DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

DRAFT

ENVIRONMENTAL IMPACT STATEMENT

FOR

ALII DRIVE REALIGNMENT, SECTION FROM ALII HIGHWAY AT KEAUHOU TO KAILUA-KONA

Section 102 (2) (c)

Public Law 91-190

Prepared by

Belt, Collins & Associates, Limited

for the

Department of Public Works

County of Hawaii

August, 1972

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I. PROJECT NEED AND DESCRIPTION

In 1968, the County Planning Commission made a "Feasibility Study -- Kailua-Kona", in which it discussed various traffic and parking problems in Kailua proper and recommended solutions for this unique resort area. In that report and in accordance with another study entitled "Plan for Kona" by Harland Bartholomew and Associates, the Alii Drive alignment was discussed and various proposals were put forth for its future function. In the reports mentioned, it was recommended that existing Alii Drive be realigned mauka of its present location and that the present facility ultimately be converted into a landscaped mall in the Kailua area and possibly a series of dead-end streets, serviced from New Alii Drive, outside of Kailua Village. The primary purpose was to preserve the present environmental quality of Kailua and to emphasize pedestrian traffic in the down town area by moving through traffic away from the shoreline.

Also in 1968 the "West Hawaii Corridor Study" was conducted by Belt, Collins and Associates for the State of Hawaii and the County to select a generalized highway route from Kawaihae to Honaunau. The study placed heavy emphasis, in the route selected, on the retention of natural features and considered, as well, existing land use, scenic, historic and recreational sites. Functionally, the route was classified multi-purpose from Kawaihae to Kailua and resort and scenic from Kailua to Honaunau.

This study - the route selection of Alii Drive - is primarily a detailed investigation conducted in accordance with principles and guidelines formulated in past generalized studies. It was not the intent of this report to justify the new alignment but to find its best location.

The benefits gained as a result of the new facility are as follows:

(1) It will make possible the implementation of the General Plan -- to make Kailua-Kona a truly unique resort development -- by allowing existing Alii Drive to function as something other than a Kailua-Keauhou access route.

(2) It will alleviate the congestion in near proximity to Kailua Village because the road to Keauhou and other areas will be moved further mauka.

(3) It will provide for orderly development of the coastal resort area, provided future zoning is carefully controlled.

(4) Should development and population in the area accelerate at a greater pace than anticipated, it would be possible to convert New Alii Drive to a four-lane urban facility. It should be noted here that the expected traffic (3600 vehicles per day in 1990) on the facility would not justify its initial construction as a four-lane highway.

The consultants studied several possible routes within a proposed realignment area.* Therefore, when the probable environmental impact of a particular route is discussed, that combination(s) (or routes) is specifically identified. If no specific combination(s) is identified, then the reviewer should assume that the discussion refers to the entire realignment area (all routes).

The proposed realignment area for the existing Alii Drive (See Appendix A, Map 1) begins in the vicinity of the Kona Lani Subdivision and continues in a southeasterly direction for approximately 3.4 miles, terminating at the existing realigned portion of Alii Highway at Keauhou. The proposed

* See Appendix D, Map 4 for alternates studied.

highway serves a two-fold purpose: first, it replaces existing Alii Drive, (See Appendix A, Map 1) and second, it serves as yet another link in the scenic corridor which will terminate at the Honaunau City of Refuge with a possible future connection to the Volcanoes National Park.

As can be seen on the aerial photograph (Appendix A, Map 1) the proposed roadway meanders over an expanse of keawe trees and traverses ancient lava flows. Varying in elevation from 30' to 180' above sea level and aligned mauka of the present facility, the new route will provide a visual review of the mountain, shoreline and resort areas along the Kona Coast. Annual rainfall at the site is approximately 30 inches.

The initial facility will be two-lanes, with 24-foot wide pavement, 10-foot shoulders and partial access control along the right-of-way. Ultimately, should conditions warrant, it can be expanded to a four-lane urban type roadway with 12-foot lanes, 24-foot median and 10 to 14-foot of sidewalk and planting strip. The facility is initially intended as a rural facility with an AASHO* standard 100-foot minimum right-of-way. A four-lane urban facility can also be constructed within this Right-of-Way width without sacrificing safety and, hence, no future purchase of land will be required (See Appendix E, Typical Sections of both ultimate and initial conditions).

The present land use (Appendix B, Map 2) through the area of the proposed realignment is composed of unplanned, residential and commercially zoned areas. Much of the latter two zoned areas is presently undeveloped. It is expected, however, that the new highway will accelerate the development of the areas along its route. The realignment has been coordinated with public and private land development plans to assure a viable realignment consistent with the various master plans of the region.

* American Association of State Highway Officials.

II. PROBABLE IMPACT OF THE PROPOSED IMPROVEMENT*

The proposed highway will undoubtedly stimulate urban growth along its corridor and will, as well, provide a better route to the areas between Kailua and Keauhou. This growth should be quite pronounced as the highway traverses expanses of essentially "open area". By moving the highway further "toward the mountains", a visual panorama of the coastline and resort area will be available to all.

A. Public

1. Safety

The highway design will incorporate design features as specified by "AASHO" to insure public safety.

The smoother vertical and horizontal alignment of New Alii Drive will, on the other hand, unintentionally encourage higher traffic speeds, hence, a greater possibility of serious major accidents. High speeds, however, must be discouraged by speed limit control to enable the realization of the basic function of the highway - that of a leisurely scenic - resort drive.

2. Religious Institutions

No religious institutional buildings will be displaced by the proposed highway. In fact, access to them should be improved with the Alii Drive realignment and mall concept as traffic can utilize Kuakini Highway and New Alii Drive to bypass the village of Kailua.

3. Residential and Neighborhood Location and Character.

The only area affected for Combinations I, III, and IV will be in the vicinity of the Alii Kai Subdivision and this

* For all routes shown on Appendix D, Map 4.

only to the extent that sufficient R/W was not initially provided. The existing R/W in the Alii Kai area is 50' wide and the acquiring of additional R/W will displace one home. The affect has been minimized by holding the mauka R/W line (where most homes are located) and purchasing R/W on the ocean side of the roadway. No adverse effect to the neighborhood is envisioned as a result of the highway.

4. Replacement Housing

One home and some undeveloped residential and commercial property will be displaced as a result of either Combination I, III or IV corridor. The State's relocation assistance program should minimize the hardships that might be encountered in trying to find replacement housing. It appears that many undeveloped, unoccupied residential lots in the immediate areas exist so that relocation with State assistance, should not be difficult. All affected parcels will be acquired at "Fair Market Value", as determined by appraisal.

B. Economics

1. Economic Activity

The proposed realignment route will not displace any commercial or industrial buildings; therefore, economic activity within the area will not be seriously affected. The highway construction, when it is undertaken, will provide a stimulus to the building industry during the contract period. Monetary stimulation in excess of $1,500,000 will be injected into the economy.

2. Employment

No adverse impact on existing employment is contemplated. If anything, the proposed construction probably will make use of available local residents.

3. Conduct and Financing of Government

Government will not be altered in the area. Tax assessments will increase as the general level of economic activity increases. This will happen if additional areas are developed as expected.

4. Traffic Disruption*

Disruptions are expected in the vicinity of the Alii Kai Subdivision, but only when construction activity is in progress. Every effort will be made to keep these disruptions to a minimum by specifying a proper construction phasing and traffic detour plan. Construction of the connection at Kuakini should not cause any traffic problems as most of the work will be done away from the existing pavement. When work encroaches onto the pavement, safety precautions, such as barricades, will be used to minimize the possible hazards. In addition, work will be limited to off-peak traffic hours.

5. Property Values

Land values will undoubtedly rise as better access will stimulate more development. The greatest benefit should be to those properties directly fronting the corridor. Except for the segment in the vicinity of Alii Kai Subdivision, which affects Combinations I, III and IV only, affected parcels

* Traffic disruptions for Combinations II and V should be minimal. See Appendix D, Map 4.

are large enough that the residual portions of the lot after R/W acquisition will still be developable.

