE IN FEET

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FIGURE FY-67

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 350+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

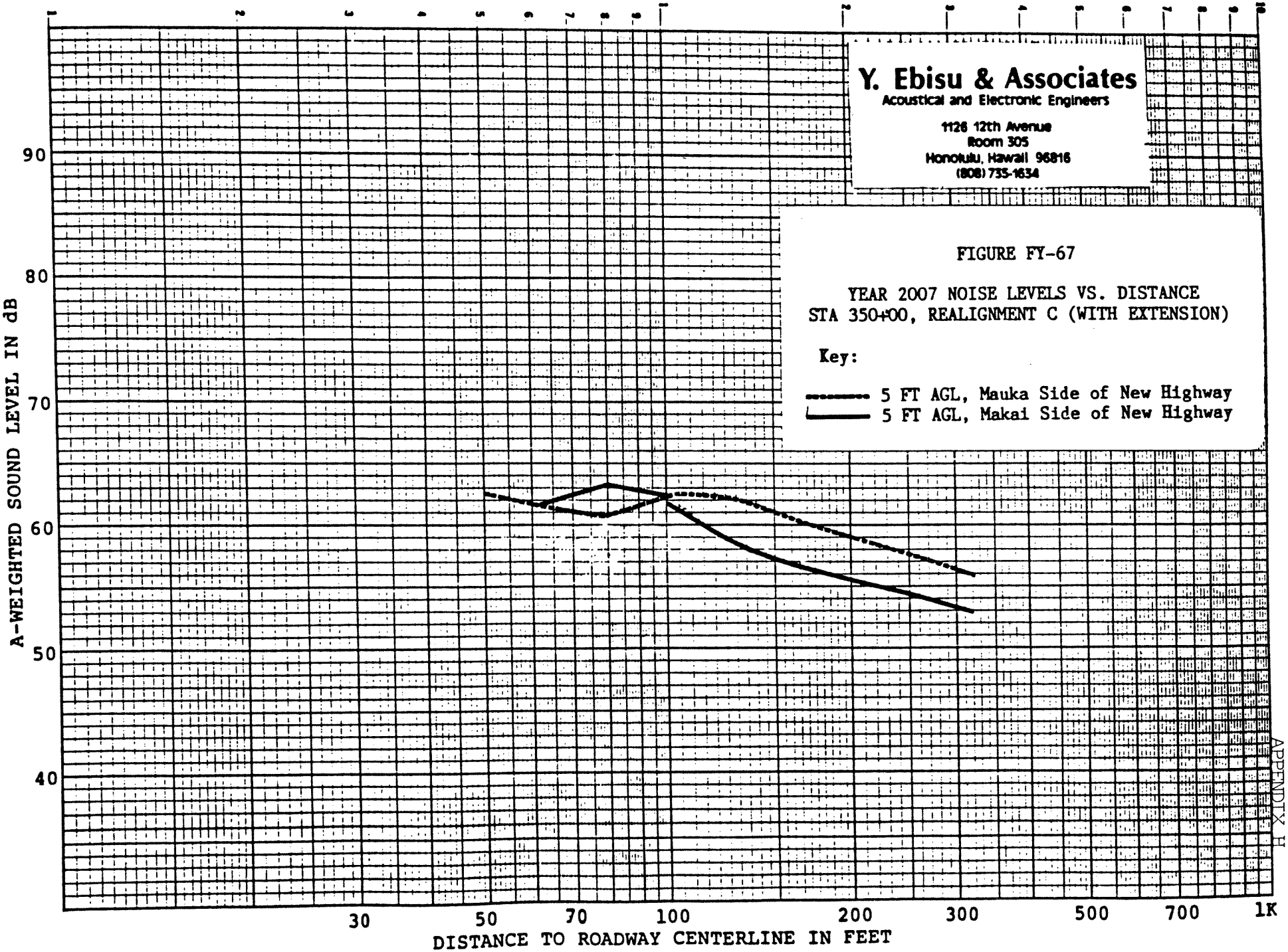

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FIGURE FY-68

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 360+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

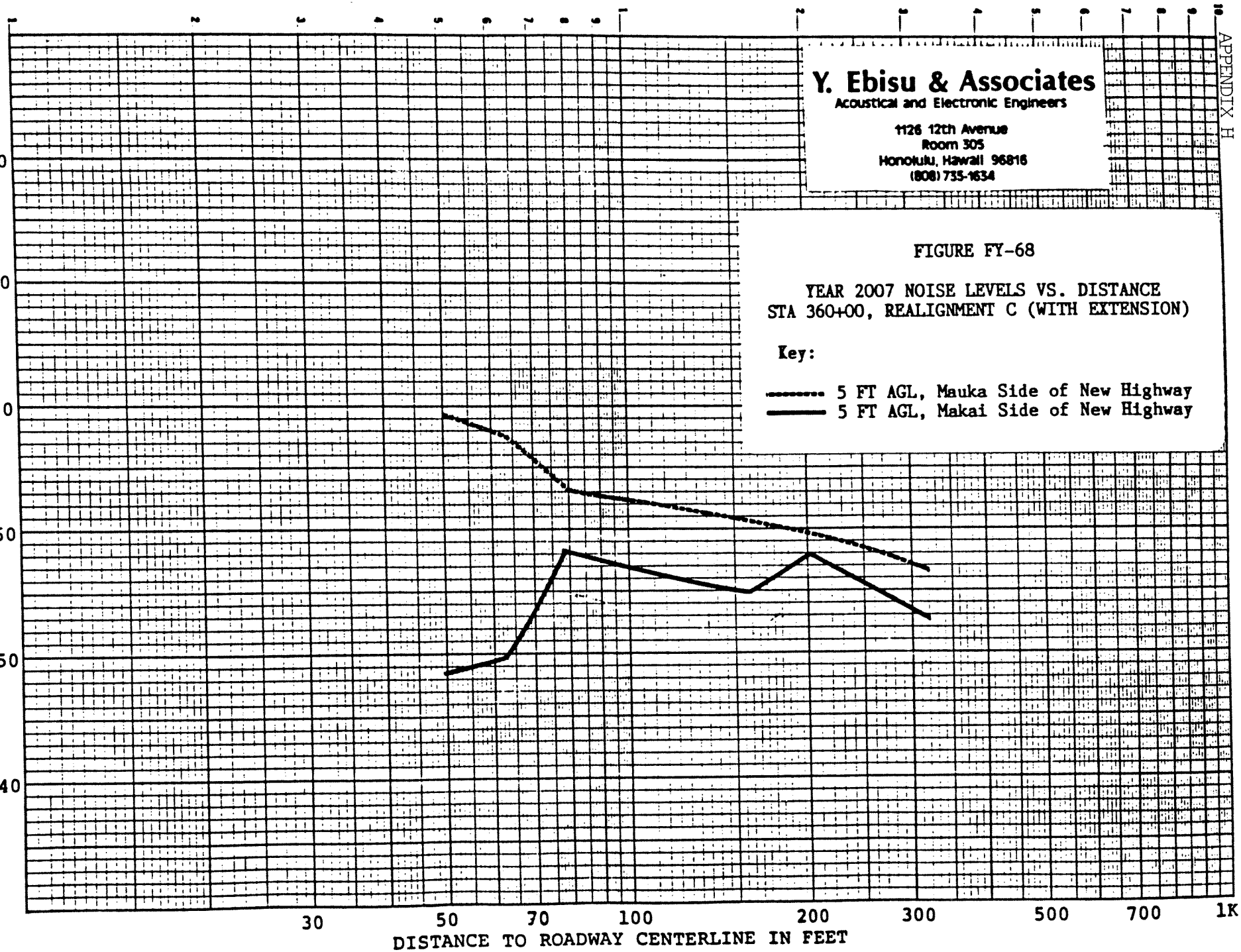

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FIGURE FY-69

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 370+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

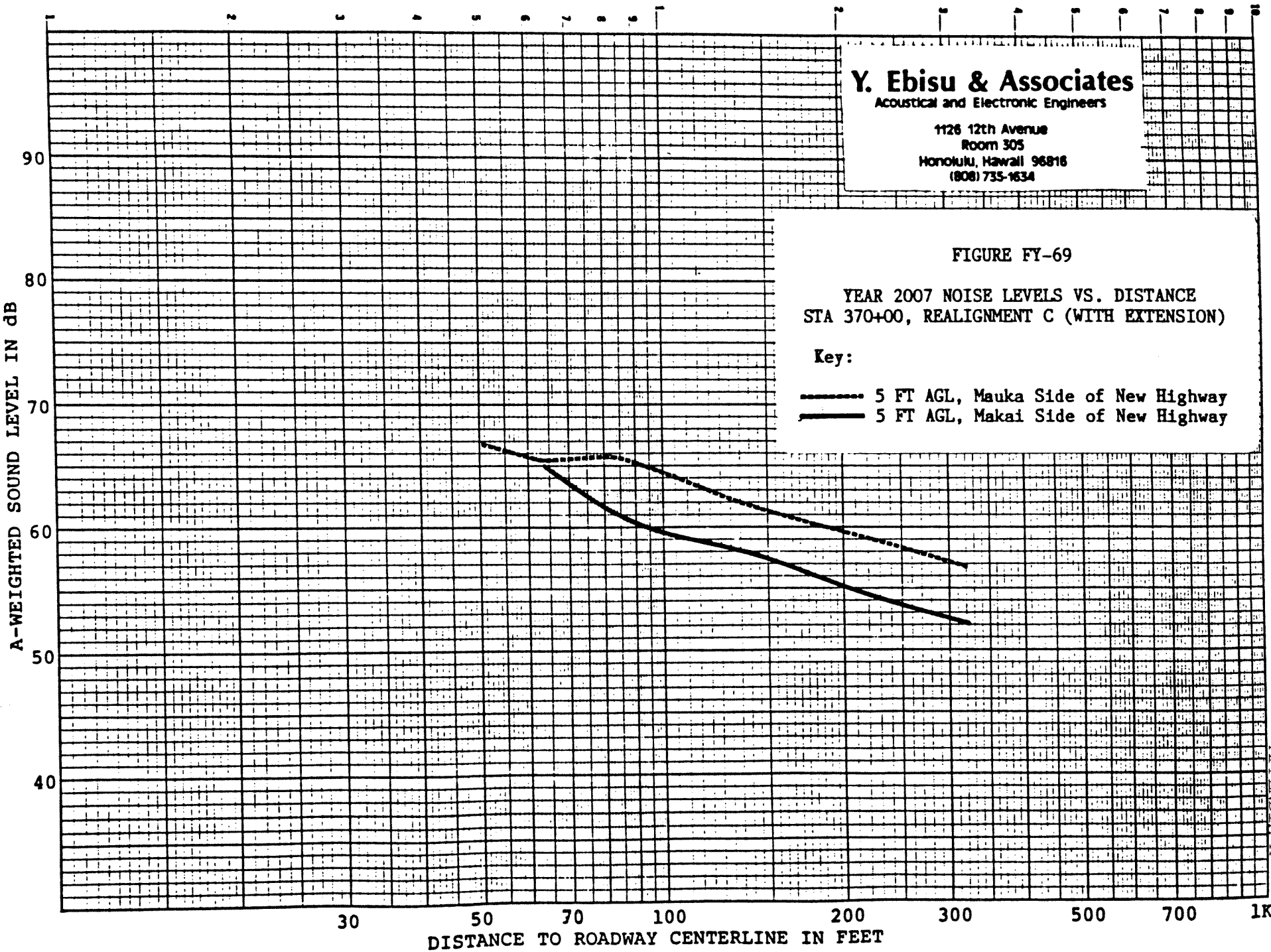

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FIGURE FY-70

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 380+00, REALIGNMENT C (WITH EXTENSION)

Key:

- 5 FT AGL, Mauka Side of New Highway
- 5 FT AGL, Makai Side of New Highway

A-WEIGHTED SOUND LEVEL IN dB

90
80
70
60
50
40

30 50 70 100 200 300 500 700 1K

DISTANCE TO ROADWAY CENTERLINE IN FEET

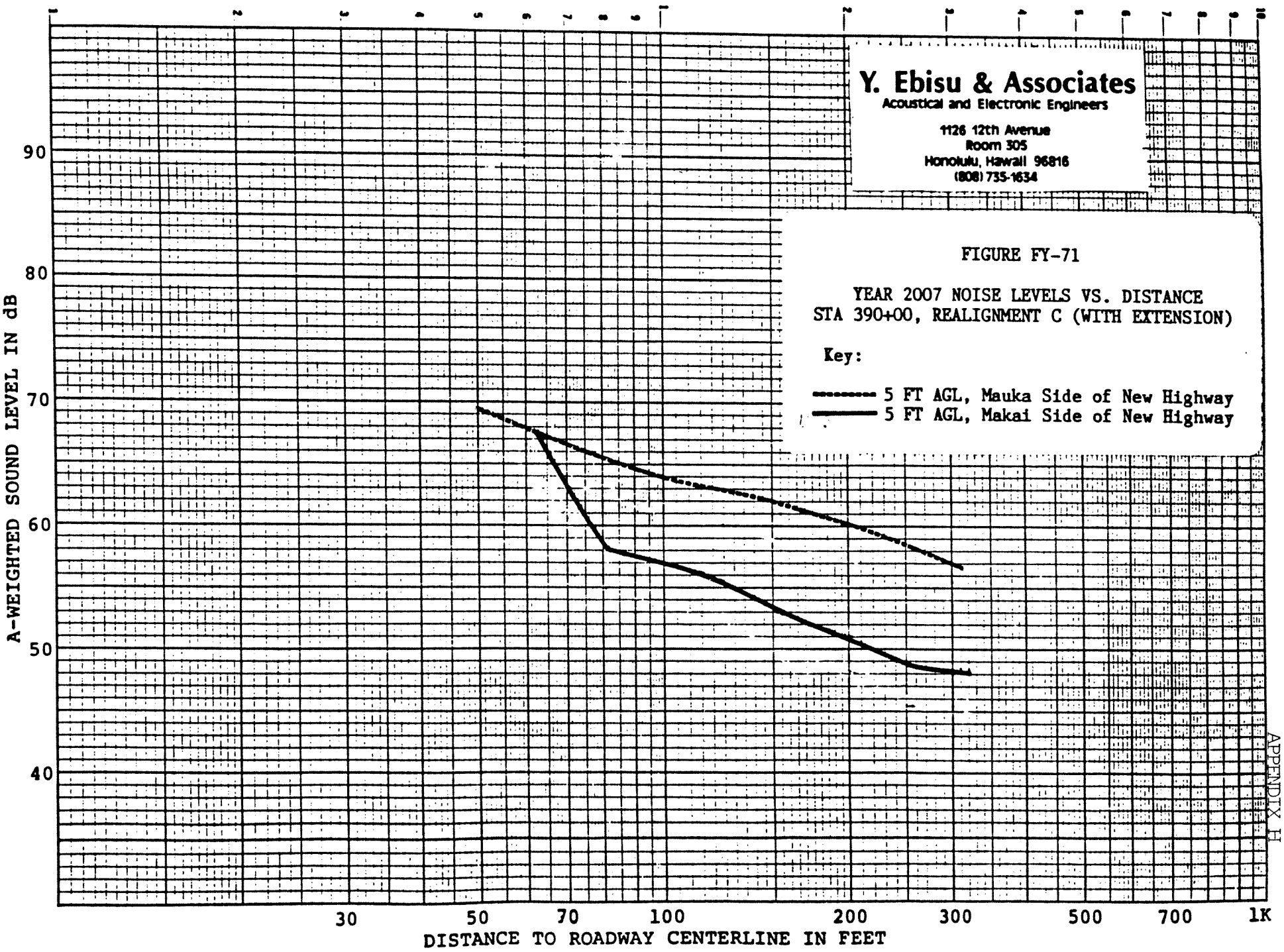
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FIGURE FY-71
YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 390+00, REALIGNMENT C (WITH EXTENSION)
Key:
5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway
A-WEIGHTED SOUND LEVEL IN dB
90
80
70
60
50
40
30
50
70
100
200
300
500
700
1K
DISTANCE TO ROADWAY CENTERLINE IN FEET