6. Displacement of Families and Business

One family will be displaced in Combinations I, III and IV and except for undeveloped commercial lots, no businesses are effected.

7. Project Cost

The estimated project cost for the recommended alternate is $2,486,000. The costs for the various alternates are as shown in Appendix F.

C. Environmental

The location and design of the proposed highway project should have minimal adverse effect on the community at large. Most of the realignment is over open, undeveloped, raw land.

1. Aesthetics

Aesthetic qualities will be preserved throughout the project location. Special consideration will be given to improving visual panoramas by proper alignment and grade. Landscape architects will be consulted during the design phase in order to insure a proper blending of the roadway with the terrain. Construction scars will occur and, although not the rule, cut and fill areas of 20 to 30 feet are anticipated. Initially, therefore, an adverse visual impact in some segments will be experienced. Proper landscaping and due regard to the terrain should, to some extent, minimize these scars. Recovery from the initial impact will not be immediate; therefore, a heavy landscaping and irrigation program must be implemented.

2. Recreation and Parks

The proposed alignment does not affect any park lands. The alignment, by moving traffic away from the shoreline, will assure the preservation of the quality of existing shoreline recreational facilities and may provide the opportunity to add more facilities. In addition, since the corridor does traverse the higher slopes, an opportunity to create scenic and recreational stops along the route will be available. Further, as indicated in Appendix A, Map 1, several historical sites will be made more easily accessible.

3. Fire Protection

Better access, and mobility, which the proposed facility will provide, will speed fire fighting equipment to its destination in a quicker, more efficient manner.

4. Public Utilities

Existing utilities will be adjusted as required, particularly in the Alii Kai Subdivision area (traversed by Combinations I, III and IV only). Utility line extensions are not contemplated, but if future service along the corridor is installed, construction will be coordinated with the proper public utility companies. Street lighting is not considered necessary initially.

5. Conservation

As advised by personnel from the Divisions of Forestry, Fish and Game and Land Management of the Department of Land and Natural Resources, State of Hawaii, no conservation land, wildlife, fish breeding, nesting or feeding grounds which would be adversely affected by the New Alii Drive alignment exist along the proposed corridor.

6. Natural or Historic Landmarks

Preliminary indications, from data obtained from the County of Hawaii, Department of Land and Natural Resources and Bishop Museum on historic landmarks in the area, indicate that, except for several crossings of the great wall of Kuakini, the proposed highway corridor will not destroy any of these sites. However, before the final alignment is set, an archaeological survey will be made of the proposed corridor in order to ascertain if sites exist which have not yet been spotted. Representatives of the Bishop Museum and Department of Land and Natural Resources will be requested to make this survey before the final line is established.

7. Noise, Air and Water Pollution

During construction of the roadway, noise will be bothersome to nearby residents. This activity will be minimized in the Alii Kai area by keeping earthwork to a minimum. This will be accomplished by keeping the facility as close to the existing grade as possible in this area. After completion of the highway, because of the proximity of the roadway to the residential lots in the Alii Kai Subdivision area, the noise associated with normal vehicular operation will be noticable.

The highway drainage system will concentrate flows to a greater extent than existing conditions.do. Since concentrated flows will result in more erosion, pollution of the ocean from silt laden storm waters may occur more frequently. In addition, the impermeable highway pavement will increase storm water

runoff under certain conditions. However, the increase in runoff is negligible. Much of the adverse runoff conditions can be alleviated by proper design, including a more fragmented drainage system to reduce storm water quantity at discharge points and greater use of desilting basins. The New Alii Drive drainage system will be designed with this in mind.

Air pollution will occur when the roadway becomes operational if present conventional type motor vehicles are still in use. It is anticpated that the users of the proposed highway will be recreation-oriented, which implies the continuance of private modes of transportation; consequently, the problem will continue until a cleaner burning internal combustion engine or a radically different fuel or power source is developed.

It appears that for the foreseeable future, the area's small population will keep other modes of transportation (hydrofoil, mass transit, etc.) from being economically feasible.

8. Education

No educational facilities will be affected; however, some could be developed along the corridor in the future.

9. Multiple Use of Space

Other modes could utilize the highway R/W provided that proper safety measures are undertaken. The only area that will be used solely for surface motor vehicle operation is the paved surface proper.

10. Project Schedule

A definite timetable has not yet been established for this project; however, the probable method of implementation would be:

a) Submit Environmental Impact Statement for Review and Comment.

b) Select the preliminary alignment

c) Conduct an Archaeological Survey of the alignment

d) Revised alignment as necessary

e) Purchase necessary Right-of-Way

f) Design and Construct New Alii Highway.

III. PROJECT ALTERNATIVES

As previously mentioned, the proposed corridor is an attempt to find the best alignment mauka of the present highway and not to justify its location. Basically, the proposed facility is to replace existing Alii Drive and, to that end, a mauka roadway is indicated to handle the traffic on the present Alii Drive location.

The various alternates initially studied, all began at the proposed New Kuakini Highway and terminated at the existing New Alii Highway at Keauhou. The various alignments (Appendix C, Map #3) - between existing and proposed Kuakini Highway posed many problems. Some of these were:

a) Large fills

b) Relocation of residences

c) Costly property acquisition because the area is built up

d) Miscellaneous problems caused by the existing drainage basin

All of these factors contributed to the high cost of placing the improvement in this location and, as a result, the decision was made to abandon the highway realignment between the proposed realigned Kuakini and the existing Kuakini Highway. In addition, this segment appeared to be a duplication of roadways and functionally did not appear necessary.

The origin was then moved to the approximate location of the Kona Lani Subdivision and various combinations of the initial alignment were studied. Of the various proposals, only Combinations II and V (Appendix D, Map 4) are undesirable for the following reasons:

a) They move a great distance away from the existing Alii Drive and the County's desire to reduce existing Alii Drive to a series of cul-de-sacs could not be practically realized.

b) If Combination V were chosen, the connection to Kuakini Highway would be as shown on Appendix D, Map 4. This connection, although comparable in cost to other combinations, would leave a massive fill in the vicinity of the Kuakini connection and would move the proposed corridor even further from the existing alignment.

c) The alignments shown in Combinations II and V are not in accordance with the General Plan for the County of Hawaii and, in order to suggest a change, very strong arguments would have to be made for this route. From the information presently available, it is not believed that such a case can be made.

The final alignment will be determined after the archaeological survey is made where findings might cause some alignment changes. The most economical Combination is #I, and if no significant points of interest are uncovered, this will be the implemented route. Combination I is shown in Appendix A, Map 1.

IV. UNAVOIDABLE ADVERSE ENVIRONMENT EFFECTS

Any highway project will, when constructed, have adverse effects on the environment. Most of these can be relieved, as previously mentioned, by careful planning, design and construction.

Encroachment into the Alii Kai Subdivision by Combinations I, III and IV is inevitable, but only one dwelling will be displaced and other measures will be taken to minimize construction noise and grading activities. Permanent air and noise pollution will be created but none to intolerable limits. Cut and fill areas are likewise inevitable and every effort will be made to have these blend into the terrain by proper landscaping. In essence, if the highway is constructed, all possible measures will be undertaken to insure a proper implementation of the project in connection with its visual impact on the environment.

V. RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

The implementation of this link of the scenic corridor along the west coast of the island of Hawaii will have far reaching effects on the long-term productivity of the area as it will open new areas for recreational, residential and commercial development as well as providing a more economical route from the resort area of Keauhou to the village of Kailua. Further, it should aid in the orderly growth of the Kona Coast by becoming a vital part of the transportation network in the area.

Initially the roadway should alleviate some of the problems in the Kona area as the traffic now on Alii Drive will use the newer facility. The realignment will physically segregate local and faster moving through traffic with an overall increase in traffic safety.

This project involves the acquisition of land and, if Combinations I, III or IV is implemented, one dwelling. When construction begins, problems such as dust and erosion control will be handled so as to cause a minimum of inconvenience in the single built up area affected - the Alii Kai Subdivision.

VI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

The proposed project would commit land, labor, material resources and construction materials, all of which are irretrievable. The highway will be a permanent structure intended for the use of motor vehicles, but not precluding other modes from utilizing the right-of-way.

VII. ECONOMIC BENEFIT COST ANALYSIS

Although the initial assumption was that this was an alignment study and not one of location (i.e., Old Alii Drive location versus new Alii Highway), it was necessary to compare these alternates in order to arrive at costs that could be used to measure the economic benefits of the new alignment. Thus the standard approach of comparing the user costs of the various alternatives against the cost of maintaining the old alignment was utilized (See Appendix F).

On this basis, all alternatives studied indicate a favorable benefit-cost ratio.

APPENDIX

A. Aerial - Map #1

B. Land Use - Map #2

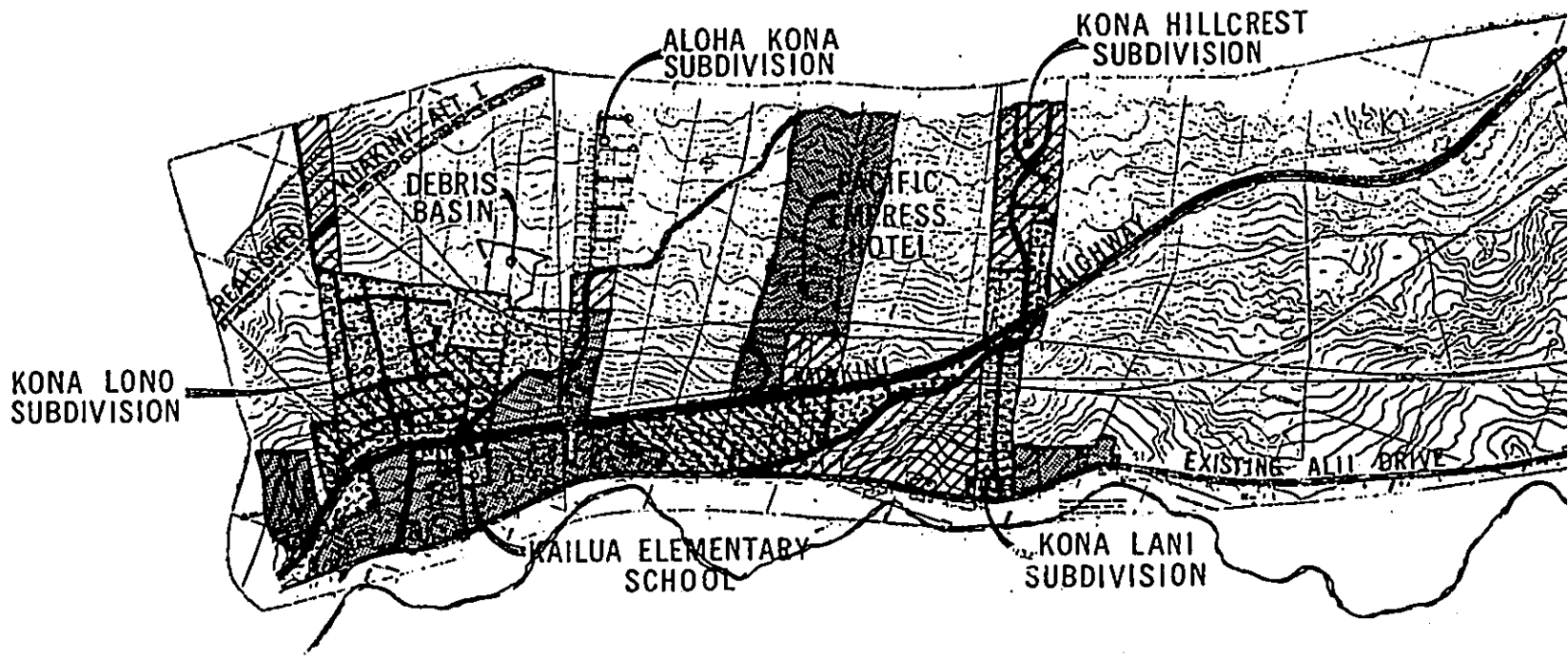
C. Alternates - Map #3

D. Combinations - Map #4

E. Typical Sections

F. Community Effects
Design Features and Cost Estimate
Benefit Cost Analysis

1500 House
1501 House
1505 Haukaloa Heiau Complex
1508 Complex
1513 Complex
1514 Complex
1529 Ko'a Heiau
1532 House
1533 Costa Cave
1534 Complex
1536 House
1537 House
1542 Complex
1549 House Platform
1550 House Platform
1551 Burial Mound Complex
1552 Platform
1554 Complex
1555 Complex
1558 Platform
1564 House Sites Complex
1573 Halelaau Cave
1574 Heiau
1575 Caves
1736 House
3816 Kuemanu Heiau
3822 Halelaau Heiau
3829 Hikapala Heiau
3836 Kauakaiakaloa Heiau
PROPOSED REALIGNED KUAKINI HIGHWAY ALTERNATE
ALOHA KONA SUBDIVISION
KONA HILLCREST SUBDIVISION
KONA SEA VIEW LOTS
GREAT WALL OF KUAKINI
ALII KAI SUBDIVISION
PROPOSED ALII DRIVE REALIGNMENT (COMBINATION I)
KONA LONO SUBDIVISION
EXISTING KUAKINI HIGHWAY
KONA BAY SUBDIVISION
84_001
APPENDIX A - MAP 1



LEGEND:

- SINGLE FAMILY
- DOUBLE FAMILY
- MULTIPLE FAMILY
- COMMERCIAL
- RESORT HOTEL

PROPOSED

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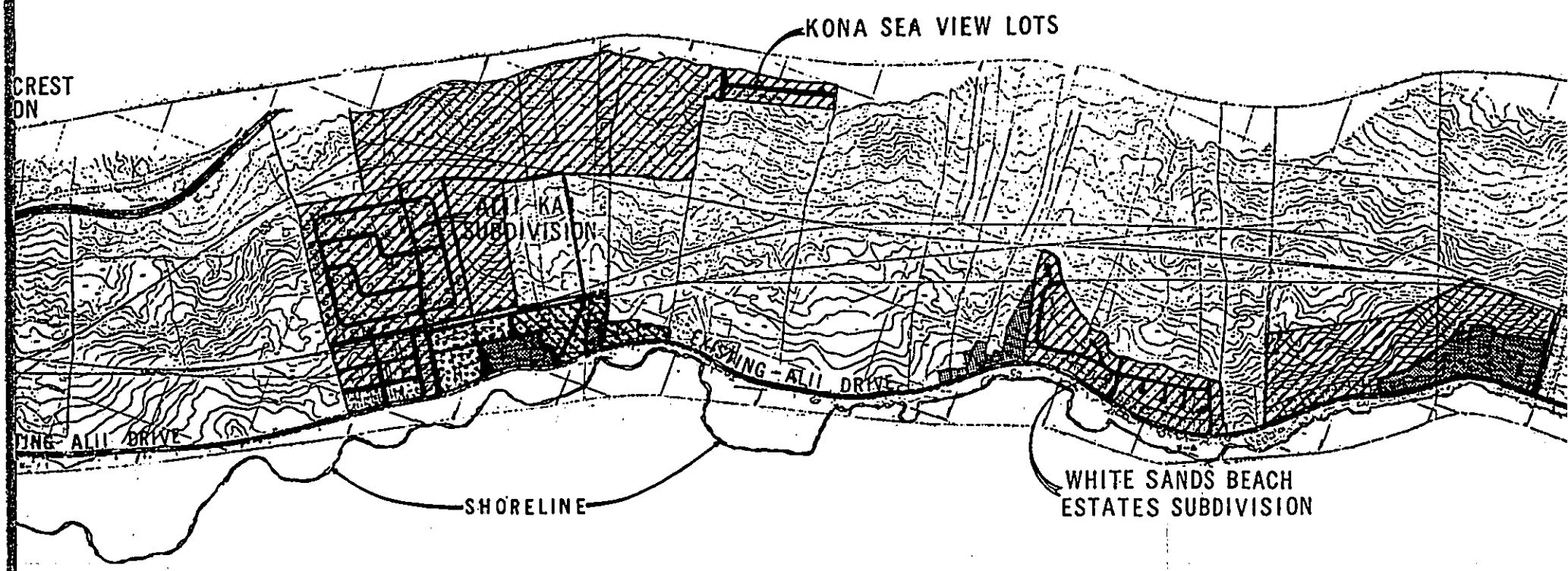