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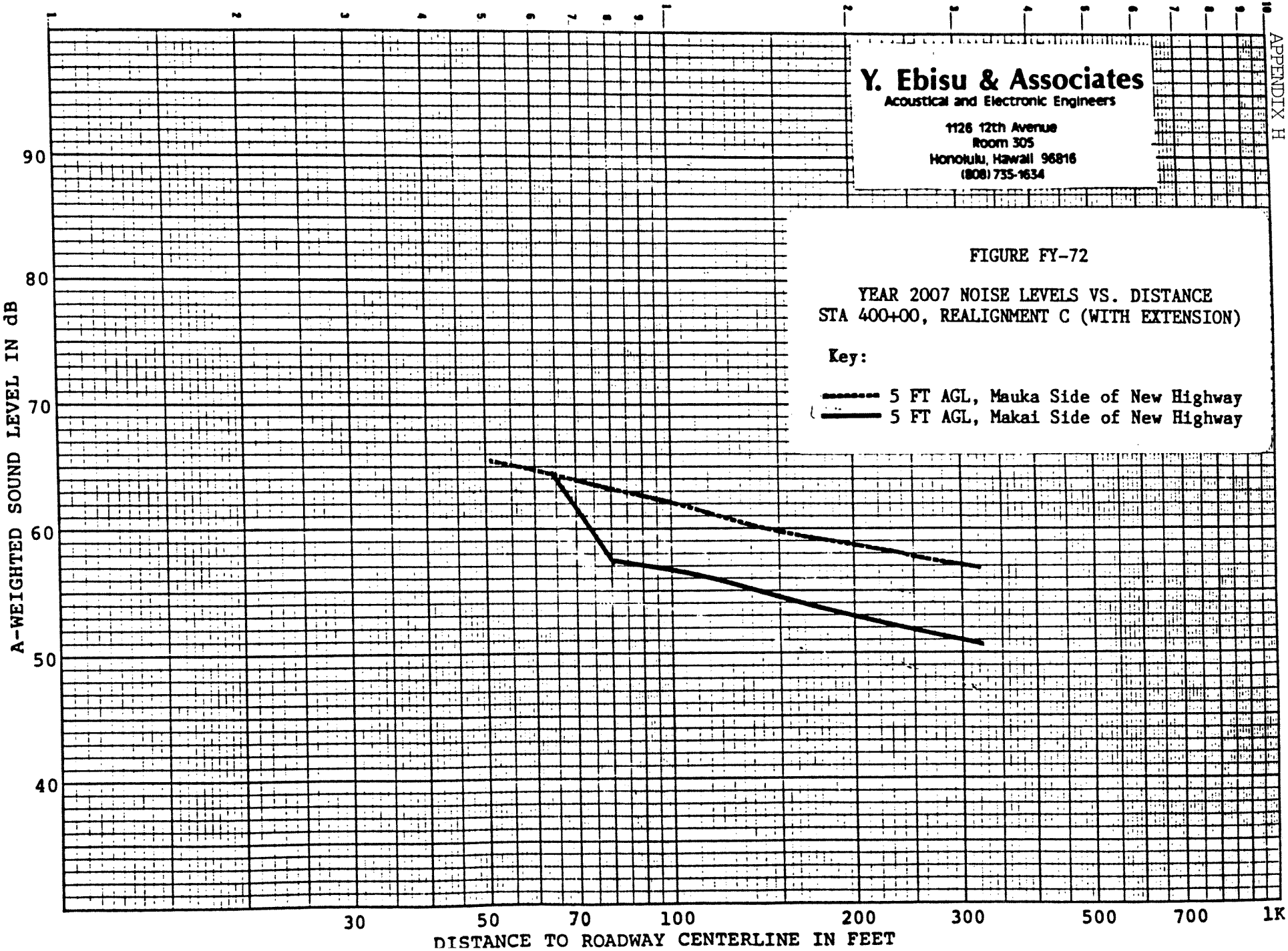
FIGURE FY-72

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 400+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway



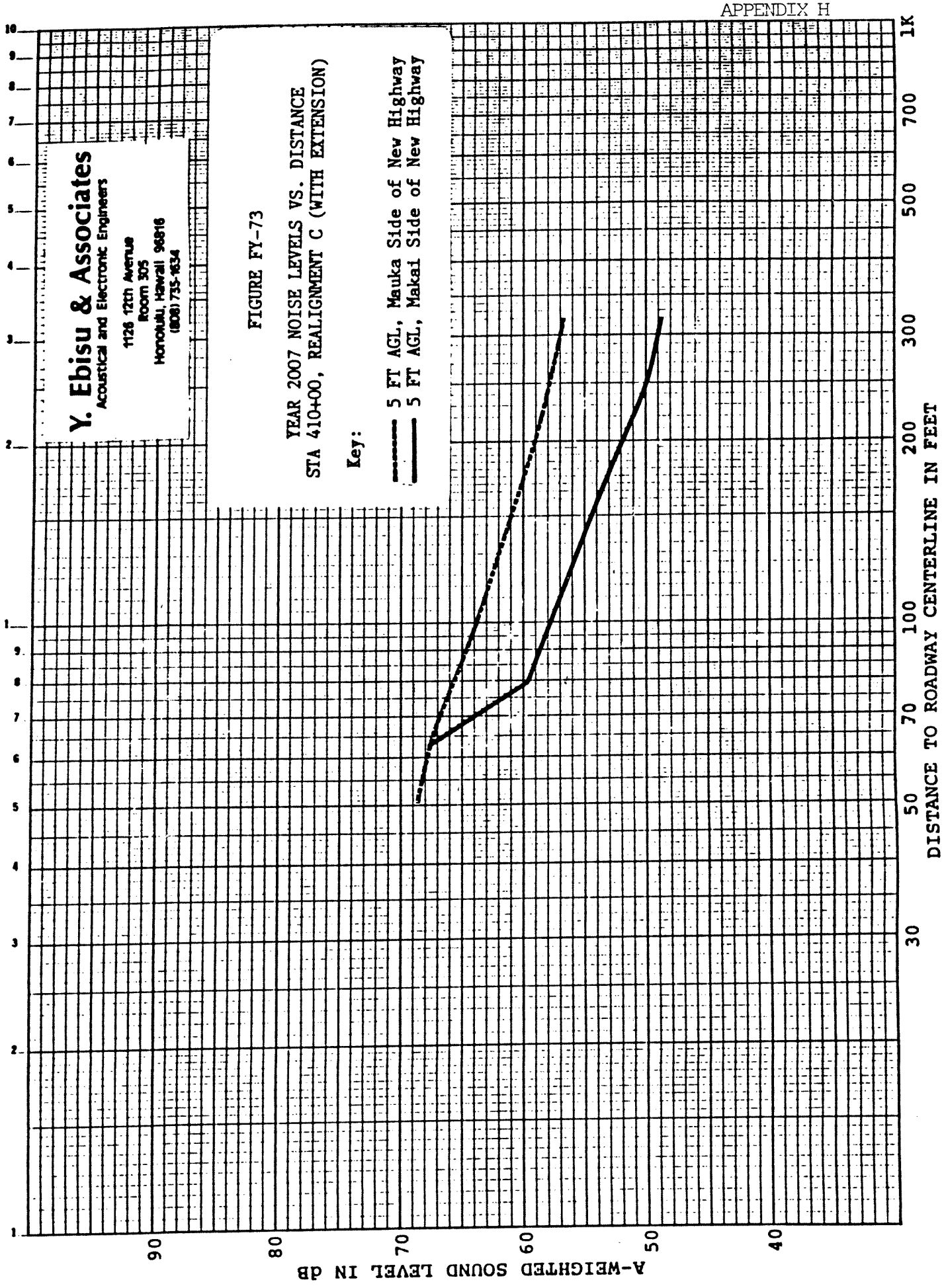

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FIGURE FY-73
YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 410+00, REALIGNMENT C (WITH EXTENSION)
Key:
5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway
A-WEIGHTED SOUND LEVEL IN dB
DISTANCE TO ROADWAY CENTERLINE IN FEET
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FIGURE FY-74

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 420+00, REALIGNMENT C (WITH EXTENSION)

Key:

5 FT AGL, Mauka Side of New Highway
5 FT AGL, Makai Side of New Highway

A-WEIGHTED SOUND LEVEL IN dB

90
80
70
60
50
40

30 50 70 100 200 300 500 700 1K

DISTANCE TO ROADWAY CENTERLINE IN FEET

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FIGURE FY-75

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 230+00, REALIGNMENT C (WITHOUT EXT.)

Key:

5 FT AGL, North Side of New Highway
5 FT AGL, South Side of New Highway

A-WEIGHTED SOUND LEVEL IN dB

90
80
70
60
50
40

30 50 70 100 200 300 500 700 1K

DISTANCE TO ROADWAY CENTERLINE IN FEET

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FIGURE FY-76

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 240+00, REALIGNMENT C (WITHOUT EXT.)

Key:

- 5 FT AGL, North Side of New Highway
- 5 FT AGL, South Side of New Highway

A-WEIGHTED SOUND LEVEL IN dB

90
80
70
60
50
40

30 50 70 100 200 300 500 700 1K

DISTANCE TO ROADWAY CENTERLINE IN FEET

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FIGURE FY-77

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 250+00, REALIGNMENT C (WITHOUT EXT.)

Key:

5 FT AGL, North Side of New Highway
5 FT AGL, South Side of New Highway

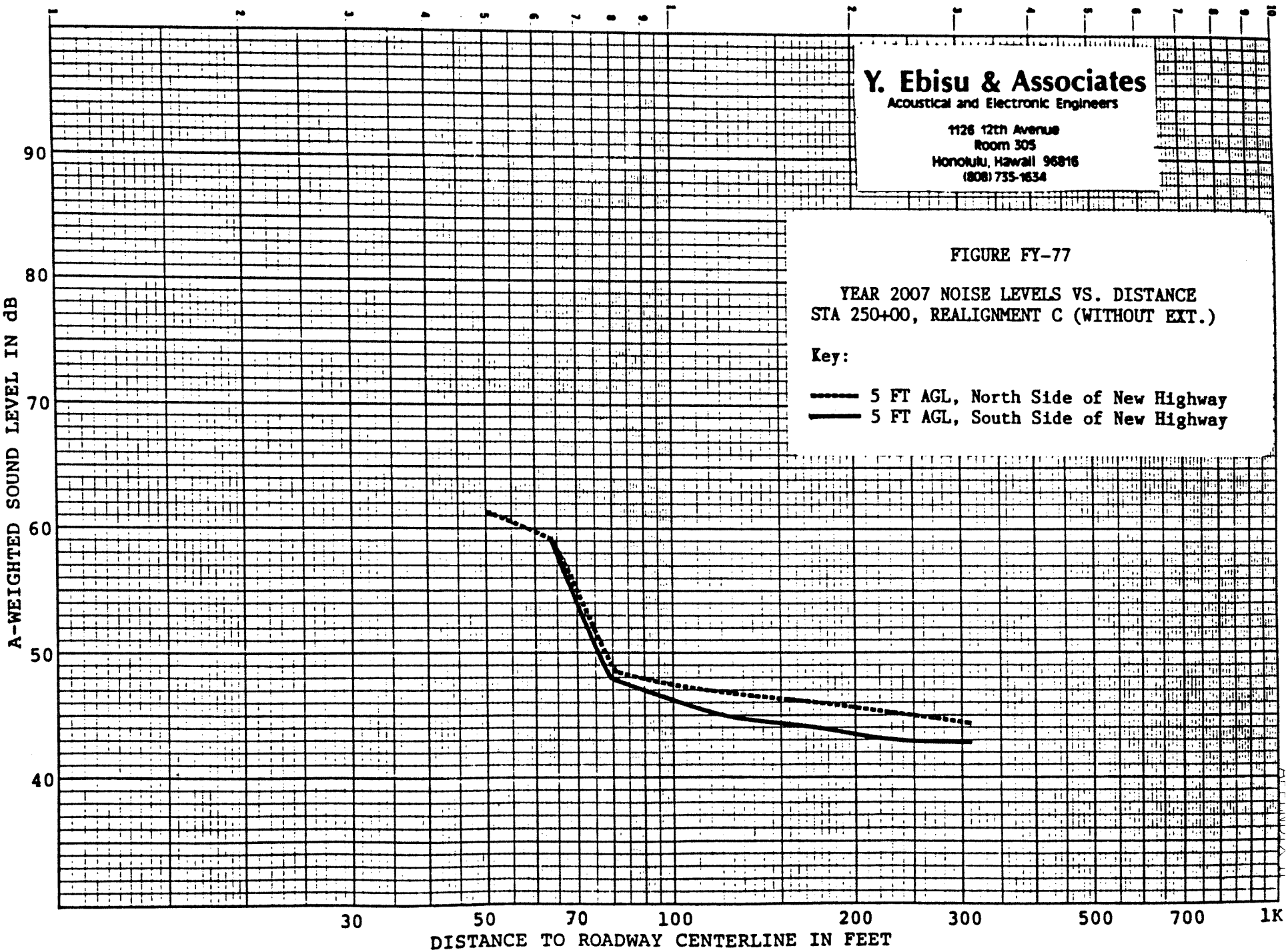

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FIGURE FY-78

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 260+00, REALIGNMENT C (WITHOUT EXT.)