OSED ALII DRIVE REALIGNMENT

EXISTING ZONING PLAN

PREPARED BY

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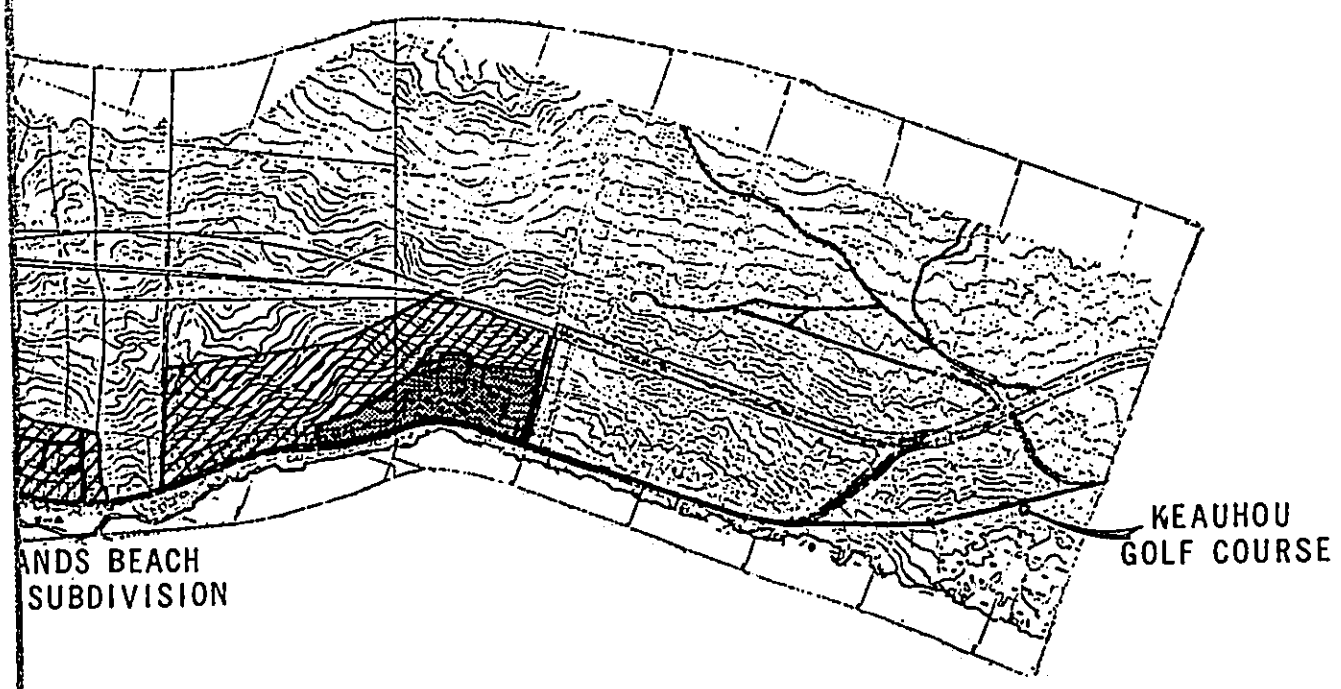

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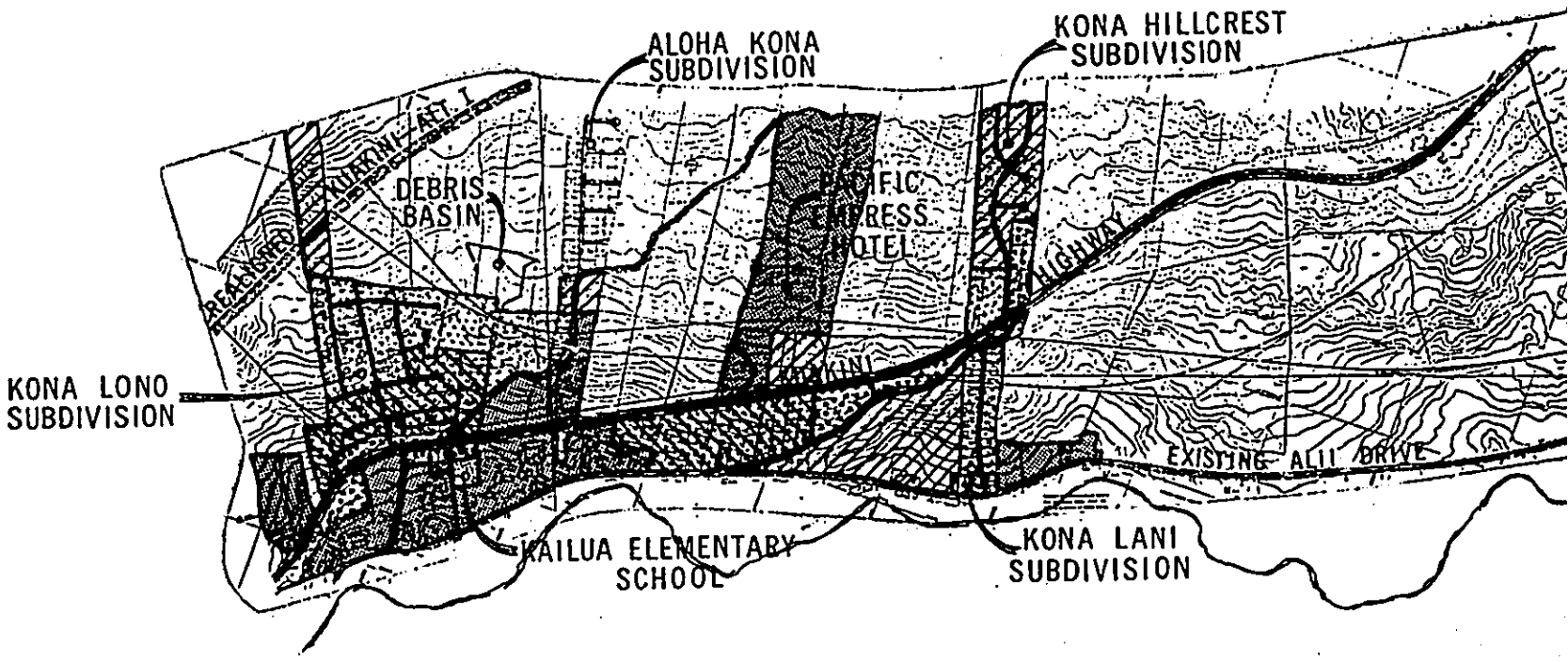
APPENDIX B - MAP 2

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING



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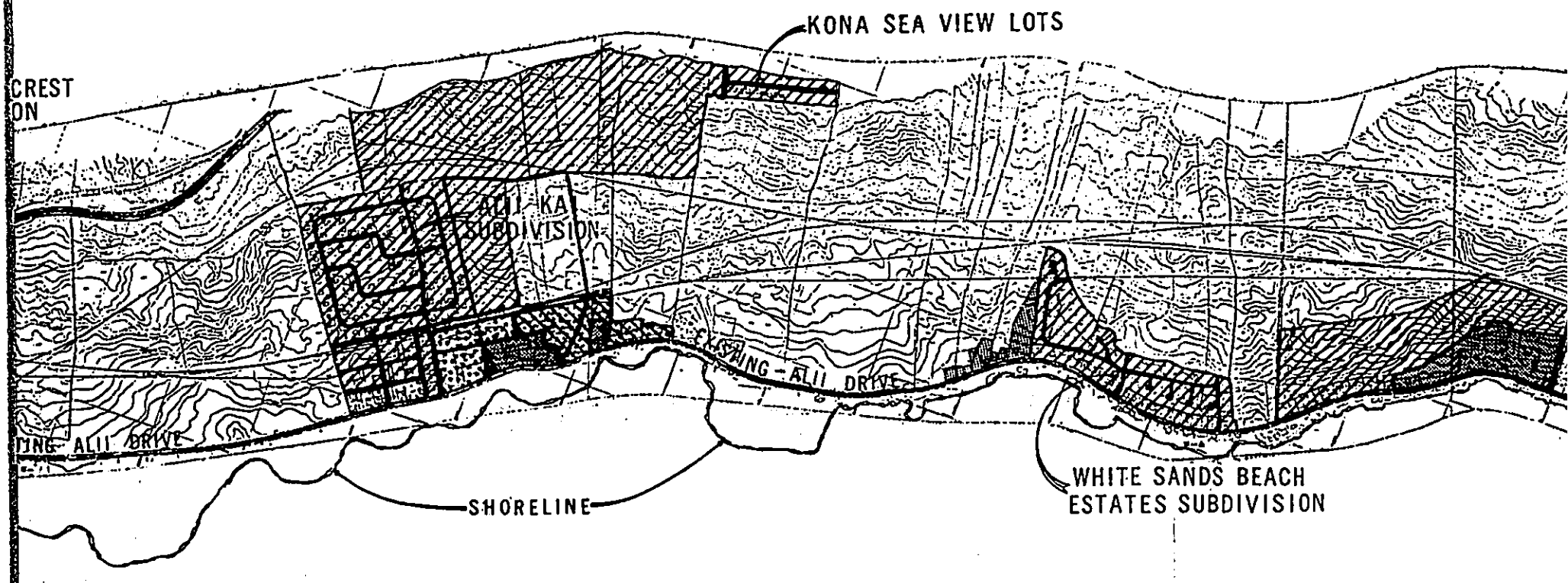
LEGEND:

- SINGLE FAMILY
- DOUBLE FAMILY
- MULTIPLE FAMILY
- COMMERCIAL
- RESORT HOTEL



OSED ALII DRIVE REALIGNMENT

EXISTING ZONING PLAN

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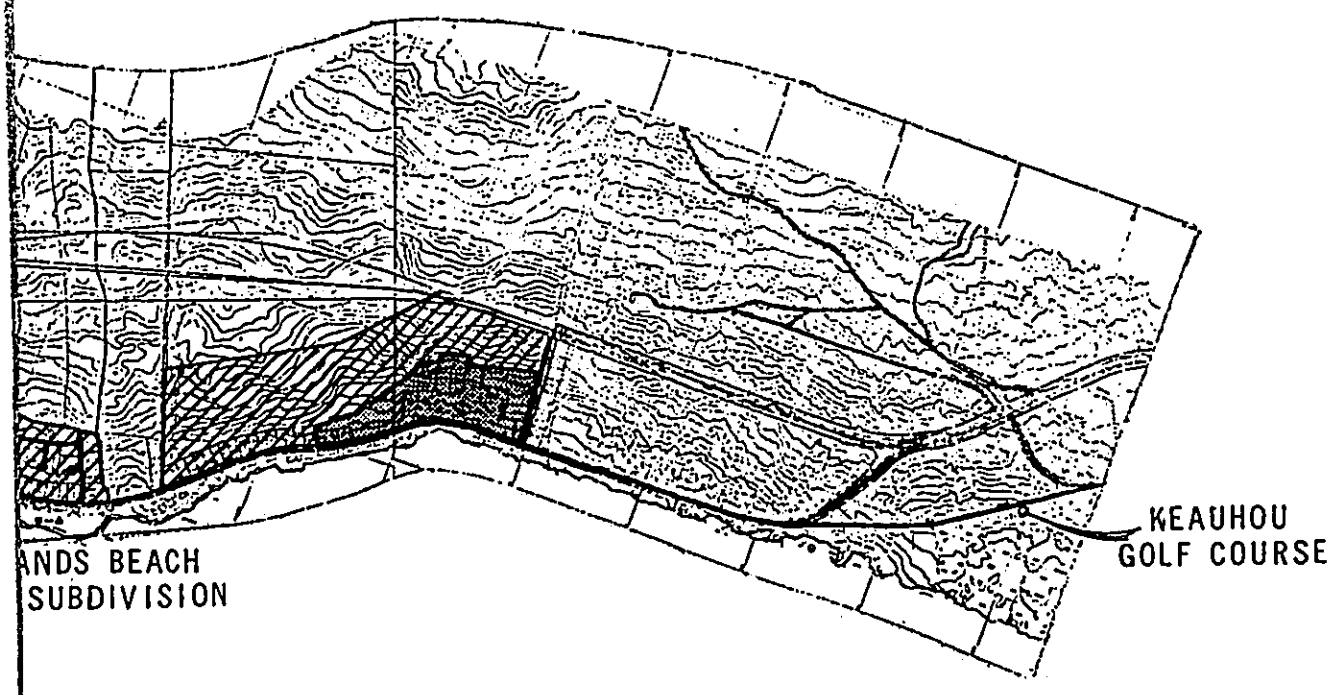

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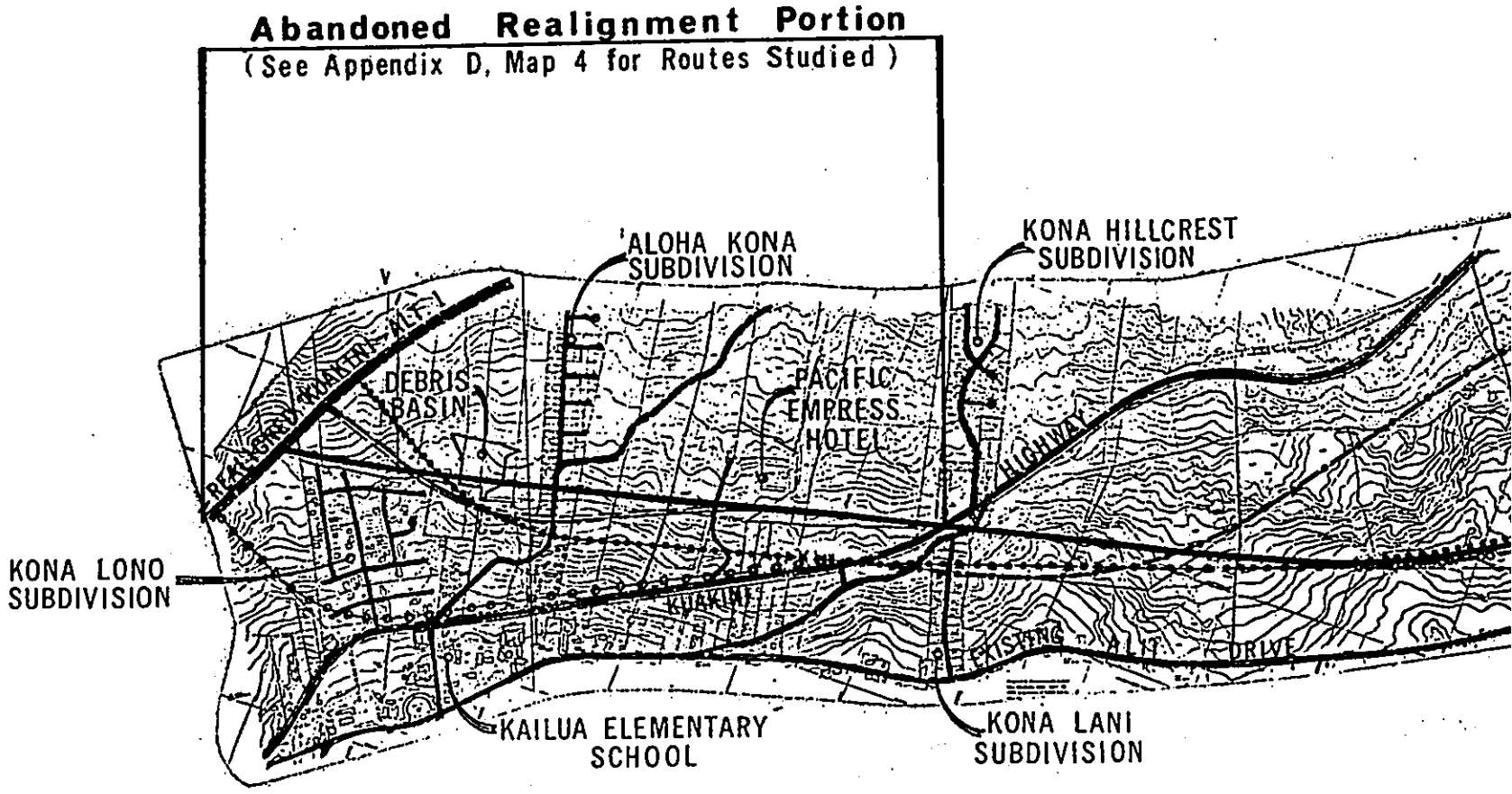
APPENDIX B - MAP 2