Key:

5 FT AGL, North Side of New Highway
5 FT AGL, South Side of New Highway

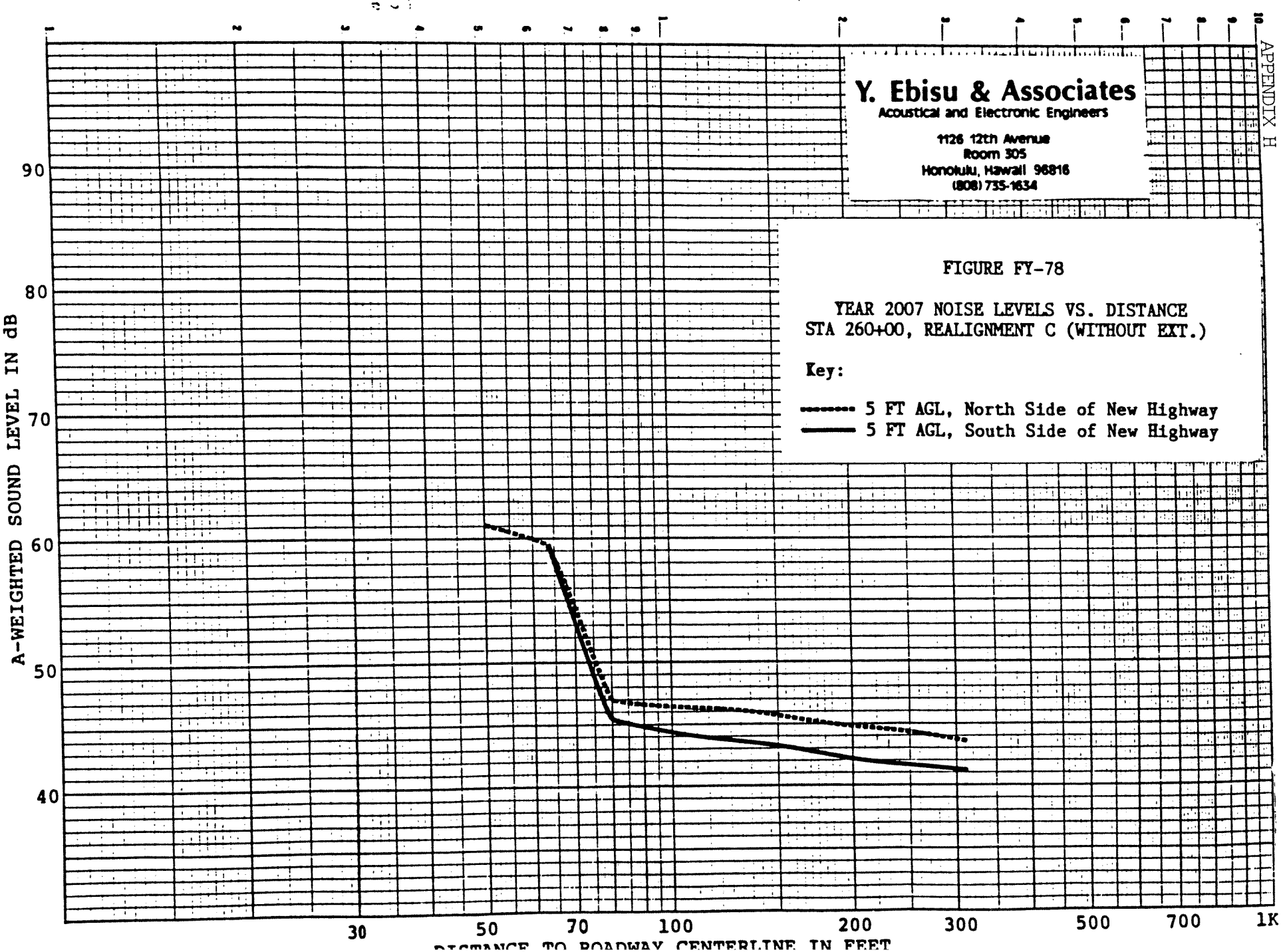

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FIGURE FY-79

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 270+00, REALIGNMENT C (WITHOUT EXT.)

Key:

------ 5 FT AGL, North Side of New Highway
——— 5 FT AGL, South Side of New Highway

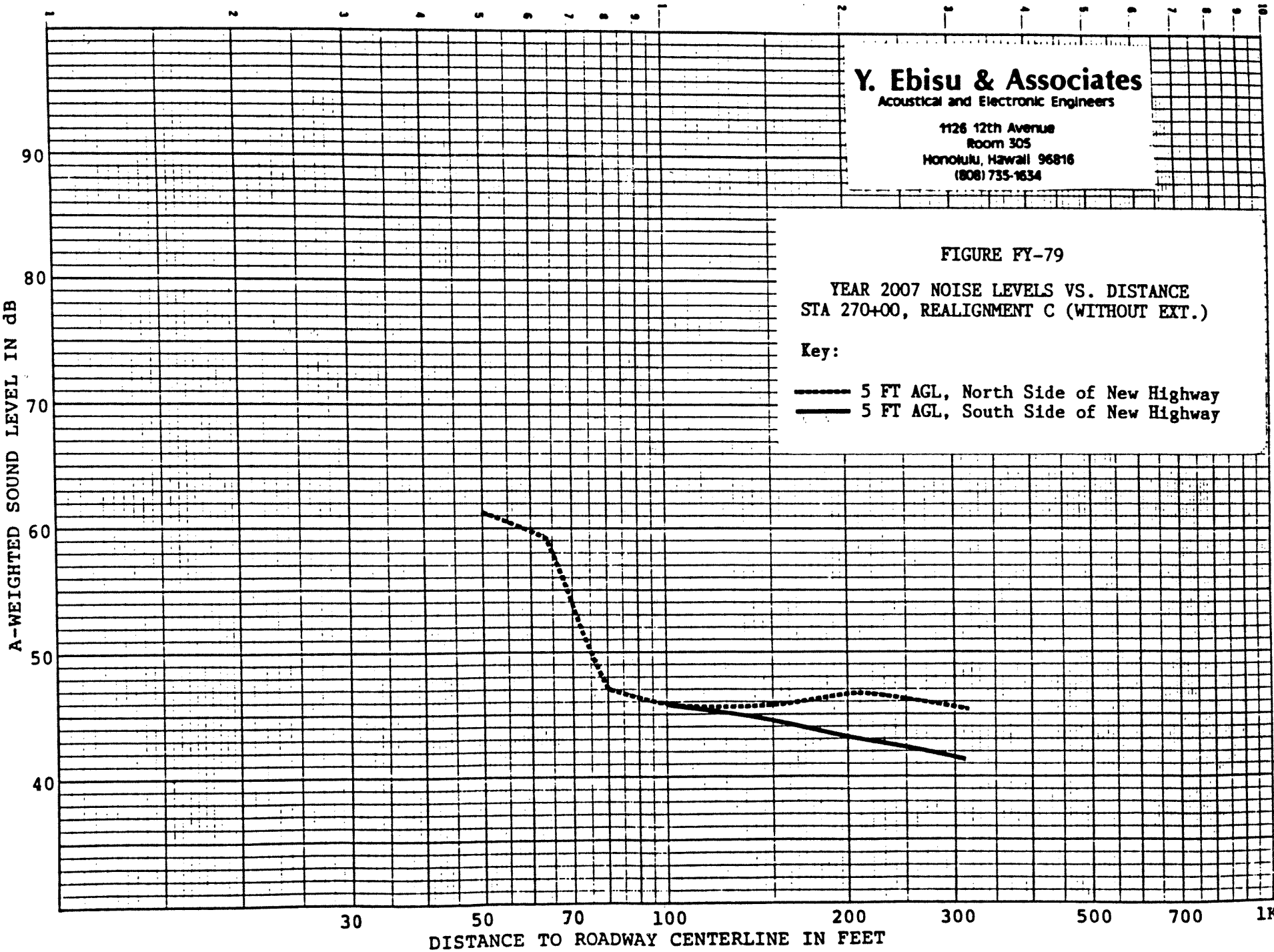

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FIGURE FY-80

YEAR 2007 NOISE LEVELS VS. DISTANCE
STA 280+00, REALIGNMENT C (WITHOUT EXT.)

Key:

- 5 FT AGL, North Side of New Highway
- 5 FT AGL, South Side of New Highway

A-WEIGHTED SOUND LEVEL IN dB

90
80
70
60
50
40

30 50 70 100 200 300 500 700 1K

DISTANCE TO ROADWAY CENTERLINE IN FEET

A. Under the partial construction alternative of Realignment A (Phase I), traffic noise levels should not exceed FHWA noise abatement criteria at noise sensitive lands along the new realignment. Traffic noise levels from the new realignment are predicted to range from 50 to 60 Leq at noise sensitive properties closest to the bypass, which represents an estimated increase of 10 to 20 dB in the existing background ambient noise levels.

B. Under the alternative of complete construction of Realignment A (Phase II), traffic noise levels are also not expected to exceed FHWA noise abatement criteria at noise sensitive lands along the entire realignment from Puamana Park to Kaanapali. Traffic noise levels at noise sensitive lands closest to the bypass and to the south of the sugar mill are predicted to range from 50 to 60 Leq. To the north of the sugar mill, traffic noise levels along the bypass are predicted to range from 45 to 55 Leq at noise sensitive properties closest to the bypass.

Because access to the bypass from Papalua Street is not expected to be provided under this alternative, actual traffic volumes on the bypass under Phase II is expected to be only 26 percent of the traffic volume under Phase I. If traffic on the bypass approaches capacity (say 4,000 VPH during the peak hour) beyond the Year 2007, traffic noise levels along the entire bypass will be similar to those predicted under Phase I conditions. Traffic noise levels along the entire bypass under capacity conditions are predicted to increase approximately 6 dB above Phase II noise levels and, also, should not exceed FHWA noise abatement criteria along the entire bypass.

C. Under the alternative of construction of Realignment B, traffic noise levels are not expected to exceed FHWA noise abatement criteria along the realignment from Puamana Park to Kaanapali, except possibly along the first row of existing residences along the mauka (east) side of the proposed alignment along Ikena Avenue. At other noise sensitive locations along the bypass, traffic noise levels from the bypass should not exceed 50 Leq. Traffic noise levels along the first row of existing residences mauka of Ikena Avenue are predicted to be approximately 67 Leq. At those residences makai (west) of the avenue, traffic noise levels are predicted to be less at 56 Leq, due to noise shielding effects from the cut.

If traffic volume increases to near capacity conditions (say 4,000 VPH) beyond the Year 2007, traffic noise levels are predicted to increase by approximately 6 dB above those assumed for the Realignment B Alternative. Under these conditions, FHWA noise abatement criteria will probably be exceeded at existing homes east of Ikena Avenue, but will not be exceeded at other locations along the realignment.

D. Under the alternative of construction of an Extension to Realignment B or C, traffic noise levels are not expected to exceed FHWA noise abatement criteria along the bypass extension from Kaanapali to Honokowai. Noise impacts along the bypass extension are expected to be minimal due to the undeveloped character of the realignment extension corridor.

E. Under the alternative of construction of Realignment C, traffic noise levels are expected to exceed FHWA noise abatement criteria at 4 planned buildings of Lahainaluna High School mauka of the bypass, and at 2 planned buildings of the high school which are located makai of the bypass. FIGURE 2 presents the anticipated traffic noise contours at the school crossing applicable to a second floor receptor with 4,000 VPH traffic volume under roadway capacity conditions, and without application of special noise mitigation measures. Noise impacts along other sections of the realignment are expected to be minimal due to the undeveloped character of the other sections of the realignment corridor.

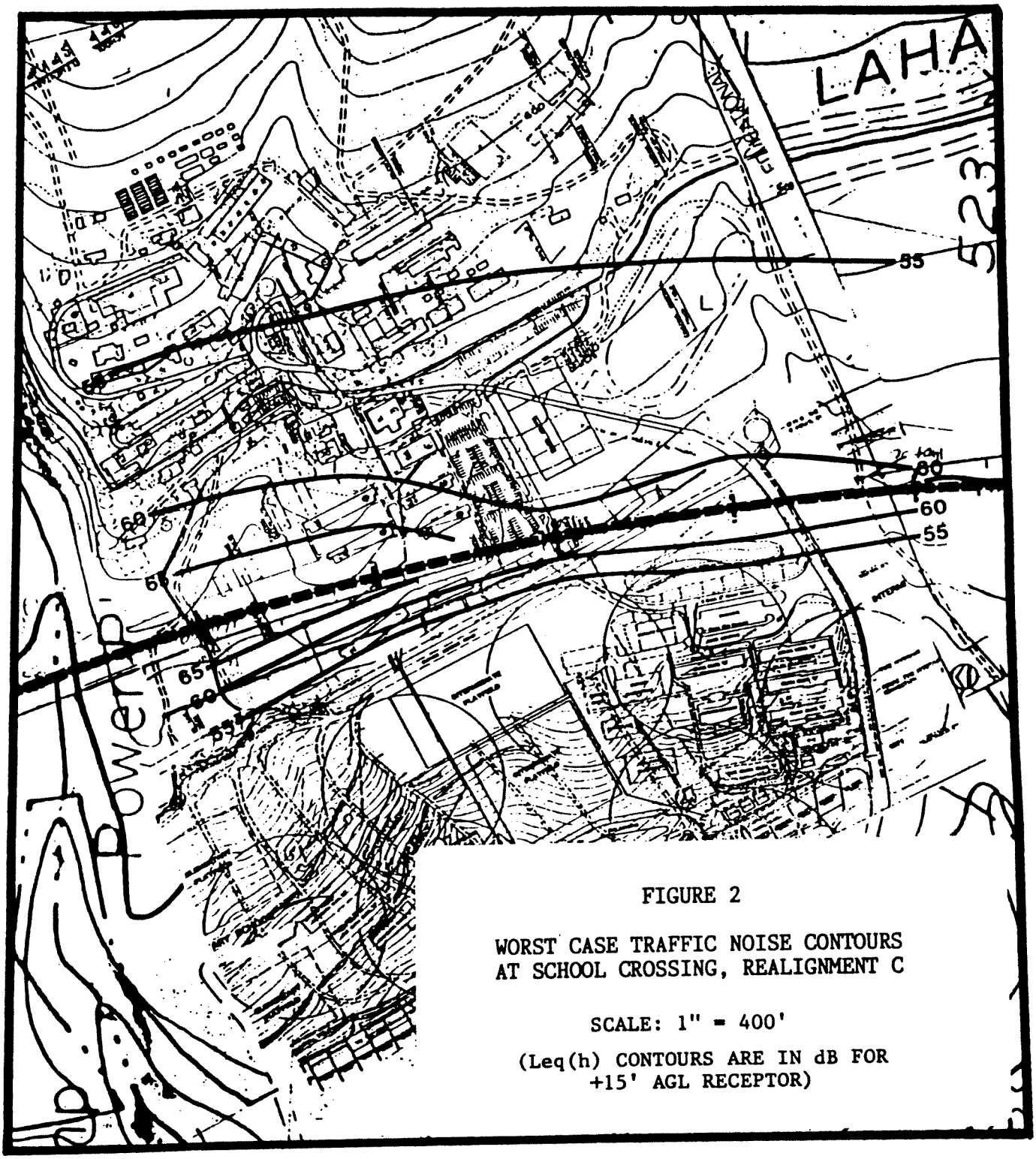


FIGURE 2

WORST CASE TRAFFIC NOISE CONTOURS
AT SCHOOL CROSSING, REALIGNMENT C

SCALE: 1" = 400'

(Leq(h) CONTOURS ARE IN dB FOR
+15' AGL RECEPTOR)

V. FUTURE TRAFFIC NOISE IMPACTS

Existing noise sensitive developments along Honoapiilani Highway (from Puamana Park to Honokowai) include single family residences, multifamily residences, three churches, one private school, resort hotels, and beach parks. Other less noise sensitive developments of commercial or industrial nature are concentrated in the area of the Papalua Street and Lahainaluna Road intersections. Existing noise sensitive developments inland of the highway and in the vicinity of the proposed bypass alignments, are primarily single and multifamily residences, plus the Lahainaluna public school complex. The extent of future traffic noise impacts resulting from the Highway Widening Alternative, and the Realignment Alternatives were evaluated through the use of TABLE 4 (Appended), the Base Year traffic noise contours, the future (Year 2007) traffic noise contours, and TABLES 7 (Appended) thru 9 (Appended). Additionally, evaluation of potential traffic noise impacts were performed for worst case future conditions when traffic volumes approach the design capacity of the improved roadways.

Potential traffic noise impacts would be the most severe under the Highway Widening Alternative, primarily because of the presence of single and multifamily residences, apartment complexes, resort hotels, public use structures, and beach parks on both sides of the highway. Potential traffic noise impacts would be the least severe under the realignment alternatives with extension to Honokowai, since future as well as existing traffic on the existing sections of Honoapiilani Highway would be diverted to the bypass. All realignment alternatives do not reduce traffic volumes along the entire project length of Honoapiilani Highway below base year volumes. Potential traffic noise impacts under the Realignment A (Phase II), Realignment B, Realignment C (without Extension) Alternatives are similar, with Realignments B and C having a higher risk of adverse noise impacts under roadway capacity conditions. Realignment A with extension to Honokowai is

TABLE 8(APPENDED)

LIST OF POTENTIAL NOISE IMPACTED STRUCTURES AND LAND AREAS UNDER THE HONOAPIILANI HIGHWAY WIDENING ALTERNATIVE

HIGHWAY SEGMENT	NUMBER OF IMPACTED UNITS (YEAR 2007 Leq) PRIVATE DWELLINGS	PUBLIC USE STRUCTURES	PARK LANDS
(a1)	Possible*	None	1 Beach Park
(b)	Possible*	None	None
(c)	6+ Homes*	None	None
(d)	1 Home	1 Church	None
(e)	1 Home & 1 Hotel***	None	None
(f)	5 Homes & 2 Apartment Complexes	1 School	None
(g)	None	None	None
(h)	2 Apart. Complexes	None	None
(i)	None	None	None
(j)	13 Homes	1 Church***	None
(k)	None	1 Church****	1 Beach Park
(l)	None	None	1 Beach Park
(m2)	None	None	2 Beach Parks
(n)	1 Multi-family Home & Hotel Cottages**	None	None
(o)	None	None	None
(p)	None	None	None
(q)	None	None	None

Notes:

* All homes not shown on aerial photomap.
** Hotel rooms air conditioned with window units.
*** Presently air conditioned with window units.
**** Future noise impact dependent upon how retaining wall is constructed.

TABLE 9(APPENDED)

LIST OF POTENTIAL NOISE IMPACTED STRUCTURES AND LAND AREAS
UNDER THE REALIGNMENT ALTERNATIVES

HIGHWAY SEGMENT	NUMBER OF IMPACTED UNITS (YEAR 2007 Leq)		
	PRIVATE DWELLINGS	PUBLIC USE STRUCTURES	PARK LANDS
Bypass A	None	None	None
Bypass B1	None	None	None
Bypass B2	Possible*	None	None
Bypass B Ext.	None	None	None
Bypass C1	None	None	None
Bypass C2	None	6 School Bldgs.**	None
Bypass C Ext.	None	None	None

Note:

* All homes along Ikena Avenue not shown on aerial photomap.
** School buildings are planned for future construction, and are not existing structures.

expected to result in the least noise impacts.

Traffic noise impacts in the form of large increases in background ambient noise levels are expected along the proposed new alignments for each of the three realignment alternatives. Because existing background ambient noise levels are very low (40 to 50 Leq) at inland residential and public school areas which are removed from the existing highway, and because a new bypass must cross or pass near these quiet residential areas, unavoidable increases in background ambient noise levels are expected to occur if a new bypass is built. In essence, if a bypass is constructed, a redistribution of future traffic and traffic noise will occur from the existing highway to locations inland (to the east). This redistribution will minimize future traffic noise impacts along the existing highway corridor.

A summary of the potential traffic noise impacts and the noise mitigation implications under the various Build Alternatives are as follows:

A. Significant increases in traffic noise are predicted for the Highway Widening Alternative, and FHWA noise abatement criteria will be exceeded. Noise mitigation measures will probably be required at impacted locations identified in TABLE 8 (Appended) in conjunction with the Widening Alternative.

B. Under the Realignment A (Phase I and II) Alternatives, traffic noise impacts along the existing highway are expected to occur as a result of future growth in traffic volumes, and not as a result of the construction of the bypass. Traffic noise increases at inland areas bordering the new alignment, and associated with the construction of the new highway, are expected to occur. However FHWA noise abatement criteria are not expected to be exceeded along the new highway, and noise mitigation measures would not be required.

C. Traffic noise impacts under the Realignment B

Alternative (without Extension) are expected to be similar to those described above for Realignment A. Traffic noise levels under Realignment B, however, are expected to be only marginally below the FHWA noise abatement criteria where it parallels Ikena Road, and are expected to exceed FHWA criteria when traffic volumes approach the new highway capacity. For this reason, traffic noise mitigation measures will probably be required along the new highway at Ikena Road.

D. Traffic noise impacts under the Realignment Alternative C (without Extension) are expected to be similar to those described above for Realignments A and B. Traffic noise levels under Realignment C, however, are expected to be above the FHWA noise abatement criteria where it parallels the planned buildings of Lahainaluna High School, and are expected to exceed FHWA criteria when traffic volumes approach the new highway capacity. For this reason, traffic noise mitigation measures will probably be required at 6 future structures of the high school.

E. Traffic noise impacts under the Realignment Alternative C with Extension are expected to be less than those described above for Realignment C without Extension. The primary reason for this is the greater diversion of traffic from the existing highway corridor, which is expected to result in a transfer of highway noise from the developed highway corridor to the generally undeveloped lands mauka (east) of the existing highway.

VI. CONSTRUCTION NOISE IMPACTS

Short-term noise impacts associated with widening or new construction activities will occur as a result of the proposed project under all Build Alternatives. These impacts will occur as a result of the short distances (less than 100 FT) between existing noise sensitive receptors and the possible construction sites. The total duration of the construction period for the proposed project is not known, but noise exposure from construction activities at any one receptor location is not expected to be continuous during the total construction period.

Noise levels of diesel powered construction equipment typically range from 80 to 90 dB at 50 FT distance. Under the Highway Widening Alternative, construction noise levels at existing structures will intermittently exceed 90 dB when work is being performed at close distances in front of these structures. Under the Realignment and Extension Alternatives, distances between the construction sites and receptors are expected to be greater than 50 FT, and construction noise levels should generally be below 80 dB. The State Department of Health currently regulates noise from construction activities on Oahu under a permit system (Reference 5). Under current permit procedures, noisy construction activities which exceed 95 dB at the project boundary lines are restricted to hours between 9:00 AM and 5:30 PM,, from Monday through Friday, and excluding certain holidays. These restrictions minimize construction noise impacts on residences, schools, and churches, and have generally been successfully applied.

VII. POSSIBLE NOISE MITIGATION MEASURES

Possible noise mitigation measures considered included the following:

A. Restricting the Growth in the Number of Noisy Buses, Heavy Trucks, Motorcycles, and Automobiles with Defective Mufflers. The percentage contribution to the total traffic noise by heavy trucks, buses, and noisy vehicles is currently in the order of 50 percent, and elimination of these noise sources would reduce total traffic noise levels by approximately 3 dB. Restricting the growth rate of these vehicles (to growth rates below passenger automobile growth rates) could produce noise reductions in the order of 1 or 2 dB, which are not considered significant for the level of regulatory efforts required.

B. Alteration of the Horizontal Or Vertical Alignment of the Highway. This mitigation measure has been incorporated into the Realignment and Extension Alternatives, and the realignments examined represent possible noise abatement alignments for diverting traffic from the existing highway and developed areas. All realignments can accommodate the anticipated traffic demand, with Realignment A generating the least traffic noise impacts by FHWA noise abatement criteria along its route.

C. Acquisition of Property Rights for Construction of Noise Barriers, and/or Construction of Noise Barriers Along the Right-of-Way. For the majority of structures along the existing highway, construction of noise barriers will probably be the preferred noise mitigation measure under the Highway Widening Alternative. The 5 to 10 dB of noise attenuation achievable with a 6 FT high wall will be sufficient for all single story structures which currently front the highway, and which are within the Year 2007, 67 Leq(h) noise contour. For the Realignment and Extension Alternatives, the use of 2.5 to 3.0 FT high, solid concrete, crash

barriers along the sides of the elevated highway sections will be sufficient to minimize traffic noise impacts in residential areas which adjoin the proposed new alignments. The top edges of roadway cuts proposed along the new alignments will also function as noise barriers, particularly at locations makai of the roadway. Although site specific plans and section details were not available for the Build Alternatives, the use of noise barriers along the Right-of-Way would probably be the primary noise mitigation measure employed to meet FHWA exterior noise abatement criteria at single story structures.

D. Acquisition of Real Property Interests To Serve As A Noise Buffer Zone. Where multistory structures are within the Year 2007, 67 Leq(h) contour, the use of sound attenuating barriers (see paragraph C above) will not be practical due to the excessive heights required to shield the upper floors from traffic noise. In these situations, the only other noise mitigation possibilities are sound insulation of the affected upper floor units or acquisition of the property interests. A noise buffer zone extending 68 to 84 FT from the highway centerline would be required to meet exterior FHWA noise abatement criteria under the Highway Widening Alternative. Under the Realignment Alternative B, a noise buffer zone extending approximately 80 to 130 FT from the highway centerline (and mauka of Ikena Avenue) would be required. Under the Realignment Alternative C, a noise buffer zone extending approximately 400 FT mauka and 200 FT makai from the highway centerline at the school crossing would be required. In general, the acquisition of property for the creation of noise buffer zones or noise mitigation has seldom been applied in Hawaii. Where existing multistory homes, apartment complexes, or public use structures are within the high noise zones, the application of sound insulation treatment should be evaluated prior to consideration of property acquisition for noise mitigation.

E. Noise Insulation of Public Use or Nonprofit Institutional Structures. This mitigation measure will probably be required under the Highway Widening Alternative if the construction of noise barriers is not practical for reasons other than noise attenuation. Based upon currently available information, this mitigation measure should not be required since all public use structures along the existing highway are of single story construction. This mitigation measure may be required if Realignment Alternative C (with or without Extension) is implemented, and if new multistory classrooms are constructed in the Lahainaluna public school complex.

Existing State Department of Health (DOH) regulations (Reference 5) which apply to Oahu, but which have also been used statewide, require noise mitigation measures if traffic noise can be expected to exceed 50 dB for 10 percent of the time within the interior of any public use structure already in existence. These public use structures include school classrooms, libraries, churches, hospitals, and rest homes. For fully enclosed and air conditioned structures, this value of 50 dB (L10) of interior noise level can be achieved at exterior noise levels of 68 Leq(h) without special construction features. For naturally ventilated structures, this value of 50 dB (L10) of interior noise level corresponds to approximately 57 Leq(h) exterior noise level. Therefore, general rules of thumb for determining the need for sound insulation of public use structures according to State Department of Health requirements are as follows:

A. If the facility is fully enclosed and air conditioned, then Department of Health regulations can be met if the facility is outside the 68 Leq(h) noise contour. If FHWA exterior criteria are met, then DOH limits will also be met for air conditioned structures, and additional mitigation measures are not required.

B. For naturally ventilated structures, exterior noise

levels must be less than 57 Leq(h) to meet State DOH limits. Therefore, if the naturally ventilated structures are outside the 57 Leq(h) noise contours, both FHWA and State interior and exterior criteria will be met.

VIII. GENERAL RECOMMENDATIONS

Based upon the results of this study, the following recommendations are provided to minimize noise impacts from the proposed highway improvement project:

A. If the Highway Widening Alternative is selected, priority should be given to increasing the Right-of-Way width in the direction away from the sides of the highway where multistory dwellings are located. If it is feasible to realign the widened highway in this manner, the difficulties associated with noise abatement treatment of upper floor dwellings will be reduced, or at worst, the level of unavoidable traffic noise exposure will be reduced.

B. The proposed Realignment Alternative A (Phase I) is the recommended alternative if the only consideration is potential noise impact. This alternative is attractive because it is expected to divert a significant amount of traffic from the north sections of the existing highway, to reduce existing traffic noise to levels below FHWA criteria, and to eliminate the requirement to provide noise mitigation measures for the aesthetically difficult case of the beach parks and for the technically difficult case of the multistory apartments. Special noise abatement measures for complying with FHWA standards should not be necessary for this alternative.