ALII DRIVE
REALIGNMENT ALTERNATIVES
Legend :

———	ALTERNATE	—	A
═══——	ALTERNATE	—	A-1
•••••••	ALTERNATE	—	B
••••—•—•	ALTERNATE	—	B-1
••••———	ALTERNATE	—	C
•••••••••	ALTERNATE	—	D
••••—∞—∞	ALTERNATE	—	E

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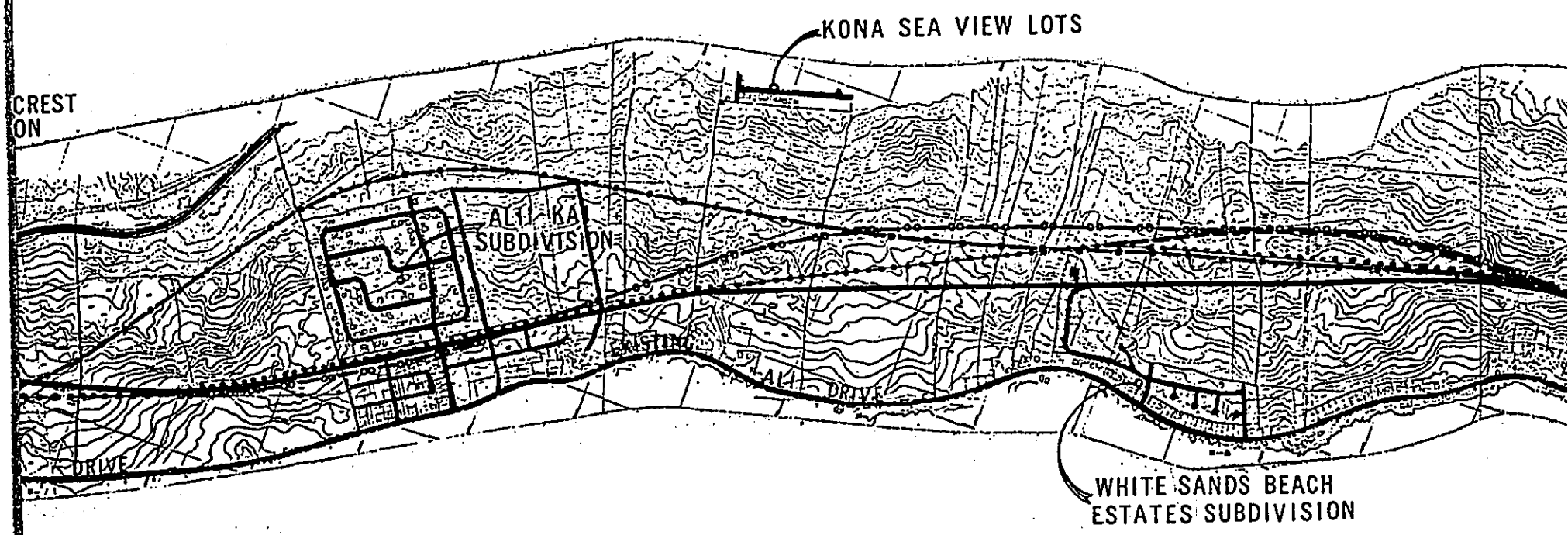
✳ **FOR INFORMATION ONLY**- Actual Alternates Studied are shown in Appendix D - Map no. 4



OSED ALII DRIVE REALIGNMENT

ALTERNATIVE ALIGNMENT PLAN

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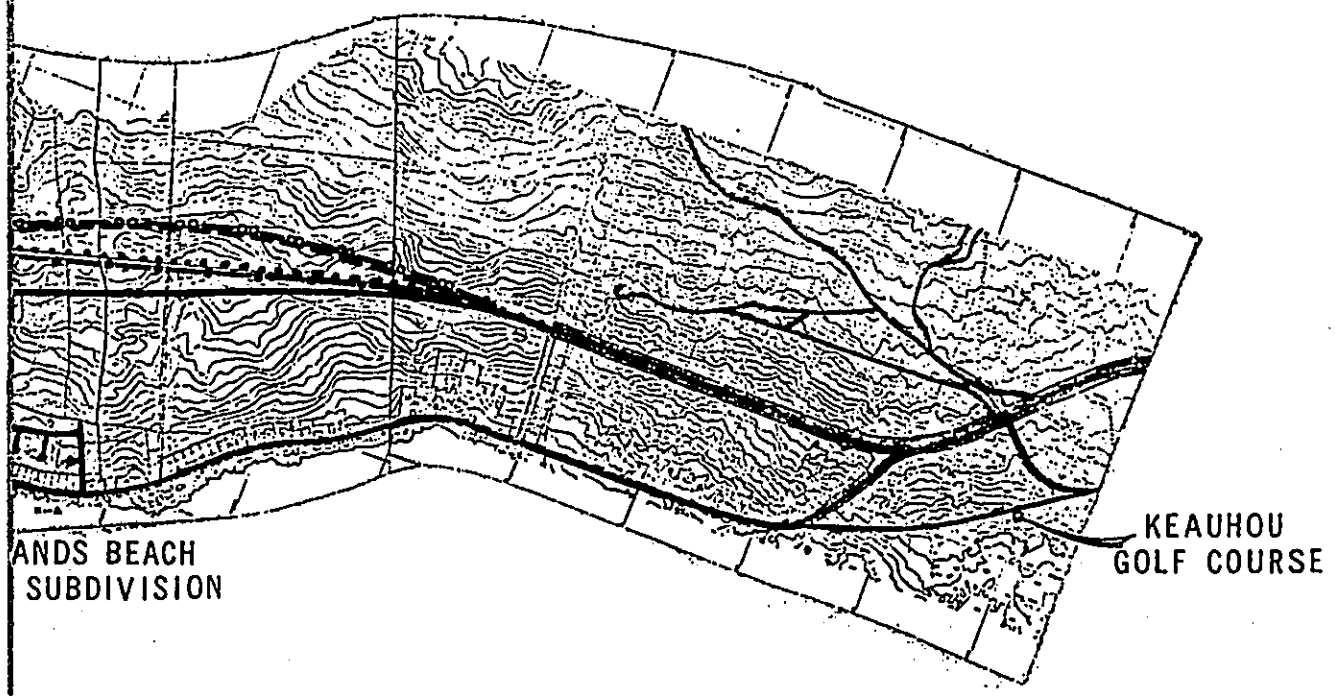