C. If the complete construction of Realignment Alternative A (Phase II) is the selected improvement alternative, On and Off Ramp access in the vicinity of the sugar mill should be provided if possible. Any access ramps which can be physically included with the construction of the bypass is predicted to divert future traffic from the existing highway, and to lessen noise impacts along the existing highway corridor.

D. If the Widening Alternative is selected, a more in-depth examination of noise barrier construction parameters should be made in conjunction with the design of the widening project. Because the length of the walls are expected to be extensive, aesthetic considerations will be as important as sound attenuation performance. For this reason, provision should be made for including landscaping treatment in front of the walls.

E. If the Realignment Alternative B (with or without extension) is selected, a more in-depth examination of highway cross section parameters should be made along the Ikena Avenue cut. The height requirements and possible use of noise barriers along the mauka Right-of-Way should also be examined if the design capacity of the roadway is approximately 4,000 VPH.

F. If the Realignment Alternative C (with or without extension) is selected, a more in-depth examination of highway cross section parameters should be made along the public school crossing at Lahainaluna Road. The height requirements and possible use of noise barriers or earth berms along both Rights-of-Way should also be examined if the design capacity of the roadway is approximately 4,000 VPH. To minimize the necessity of utilizing total closure and air conditioning of future school buildings for highway noise abatement purposes, use of the following design features are recommended where practical: location of school buildings at maximum setback distance from the proposed highway and ideally, beyond the 60 Leq noise contour line shown in FIGURE 2; limitation of mauka (future high school) classroom building heights to single story within 400 FT of the highway; limitation of makai (future elementary school) classroom building heights to single story within 200 FT of the highway; addition of earth berms and/or barriers to attenuate the future highway noise; terracing the high school grounds to eliminate the visual line of sight from the classrooms to the highway; location of the classroom doors on the building side which faces away from

the highway; and orientation of classroom building axis so that the ventilation openings face directly into the prevailing trade winds.

G. Consideration should be given to employing the curfew system of the State Department of Health regulations relating to excessive construction noise. In this way, construction noise impacts on noise sensitive receptors can be minimized.

A. REFERENCES

1. Y. Ebisu & Associates; "Traffic Noise Study for the Proposed Improvements to Honoapiilani Highway, Puamana to Kaanapali," January, 1987.

2. Hawaii State Department of Transportation, Highways Division, Planning Branch; "Traffic Assignment, Project TA 87-1, Honoapiilani Highway, Puamana to Kapalua;" February, 1987.

3. Hawaii State Department of Transportation, Highways Division, Planning Branch; "Traffic Assignment, Project TA 88-2, Honoapiilani Highway, Puamana to Honokowai;" February, 1988.

4. February, 1987 Vehicle Type Classification, Station 12-A, Honoapiilani Highway at Kaanapali Road and Halelo Street, State Department of Transportation.

5. Hawaii State Department of Health; "Title 11, Administrative Rules, Chapter 43, Community Noise Control for Oahu;" November 6, 1981.

APPENDIX I
FARMLAND CONVERSION IMPACT RATING

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request
Name Of Project: Honoapiilani Highway Puamana to Honokowai - Phases I & II	Federal Agency Involved: FHWA
Proposed Land Use: Highway	County And State: Maui, Hawaii
PART II *(To be completed by SCS)*	Date Request Received By SCS: March 30, 1988

Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply – do not complete additional parts of this form.) Yes ☒ No ☐ | Acres Irrigated: 82,500 | Average Farm Size: 679

Major Crop(s)	Farmable Land In Govt. Jurisdiction	Amount Of Farmland As Defined in FPPA	Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS
Sugarcane	Acres: 221,287 % 47.5	Acres: 159,064 % 34.1	LESAC	None	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating: Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	98.9	99.3	107.9	
B. Total Acres To Be Converted Indirectly	-	-	-	
C. Total Acres In Site	98.9	99.3	107.9	
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	66.5	31.0	48.5	
B. Total Acres Statewide And Local Important Farmland	30.9	63.5	18.6	
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.062	0.062	0.067	
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	15	18.6	21	
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	77.1	72.9	65.9	

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points	Site A	Site B	Site C	Site D
1. Area In Nonurban Use	15	13	15	15	
2. Perimeter In Nonurban Use	10	3	3	3	
3. Percent Of Site Being Farmed	20	17	13	18	
4. Protection Provided By State And Local Government	20	20	20	20	
5. Distance From Urban Builtup Area	NA	NA	NA	NA	
6. Distance To Urban Support Services	NA	NA	NA	NA	
7. Size Of Present Farm Unit Compared To Average	10	0	0	0	
8. Creation Of Nonfarmable Farmland	25	0	0	0	
9. Availability Of Farm Support Services	5	5	5	5	
10. On-Farm Investments	20	15	10	10	
11. Effects Of Conversion On Farm Support Services	25	0	0	0	
12. Compatibility With Existing Agricultural Use	10	5	0	0	
TOTAL SITE ASSESSMENT POINTS	160	73	66	71	
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	77	73	66	
Total Site Assessment *(From Part VI above or a local site assessment)*	160	73	66	71	
TOTAL POINTS *(Total of above 2 lines)*	260	150	139	137	

Site Selected: A thru F | Date Of Selection: 5/9/88 | Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection

All alternatives meet the criteria

(See Instructions on reverse side)

Form AD 1006 (10-83)

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request
Name Of Project: Honoapiilani Highway Puamana to Honokowai - Phase III	Federal Agency Involved: FHWA
Proposed Land Use: Highway	County And State: Maui, Hawaii
PART II *(To be completed by SCS)*	Date Request Received By SCS: March 30, 1988

Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply – do not complete additional parts of this form.) Yes ☒ No ☐ | Acres Irrigated: 82,500 | Average Farm Size: 679

Major Crop(s)	Farmable Land In Govt. Jurisdiction	Amount Of Farmland As Defined in FPPA	Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS
Sugarcane	Acres: 221,287 % 47.5	Acres: 159,064 % 34.1	LESAC	None	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating: Site ☒ D	Site ☒ E	Site ☒ F	Site ☒
A. Total Acres To Be Converted Directly	13.5	70.9	70.0	
B. Total Acres To Be Converted Indirectly	-	-	-	
C. Total Acres In Site	13.5	70.9	70.0	
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	13.5	59	59.3	
B. Total Acres Statewide And Local Important Farmland		5	10.7	
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.008	0.044	0.044	
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	7.9	16.0	18.8	
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	90.7	75.9	71.5	

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points	Site ☒ D	Site ☒ E	Site ☒ F	Site ☒
1. Area In Nonurban Use	15	13	15	15	
2. Perimeter In Nonurban Use	10	2	4	4	
3. Percent Of Site Being Farmed	20	11	18	19	
4. Protection Provided By State And Local Government	20	20	20	20	
5. Distance From Urban Builtup Area	NA	NA	NA	NA	
6. Distance To Urban Support Services	NA	NA	NA	NA	
7. Size Of Present Farm Unit Compared To Average	10	0	0	0	
8. Creation Of Nonfarmable Farmland	25	0	0	0	
9. Availability Of Farm Support Services	5	5	5	5	
10. On-Farm Investments	20	10	10	10	
11. Effects Of Conversion On Farm Support Services	25	0	0	0	
12. Compatibility With Existing Agricultural Use	10	0	0	0	
TOTAL SITE ASSESSMENT POINTS	160	61	72	73	
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	91	76	72	
Total Site Assessment *(From Part VI above or a local site assessment)*	160	61	72	73	
TOTAL POINTS *(Total of above 2 lines)*	260	152	148	145	

Site Selected: | Date Of Selection | Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection

(See Instructions on reverse side)

Form AD-1006 (10-83)

APPENDIX I

APPENDIX J

TRAFFIC ASSIGNMENT

TRAFFIC ASSIGNMENT FOR THE YEAR 1987

PROPOSED PROJECT ALTERNATIVES

PHASE I

ALTERNATIVE	LOCATION		DISTANCE	AVERAGE DAILY TRAFFIC		MORNING PEAK HOUR		AFTERNOON PEAK HOUR	
	segment*	from to	feet	SOUTH-BOUND vpd	NORTH-BOUND vpd	SOUTH-BOUND vpd	NORTH-BOUND vpd	SOUTH-BOUND vpd	NORTH-BOUND vpd
A	a	Kaanapali Parkway to Alternative A (along Existing Highway)	1500	17217	16866	792	976	1356	1193
	b	Existing Highway to Future Extension	4200	6433	5368	237	235	545	354
	c	Future Extension to Lahaina Town	10340	11562	12277	554	763	898	887
	d	Lahaina Town to Puamana	11160	2561	2897	162	370	266	240
B	a	Kaanapali Parkway to Alternative A (along Existing Highway)	1221	17217	16866	792	976	1356	1193
	b	Existing Highway to Future Extension	4700	6433	5368	237	235	545	354
	c	Future Extension to Lahaina Town	9200	11562	12277	554	763	898	887
	d	Lahaina Town to Puamana	12364	2561	2897	162	370	266	240
C	a	Kaanapali Parkway to Alternative A (along Existing Highway)	3125	17217	16866	792	976	1356	1193
	b	Existing Highway to Future Extension	6400	5667	5713	245	487	457	402
	c	Future Extension to Lahaina Town	7550	5667	5713	245	487	457	402
	d	Lahaina Town to Puamana	14250	3855	4227	217	345	354	309

TRUCKS = 3.0% vpd = vehicles per day vph = vehicles per hour

* see diagram on sheet 7

TRAFFIC ASSIGNMENT FOR THE YEAR 1997

PROPOSED PROJECT ALTERNATIVES

PHASE I

ALTERNATIVE	LOCATION segment*	LOCATION from	LOCATION to	DISTANCE feet	AVERAGE DAILY TRAFFIC SOUTH-BOUND vpd	AVERAGE DAILY TRAFFIC NORTH-BOUND vpd	MORNING PEAK HOUR SOUTH-BOUND vpd	MORNING PEAK HOUR NORTH-BOUND vpd	AFTERNOON PEAK HOUR SOUTH-BOUND vpd	AFTERNOON PEAK HOUR NORTH-BOUND vpd
A	a	Kaanapali Parkway to Alternative A (along Existing Highway)		1500	26080	25550	1200	1478	2054	1809
	b	Existing Highway to Future Extension		4200	9754	8129	360	354	824	535
	c	Future Extension to Lahaina Town		10340	17513	18599	838	1157	1362	1346
	d	Lahaina Town to Puamana		11160	3880	4388	245	563	403	364
B	a	Kaanapali Parkway to Alternative B (along Existing Highway)		1221	26080	25550	1200	1478	2054	1809
	b	Existing Highway to Future Extension		4700	9754	8129	360	354	824	535
	c	Future Extension to Lahaina Town		9200	17513	18599	838	1157	1362	1346
	d	Lahaina Town to Puamana		12364	3880	4388	245	563	403	364
C	a	Kaanapali Parkway to Alternative C (along Existing Highway)		3125	26084	25552	1200	1478	2054	1808
	b	Existing Highway to Future Extension		6400	8585	8655	371	738	692	608
	c	Future Extension to Lahaina Town		7550	8585	8655	371	738	692	608
	d	Lahaina Town to Puamana		14250	5840	6400	329	523	537	468

TRUCKS = 3.0% vpd = vehicles per day vph = vehicles per hour

* see diagram on sheet 7

TRAFFIC ASSIGNMENT FOR THE YEAR 2007

PROPOSED PROJECT ALTERNATIVES

PHASE I

ALTERNATIVE	LOCATION segment*	from	to	DISTANCE feet	AVERAGE DAILY TRAFFIC SOUTH-BOUND vpd	AVERAGE DAILY TRAFFIC NORTH-BOUND vpd	MORNING PEAK HOUR SOUTH-BOUND vpd	MORNING PEAK HOUR NORTH-BOUND vpd	AFTERNOON PEAK HOUR SOUTH-BOUND vpd	AFTERNOON PEAK HOUR NORTH-BOUND vpd
A	a	Kaanapali Parkway	to Alternative A (along Existing Highway)	1500	34943	34233	1606	1981	2751	2422
	b	Existing Highway to Future Extension		4200	13059	10892	481	474	1103	717
	c	Future Extension to Lahaina Town		10340	23464	24920	1124	1552	1824	1802
	d	Lahaina Town to Puamana		11160	5198	5880	329	755	540	488
B	a	Kaanapali Parkway	to Alternative A (along Existing Highway)	1221	34943	34233	1606	1981	2751	2422
	b	Existing Highway to Future Extension		4700	13059	10892	481	474	1103	717
	c	Future Extension to Lahaina Town		9200	23464	24920	1124	1552	1824	1802
	d	Lahaina Town to Puamana		12364	5198	5880	329	755	540	488
C	a	Kaanapali Parkway	to Alternative A (along Existing Highway)	3125	34950	34238	1607	1981	2752	2422
	b	Existing Highway to Future Extension		6400	11504	11597	497	989	927	816
	c	Future Extension to Lahaina Town		7550	11504	11597	497	989	927	816
	d	Lahaina Town to Puamana		14250	7826	8581	441	700	718	627

TRUCKS = 3.0% vpd = vehicles per day vph = vehicles per hour

* see diagram on sheet 7

TRAFFIC ASSIGNMENT FOR THE YEAR 1987

PROPOSED PROJECT ALTERNATIVES

ULTIMATE CONDITION (PHASES I, II, AND III)

ALTERNATIVE	LOCATION		DISTANCE	AVERAGE DAILY TRAFFIC		MORNING PEAK HOUR		AFTERNOON PEAK HOUR	
	Segment*	from to	feet	SOUTH-BOUND vpd	NORTH-BOUND vpd	SOUTH-BOUND vph	NORTH-BOUND vph	SOUTH-BOUND vph	NORTH-BOUND vph
A	a	Kaanapali Parkway to Alternative A (along Existing Highway)	1500	11332	11502	489	697	892	836
	b	Existing Highway to Future Extension	4200	3242	3597	113	311	234	272
	c	Future Extension to Lahaina Town	10340	7482	7316	352	526	581	512
	d	Lahaina Town to Puamana	11160	3669	4045	216	313	336	292
B	a	Kaanapali Parkway to Alternative B (along Existing Highway)	1221	11332	11502	489	697	892	836
	b	Existing Highway to Future Extension	4700	3242	3597	113	311	234	272
	c	Future Extension to Lahaina Town	9200	7482	7316	352	526	581	512
	d	Lahaina Town to Puamana	12364	3669	4045	216	313	336	292
C	a	Kaanapali Parkway to Alternative C (along Existing Highway)	3125	12534	12230	548	716	985	886
	b	Existing Highway to Future Extension	6400	3390	3485	134	337	274	255
	c	Future Extension to Lahaina Town	7550	8073	8121	378	597	645	562
	d	Lahaina Town to Puamana	14250	4711	5150	269	405	433	374
Widening	e	Kaanapali to Puukolii Road	6759	6658	6259	339	206	495	494
	f	Puukolii Road to Lower (Old) Honoapiilani Highway	3802	6058	5659	308	1808	449	450
	g	Lower (Old) Honoapiilani Highway to Honokowai	5069	5640	4740	298	167	783	390
Extension (for Alt. A)	h	Kaanapali to Honokowai	20900	5885	5364	303	279	464	357
Extension (for Alt. B)	h	Kaanapali to Honokowai	20900	5885	5364	303	279	464	357
Extension (for Alt. C)	h	Kaanapali to Honokowai	20800	4683	4636	244	279	371	307

TRUCKS = 3.0% vpd = vehicles per day vph = vehicles per hour

* see diagram on sheet 7

TRAFFIC ASSIGNMENT FOR THE YEAR 1997

PROPOSED PROJECT ALTERNATIVES

ULTIMATE CONDITION (PHASES I, II, AND III)

ALTERNATIVE	LOCATION segment*	from	to	DISTANCE feet	AVERAGE DAILY TRAFFIC SOUTH-BOUND vpd	AVERAGE DAILY TRAFFIC NORTH-BOUND vpd	MORNING PEAK HOUR SOUTH-BOUND vpd	MORNING PEAK HOUR NORTH-BOUND vpd	AFTERNOON PEAK HOUR SOUTH-BOUND vpd	AFTERNOON PEAK HOUR NORTH-BOUND vpd
A	a	Kaanapali Parkway to Alternative A (along Existing Highway)		1500	17164	17424	740	1056	1352	1269
	b	Existing Highway to Future Extension		4200	4912	5449	171	472	353	411
	c	Future Extension to Lahaina Town		10340	11336	11083	533	797	880	776
	d	Lahaina Town to Puamana		11160	5559	6128	327	474	509	442
B	a	Kaanapali Parkway to Alternative B (along Existing Highway)		1221	17164	17424	740	1056	1352	1269
	b	Existing Highway to Future Extension		4700	4912	5449	171	472	353	411
	c	Future Extension to Lahaina Town		9200	11336	11083	533	797	880	776
	d	Lahaina Town to Puamana		12364	5559	6128	327	474	509	442
C	a	Kaanapali Parkway to Alternative C (along Existing Highway)		3125	18987	18528	831	1082	1492	1342
	b	Existing Highway to Future Extension		6400	5136	5280	203	510	415	386
	c	Future Extension to Lahaina Town		7550	12230	12303	573	904	977	851
	d	Lahaina Town to Puamana		14250	7137	7802	408	614	656	567
Widening	e	Kaanapali to Puukolii Road		6759	10086	9483	515	310	750	748
	f	Puukolii Road	to Lower (Old) Honoapiilani Highway	3802	8289	7686	423	233	613	616
	g	Lower (Old) Honoapiilani Highway	to Honokowai	5069	7854	6542	418	227	584	545
Extension (for Alt. A)	h	Kaanapali to Honokowai		20900	8916	8126	459	422	702	540
Extension (for Alt. B)	h	Kaanapali to Honokowai		20900	8916	8126	459	422	702	540
Extension (for Alt. C)	h	Kaanapali to Honokowai		20800	7094	7023	370	394	562	465

TRUCKS = 3.0% vpd = vehicles per day vph = vehicles per hour

* see diagram on sheet 7

TRAFFIC ASSIGNMENT FOR THE YEAR 2007

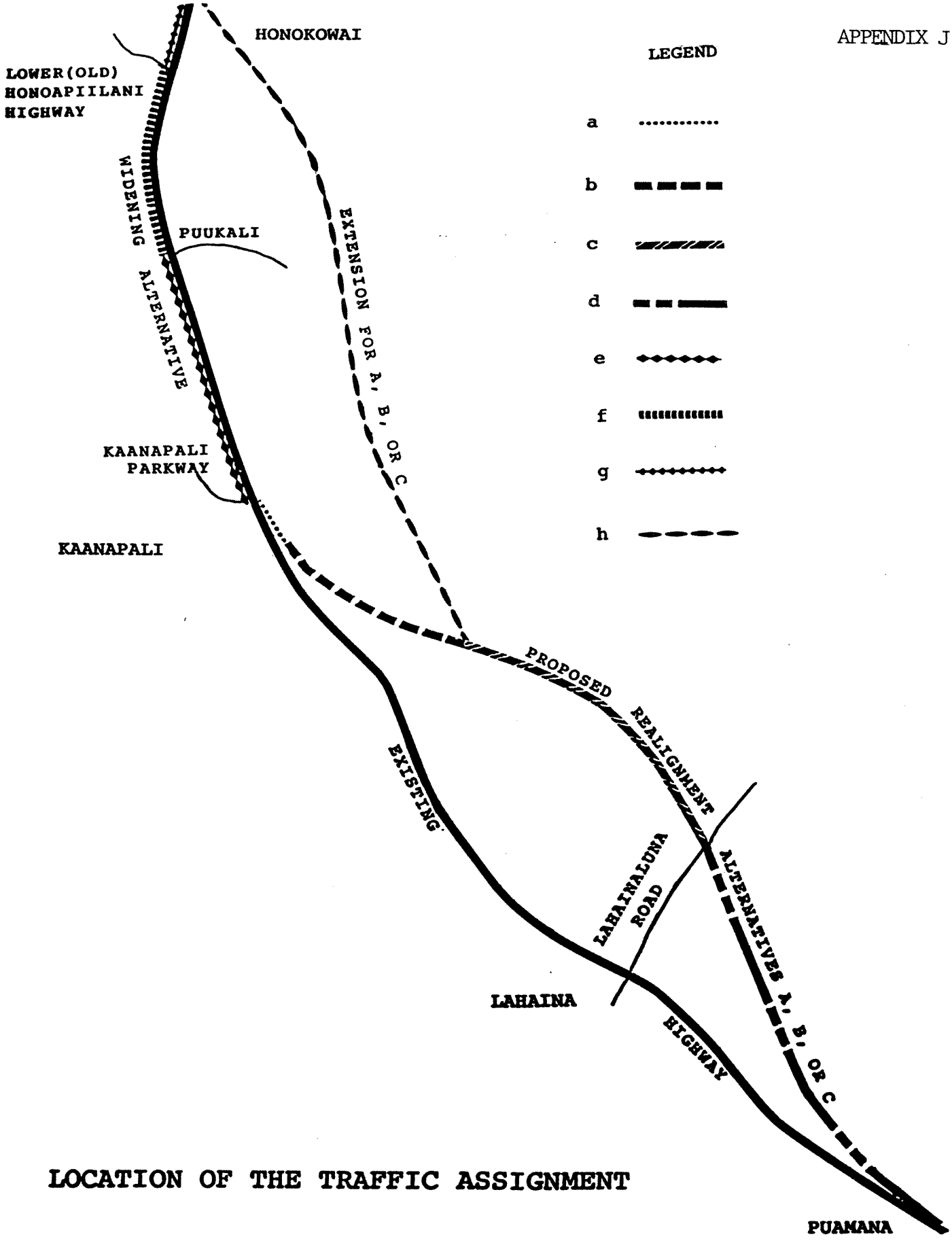
PROPOSED PROJECT ALTERNATIVES

ULTIMTATE CONDITION (PHASE I, II, AND III)

ALTERNATIVE	LOCATION segment*	from	to	DISTANCE feet	AVERAGE DAILY TRAFFIC SOUTH-BOUND vpd	AVERAGE DAILY TRAFFIC NORTH-BOUND vpd	MORNING PEAK HOUR SOUTH-BOUND vpd	MORNING PEAK HOUR NORTH-BOUND vpd	AFTERNOON PEAK HOUR SOUTH-BOUND vpd	AFTERNOON PEAK HOUR NORTH-BOUND vpd
A	a	Kaanapali Parkway to Alternative A (along Existing Highway)		1500	22997	23345	991	1415	1811	1697
	b	Existing Highway to Future Extension		4200	6581	7302	229	631	474	550
	c	Future Extension to Lahaina Town		10340	15188	14851	715	1068	1179	1039
	d	Lahaina Town to Puamana		11160	7444	8207	438	635	682	593
B	a	Kaanapali Parkway to Alternative B (along Existing Highway)		1221	22997	23345	991	1415	1811	1697
	b	Existing Highway to Future Extension		4700	6581	7302	229	631	474	550
	c	Future Extension to Lahaina Town		9200	15188	14851	715	1068	1179	1039
	d	Lahaina Town to Puamana		12364	7444	8207	438	635	682	593
C	a	Kaanapali Parkway to Alternative C (along Existing Highway)		3125	25444	24827	1112	1454	2000	1798
	b	Existing Highway to Future Extension		6400	6882	7075	272	685	556	518
	c	Future Extension to Lahaina Town		7550	16389	16486	767	1213	1309	1141
	d	Lahaina Town to Puamana		14250	9563	10455	546	822	879	759
Widening	e	Kaanapali to Puukolii Road		6759	13517	12708	689	419	1005	1003
	f	Puukolii Road	to Lower (Old) Honoapiilani Highway	3802	11111	10302	566	316	822	826
	g	Lower (Old) Honoapiilani Highway	to Honokowai	5069	10528	8768	558	305	783	729
Extension (for Alt. A)	h	Kaanapali to Honokowai		20900	11947	10889	615	526	939	724
Extension (for Alt. B)	h	Kaanapali to Honokowai		20900	11947	10889	615	526	939	724
Extension (for Alt. C)	h	Kaanapali to Honokowai		20800	9507	9411	495	528	753	623

TRUCKS = 3.0% vpd = vehicles per day vph = vehicles per hour

* see diagram on sheet 7



LOCATION OF THE TRAFFIC ASSIGNMENT

APPENDIX K

FISH & WILDLIFE
SERVICE LETTER

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P. O. BOX 50167
HONOLULU, HAWAII 96850

AUG 16 1988

Mr. T. Harano
Chief, Highways Division
Hawaii Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Re: Honoapiilani Highway, Puamana to Honokowai
Project Nos. 30AB-01-85 and 30AB-01-87

Dear Mr. Harano:

This responds to your August 3, 1988 request for list of endangered or threatened species of plants or animals which may be found in the vicinity of, or may be affected by, the referenced projects on Maui.

Although the endangered plant Gouania hillebrandii is known to exist east of the Alternative C section of highway that passes mauka of Lahaina, the proposed path will pass well makai of the plants habitat; the project will have no impact on the species. No other species of endangered or threatened plants or animals would be expected to be found in the vicinity of the project.

Thank you for allowing us to comment on the project.

Sincerely yours,

William R. Kramer

William Kramer
Acting Field Supervisor,
Environmental Services
Pacific Islands Office

cc: Chief, SE-FWE, FWS, Region 1, Portland, OR (Attn: Swanson)

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

APPENDIX L

LEVELS OF SERVICE
(Highway Capacity Manual,
Special Report 209)

LEVELS OF SERVICE

(HIGHWAY CAPACITY MANUAL, Special Report 209)

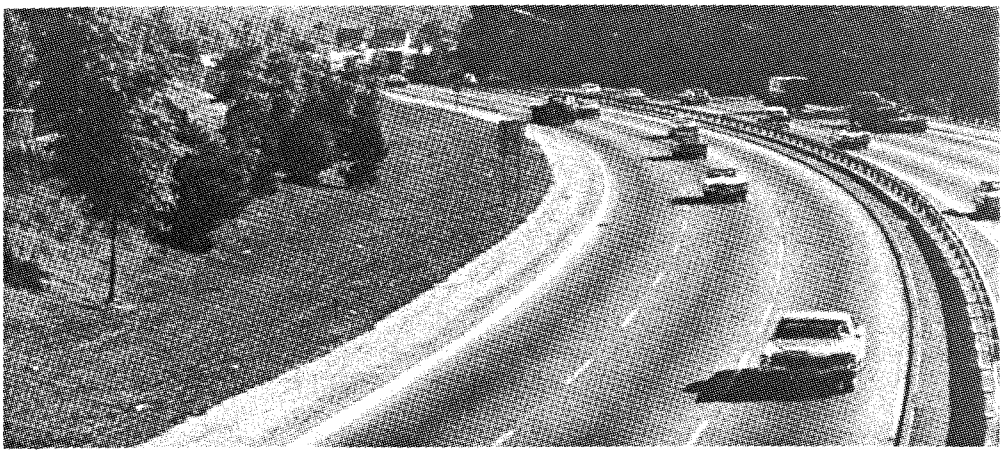
The concept of *levels of service* is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A level-of-service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety.

Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations, from A to F, with level-of-service A representing the best operating conditions and level-of-service F the worst.

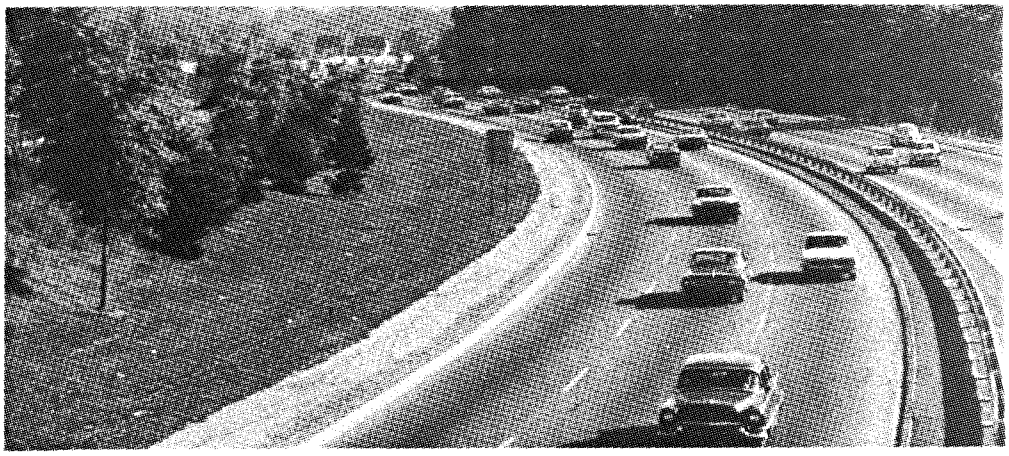
1. *Level-of-service definitions*—In general, the various levels of service are defined as follows for uninterrupted flow facilities:

- *Level-of-service A* represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high. The general level of comfort and convenience provided to the motorist, passenger, or pedestrian is excellent.
- *Level-of-service B* is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream from LOS A. The level of comfort and convenience provided is somewhat less than at LOS A, because the presence of others in the traffic stream begins to affect individual behavior.
- *Level-of-service C* is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. The selection of speed is now affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. The general level of comfort and convenience declines noticeably at this level.
- *Level-of-service D* represents high-density, but stable, flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.
- *Level-of-service E* represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to "give way" to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and driver or pedestrian frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.
- *Level-of-service F* is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable. Vehicles may progress at reasonable speeds for several hundred feet or more, then be required to stop in a cyclic fashion. Level-of-service F is used to describe the operating conditions within the queue, as well as the point of the breakdown. It should be noted, however, that in many cases operating conditions of vehicles or pedestrians discharged from the queue may be quite good. Nevertheless, it is the point at which arrival flow exceeds discharge flow which causes the queue to form, and level-of-service F is an appropriate designation for such points.