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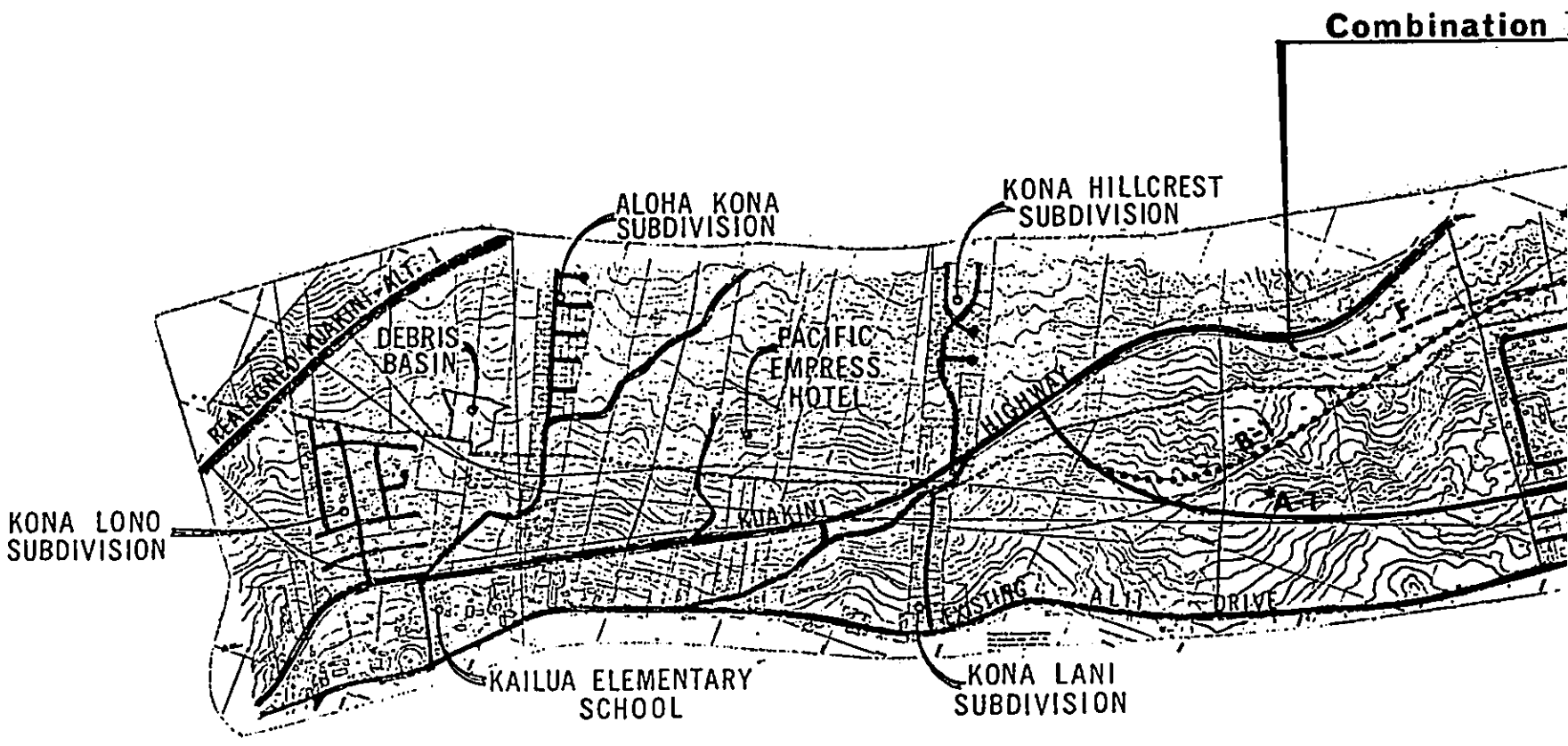
APPENDIX C - MAP 3



PROPOSED A

COMBI

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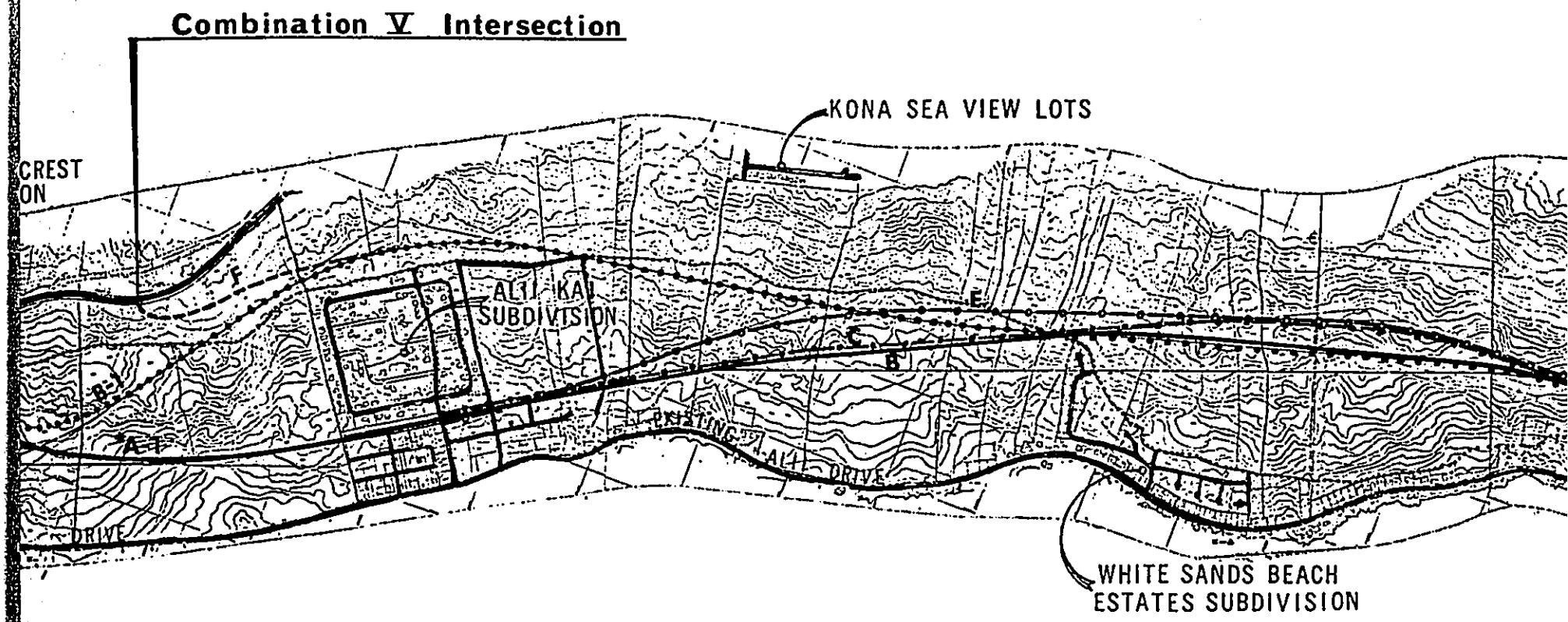
*LEGEND:

- ——————— COMBINATION – I (ALT. A-1 AND ALT. B)
- . . . . . COMBINATION – II (ALT. A-1 AND ALT. B-1)
- —•—•—•—•— COMBINATION – III (ALT. A-1 AND ALT. C)
- —o—o—o—o— COMBINATION – IV (ALT. A-1 AND ALT. E)
- – – – – – – COMBINATION – V ("F" AND ALT. B-1)
- ..... GREAT WALL OF KUAKINI