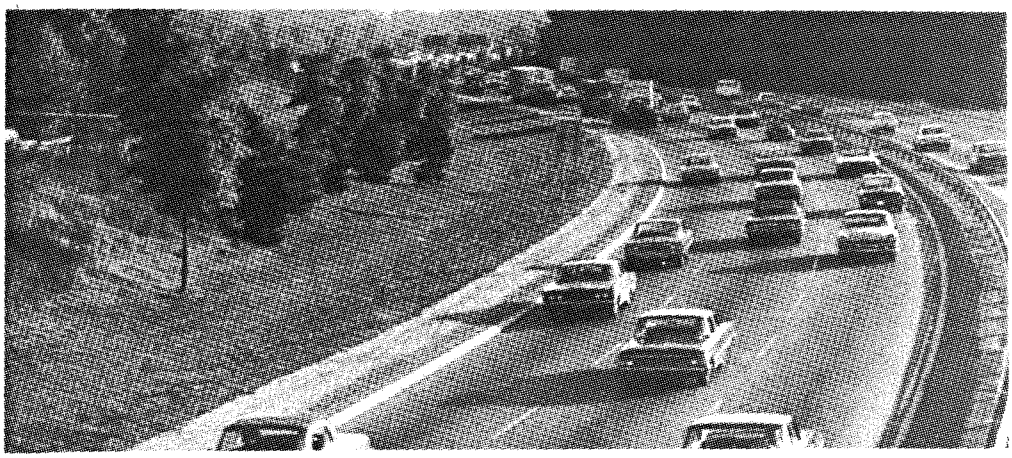
LOS A



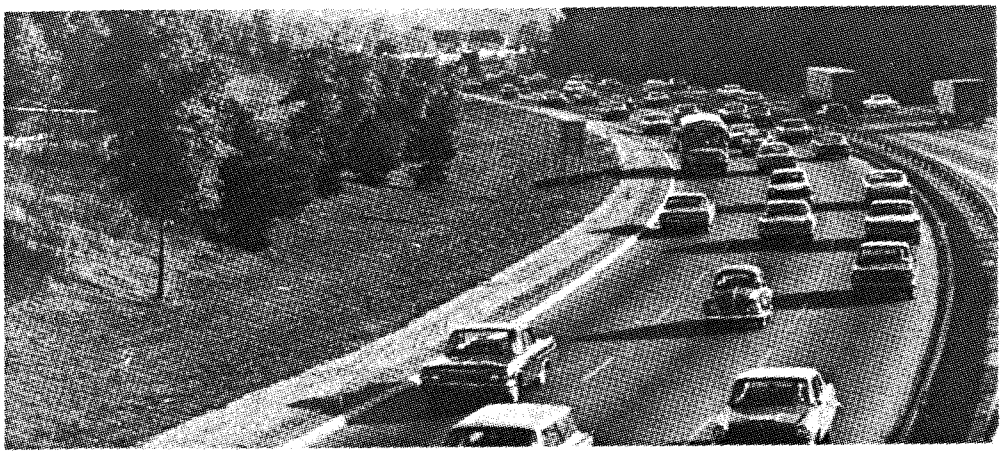
LOS B



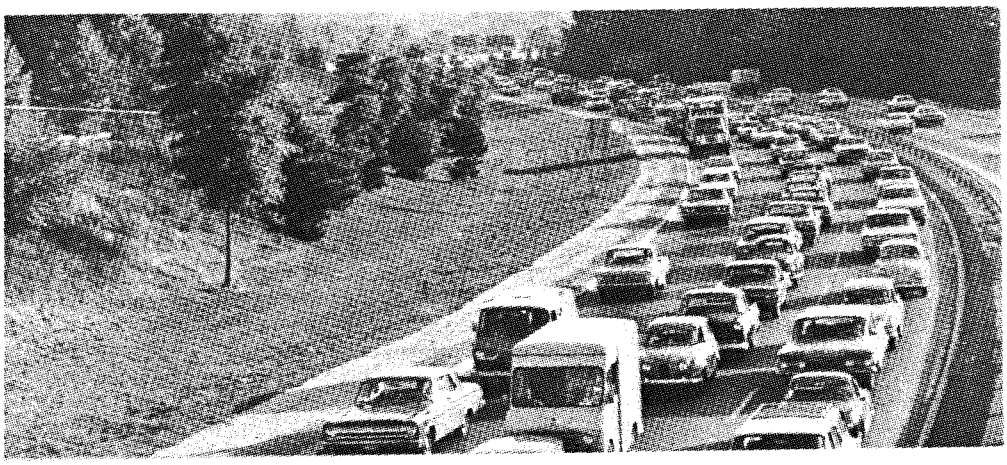
LOS C



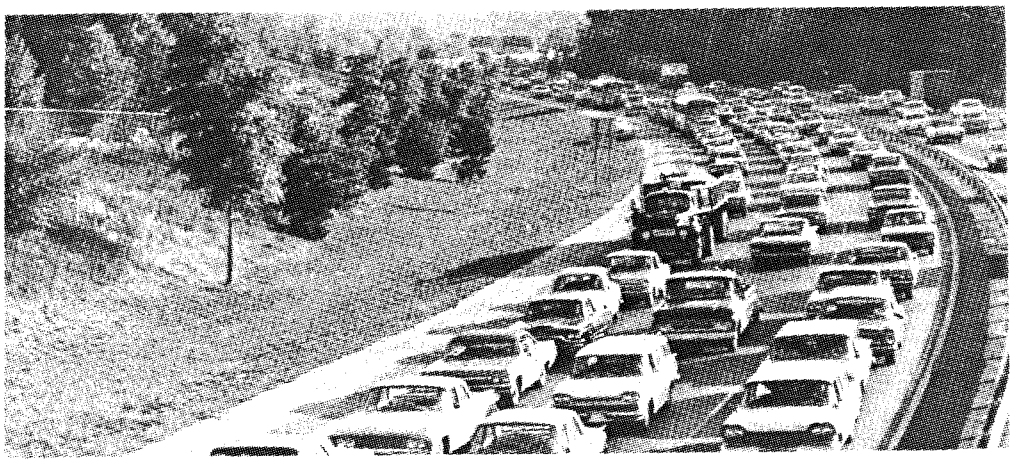
LOS D



LOS E



LOS F



APPENDIX M

DEPARTMENT OF LAND
AND NATURAL
RESOURCES LETTER
(JULY 17, 1989)

JOHN WAIHEE
GOVERNOR OF HAWAII

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

LIBERT K. LANDGRAF
MANABU TAGOMORI
RUSSELL N. FUKUMOTO

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

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

REF:HP-AL

JUL 17 1989

Mr. William R. Lake, Division Administrator
U.S. Department of Transportation
Federal Highway Administration
Region Nine
Hawaii Division
Box 50206
Honolulu, Hawaii 96850

Dear Mr. Lake:

SUBJECT: Compliance with the National Historic Preservation Act, Section 106 -- Honoapiilani Highway, Puamana to Honokowai Lahaina, Maui

In a meeting with the State Department of Transportation (DOT), we were informed that Alternate B has been selected for the highway bypass. This alternative was found to have a potential impact on Site 1775, an agricultural complex that appears to be eligible for the National Register. Because of ongoing construction work by the Corps of Engineers for the Kahoma Stream Flood Control Project, the consulting archaeologist was not able to relocate this site. Thus, it was decided that our staff archaeologist would conduct an inspection of the site to: 1) relocate the site, if still extant, 2) assess its present condition, 3) determine the effect of the proposed undertaking, and 4) propose measures to mitigate any impact on the site.

According to the 1974 Bishop Museum survey, site 1775 is at least 1,000 ft. in length along Kahoma Stream, with most of the features concentrated at the east side of the stream. The debris basin is at the upstream end of the site.

The field inspection was conducted by Ms. Annie Griffin, staff archaeologist, on July 7, 1989. She was accompanied to the project site by Mr. Wayne Kawahara and Mr. Athan Adachi of the State DOT and Harley Rowe of the Corps of Engineers. As proposed, Alternate B will extend from Ikena Avenue, which is in the upper boundary of the debris basin. The area of potential effect for Alternate B (an area approximately 200 ft. in length along the east side of the stream and upstream of Ikena Avenue) was inspected for any remaining features of site 1775. This area was

found to have been disturbed by the debris basin construction. Graded material has been pushed up to this area and boulders may have also been pushed down to this side of the stream when the residential subdivision was constructed.

This field inspection determined that site 1775 has been totally destroyed during the construction of the Kahoma Stream Flood Control Project. None of the features mapped in 1974 was found. Therefore, Alternate B of the proposed Honoapiilani Highway, Puamana to Honokowai, will have "no effect" on significant historic sites.

Very truly yours,

WILLIAM W. PATY
Chairperson and State
Historic Preservation Officer

cc. Edward Hirata, DOT

APPENDIX N

DEPARTMENT OF LAND
AND NATURAL
RESOURCES LETTER
(AUGUST 28, 1989)

JOHN WAIHEE
GOVERNOR OF HAWAII

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

LIBERT K. LANDGRAF
MANABU TAGOMORI
RUSSELL N. FUKUMOTO

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

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

REF:OCEA:SOR

AUG 28 1989

FILE: 90-51
DOC.: 6367E

MEMORANDUM

TO: The Honorable Edward Y. Hirata, Director
Department of Transportation

FROM: William W. Paty, Chairperson
Board of Land and Natural Resources and
State Historic Preservation Officer

SUBJECT: Honoapiilani Highway, Puamana to Honokowai, Maui;
Project No's. 30AB-01-85 and 30AB-01-87

Thank you for giving our Department the opportunity to comment on this matter. We have reviewed the materials you submitted and have the following comments.

We concur with the State Department of Transportation's assessment that "Alternative B" will have "no effect" on the Lahaina National Historic District or the Kaanapali Power Plant. We also concur with the finding that no plantation houses are present along this alignment.

Thank you again for your cooperation in this matter. Please feel free to call me or Jay Lembeck of my staff, at 548-7837, if you have any questions.

Very truly yours,

WILLIAM W. PATY

APPENDIX O

SECRETARY OF TRANSPORTATION LETTER (JANUARY 17, 1989)

U.S. Department of Transportation
Office of the Secretary of Transportation

Memorandum

Subject: Draft Environmental Impact Statement
Honoapiilani Highway (Rte 30)
Lahaina District, Maui County, Hawaii
FHWA-HI-EIS-88-0a-D

Date: JAN 11 1989

From: Eugene L. Lehr
Chief, Environmental Division

Reply to Attn of:

To: Eugene W. Cleckley
Chief, Environmental Operations
Division, HEV-11

We appreciate the opportunity to review the subject DEIS. We have no comments.

APPENDIX P

DEPARTMENT OF THE ARMY, U.S. ARMY ENGINEER DISTRICT, HONOLULU (JULY 27, 1989)

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT. SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF:

July 27, 1989

Planning Branch

Mr. Edward Y. Hirata, Director
Hawaii Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Thank you for your letter dated July 18, 1989 requesting a decision as to whether the U.S. Army Corps of Engineers prefers to be a "cooperating agency" rather than a "review agency" for ongoing National Environmental Protection Act (NEPA) documentation of the proposed Honoapiilani Highway (FAP Route 30), Puamana to Honokowai, Lahaina District, Maui County, Hawaii.

a. Our agency prefers to remain a "review agency" for NEPA processing of this project.

b. As noted in our response to the Draft Environmental Impact Statement (letter dated February 2, 1989), coordination should be continued with Operations Branch (telephone 438-9258) regarding Department of the Army permit requirements for stream crossings.

c. Please continue to coordinate the Kahoma Stream portion of the proposed highway project with Planning Branch. The project manager for the flood control project is Ms. Helen Stupplebeen (telephone 438-7008).

Sincerely,

Kisuk Cheung
Chief, Engineering Division

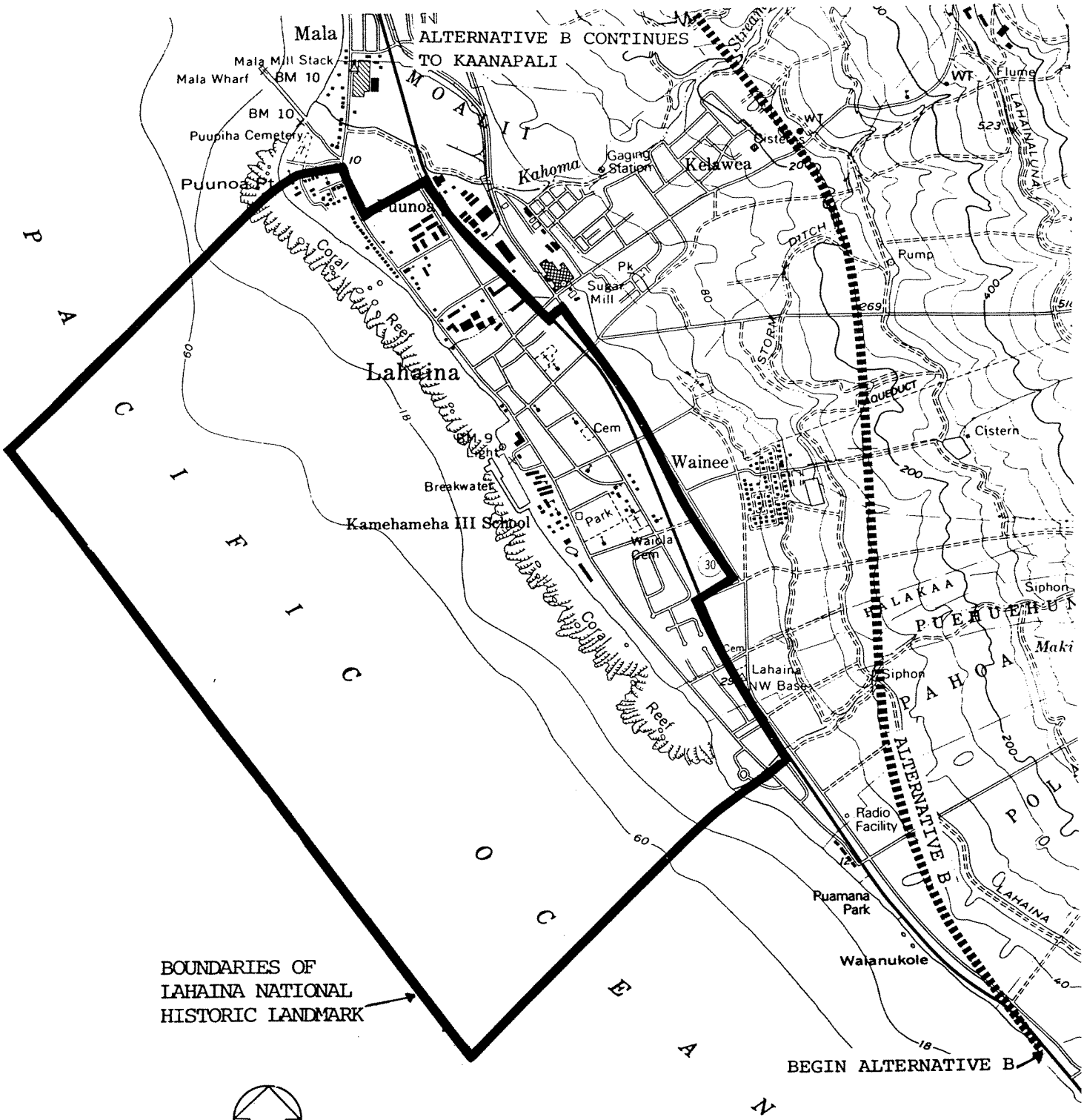
Copy Furnished:

Director
Office of Environmental Quality Control
465 S. King Street, Room 104
Honolulu, Hawaii 96813

Mr. William R. Lake, Division Administrator
Federal Highway Administration
U.S. Department of Transportation
Box 50206
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

APPENDIX Q

BOUNDARIES OF LAHAINA
NATIONAL HISTORIC LANDMARK



BOUNDARIES OF LAHAINA NATIONAL HISTORIC LANDMARK

APPENDIX R
OFFICE OF STATE
PLANNING
LETTER (APRIL 6, 1990)

OFFICE OF STATE PLANNING
Office of the Governor
STATE CAPITOL, HONOLULU, HAWAII 96813 TELEPHONE (808) 548-5893
JOHN WAIHEE, Governor

Ref. No. P-653

April 6, 1990

MEMORANDUM

TO: The Honorable Edward Y. Hirata, Director
Department of Transportation

SUBJECT: Hawaii Coastal Zone Management (CZM) Program Federal Consistency for Honoapiilani Highway, Puamana to Honokowai, Maui, Hawaii, Project Nos. 30AB-01-85 and 30AB-01-87 (FC/89-028)

In anticipation that you will be applying for Federal assistance to implement the project, we have reviewed your assessment of the subject activity's consistency with Hawaii's CZM Program and concur with your finding that the activity is consistent. Therefore, Hawaii CZM consistency approval is hereby granted. By copy of this letter, we are informing the U.S. Department of Transportation, Federal Highway Administration that CZM consistency review requirements have been met.

This approval does not excuse your compliance with any regulations administered by other agencies of the State of Hawaii or the County of Maui.

Thank you for your continued cooperation in complying the Hawaii CZM Program. Please feel free to call our CZM office at 548-5973 if there are any questions regarding this review.

Harold S. Masumoto
Director

cc: Federal Highway Administration
U.S. Department of Transportation
Planning Department
County of Maui

APPENDIX S
DEPARTMENT OF THE ARMY
U.S.ARMY ENGINEER
DISTRICT, HONOLULU
LETTER (JULY 1, 1985)

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

July 1, 1985

Mr. Wayne J. Yamasaki, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Yamasaki:

Thank you for the opportunity to review and comment on the EIS Preparation Notice for Honoapiilani Highway, Puamana to Kaanapali, Maui. The following comments are offered:

a. Crossings at Kahoma Stream and Kauaula Stream may need Department of the Army permits.

b. Section IV "General Description of The Proposed Action" states that the project proposes to widen and/or align a section of Honoapiilani Highway (FAP 30). The extent and locations for widening and/or realignment are not specified. As the State Department of Transportation is aware, the U.S. Army Corps of Engineers and the County of Maui intend to initiate construction of the Kahoma Stream Flood Control Project upon availability of construction funds. We closely coordinated the construction plans with the State Department of Transportation. Highway widening and/or realignment will adversely affect the completed and coordinated design and cost of the new bridge to be constructed at Kahoma Stream along the Honoapiilani Highway. I request that any action affecting the Kahoma Stream Flood Control Project be coordinated with us and the County of Maui.

c. The proposed Honoapiilani Highway alignment, shown on the enclosed flood hazard map (Encl), crosses the Kahoma Stream and Kauaula Stream flood plains. In coastal areas, some sections of the highway alignment will cross tsunami inundation areas.

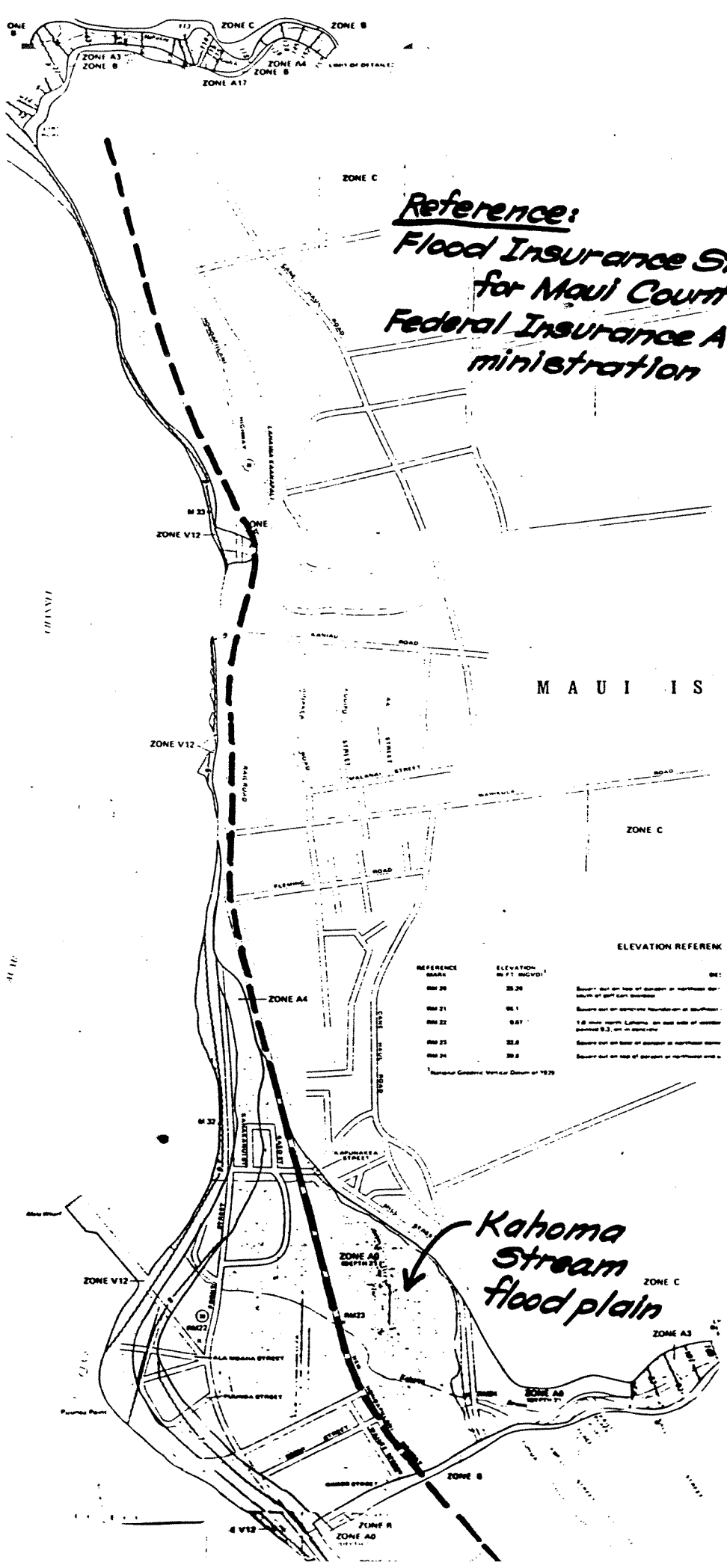
Sincerely,

Kisuk Cheung
Chief, Engineering Division

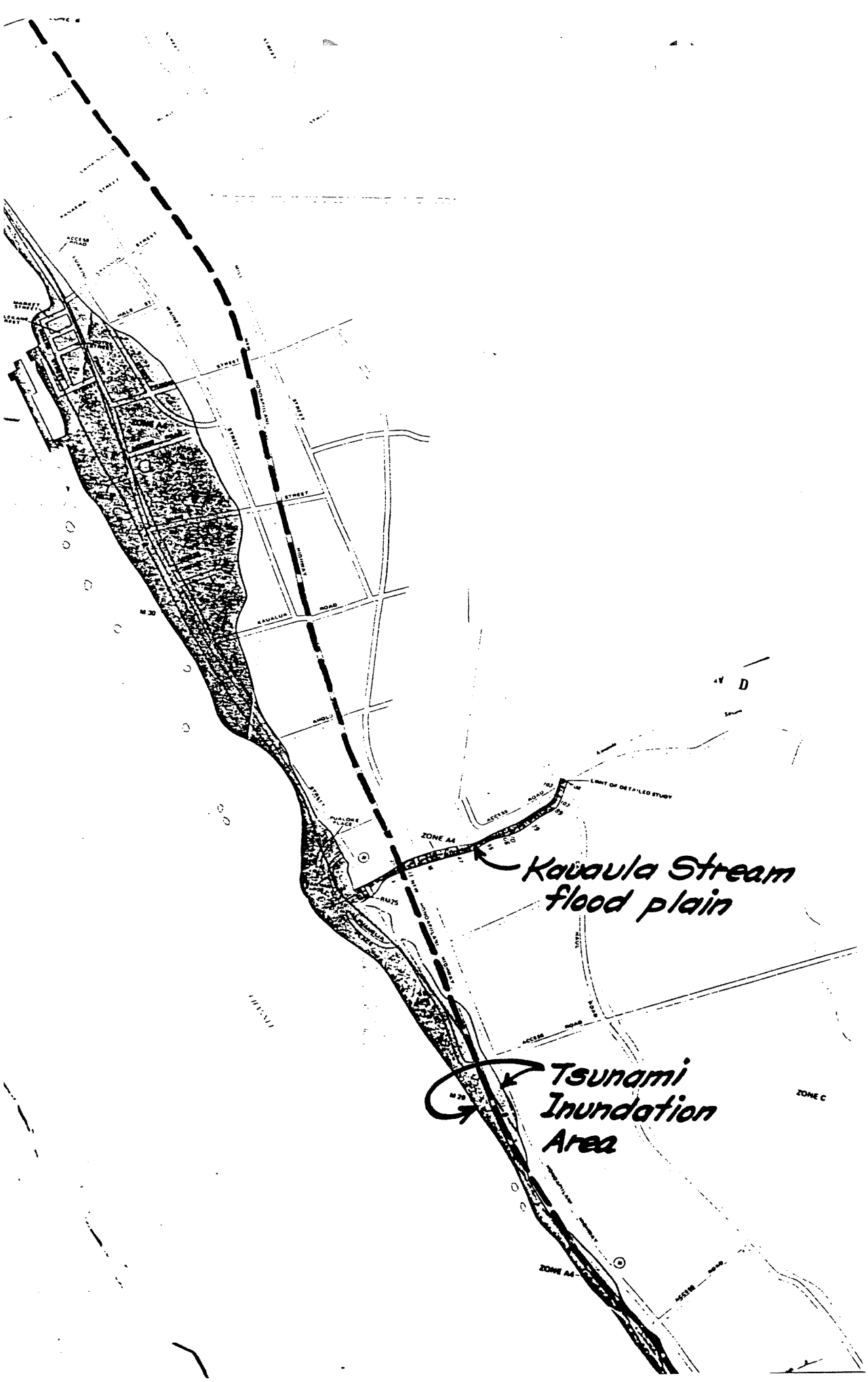
Enclosure

Copy Furnished: w/Encl

Mr. Ralph Hayashi
Director, Public Works Department
County of Maui
200 S. High Street
Wailuku, Maui, Hawaii 96793


Reference:
Flood Insurance Stud
for Maui County,
Federal Insurance Ad-
ministration
Kahoma
Stream
flood plain
ZONE C
ZONE B
ZONE A3
ZONE A4
ZONE A17
ZONE V12
ZONE A4
ZONE A0
ZONE A3
ZONE B
ZONE R
M 33
M 32
M A U I I S
ELEVATION REFERENC

Encl 1



Kauaula Stream
flood plain
Tsunami
Inundation
Area
ZONE A
ZONE C
ZONE A
ZONE A

APPENDIX T
COUNTY OF MAUI
DEPARTMENT OF PARKS
AND RECREATION
LETTER (MAY 30, 1990)

HANNIBAL TAVARES
Mayor

CHARMAINE M. TAVARES
Director
FLOYD S. MIYAZONO
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PARKS AND RECREATION

1580 Kaahumanu Avenue
Wailuku, Maui, Hawaii 96793

May 30, 1990

Mr. Edward Y. Hirata
Director of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Hirata:

RE: HONOAPIILANI HIGHWAY, PUAMANA TO HONOKOWAI
PROJECT NOS. 30AB-01-85 AND 30AB-01-87

This is in response to your letter dated April 26, 1990 regarding the above referenced project.

At this time, it would not appear that the proposed bypass highway would substantially impair the use of the park, provided that appropriate improvements such as fencing and access driveways be included to mitigate the impact of the highway on the park.

As the project progresses, we would like to have the opportunity to review and comment on the plans.

Thank you for the opportunity to submit our comments on this project.

Please feel free to contact me should you have any questions.

Very truly yours,

Charmaine Tavares

CHARMAINE TAVARES
Director of Parks and Recreation

cc: Patrick Matsui

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