* ALTERNATE A-1 MODIFIED



OSED ALII DRIVE REALIGNMENT

COMBINATION ALIGNMENT PLAN

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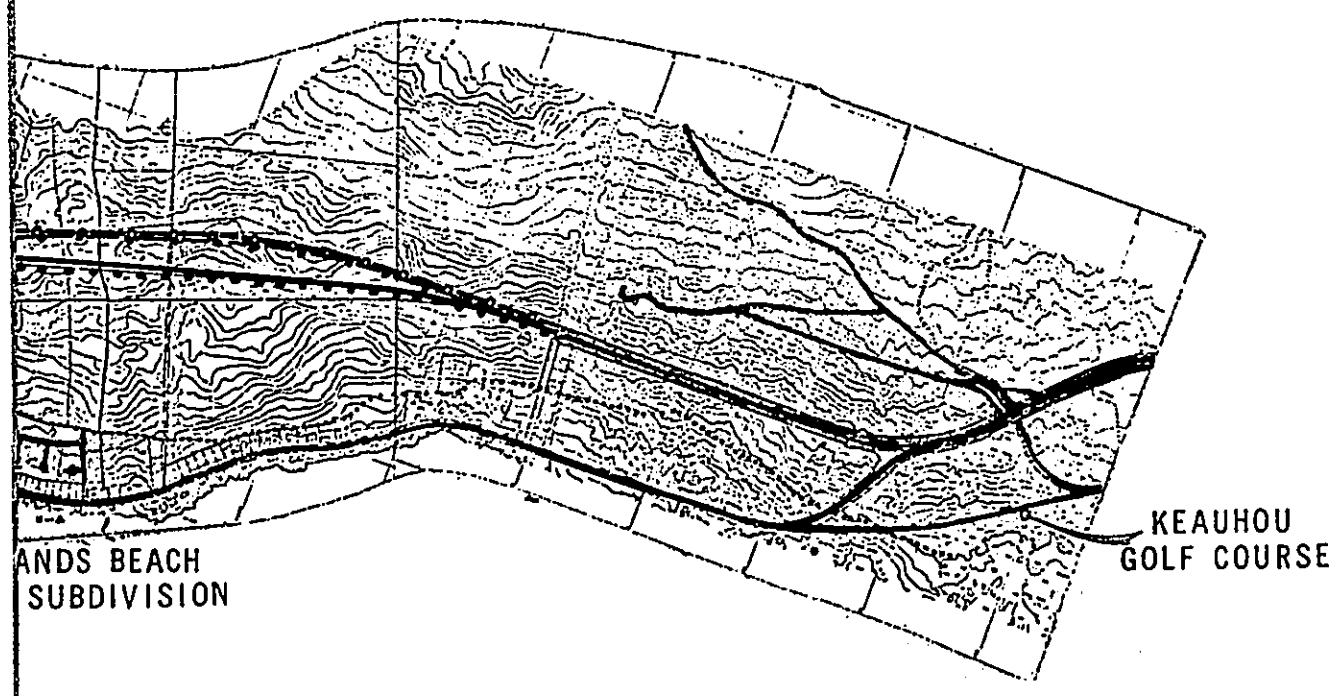

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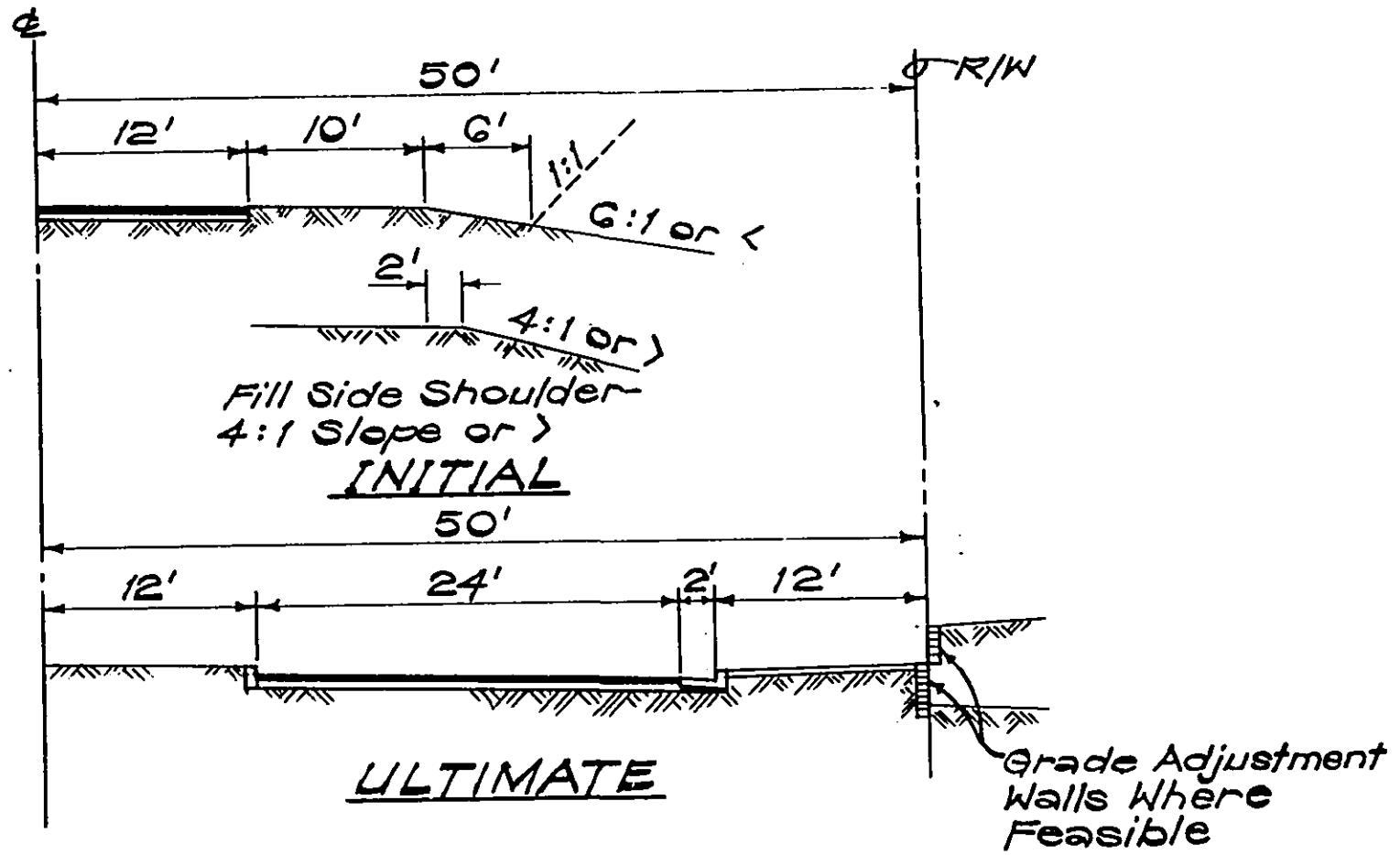
APPENDIX D - MAP 4



NOTE:
1. Controlled Access
2. Restricted Parking
3. Low Design Speed
4. Decel Lanes, Median Side Only, Primarily for Left Turn Storage Only.

TYPICAL 100' ROADWAY HALF SECTION

Scale: 1"=10'-0"

APPENDIX- F

Community Effects

ITEM	COMBINATION I	II	III	IV	V
Number of Private parcels affected	31	20	31	32	17
Residential	13	2	13	13	2
Commercial	2	--	2	2	--
Hotel	--	--	--	--	--
Unplanned	16	18	16	17	15
Area of parcels affected (acres)	43.09	47.05	39.79	43.70	41.49
Residential	2.58	5.42	2.58	1.79	5.65
Commercial	0.97	--	0.97	0.92	--
Hotel	--	--	--	--	--
Unplanned	39.54	41.63	36.25	40.99	35.85
Number of improvements affected	1	--	1	1	--
Residences	1	--	1	1	--
Commercial Buildings	--	--	--	--	--

Design Features and Cost Estimate

Item	COMBINATION I	II	III	IV	V
Design Features					
Type of Highway					
Initial (Rural)			2-Lanes		
Ultimate (Urban)			4 - Lanes Divided		
Design Speed (MPH)	60	60	60	60	60
Minimum Radius	2,000	2,000	2,000	2,000	2,000
Maximum Grade	5.5	5.5	5.5	5.5	5.5
Length of Maximum Grade (Ft.)	1,000	1,000	1,000	1,000	1,000
Minimum Right-of-way width	100	100	100	100	100
Access Control	Partial	Partial	Partial	Partial	Partial
			(Cost in Thousands of Dollars)		
Cost Estimate					
Construction	1,686	1,963*	1,744	1,704	1,761*
Preliminary Engineering	135	157	140	136	141
Engineering & Construction	169	196	174	170	176
Rights-of-way	496	378	482	483	320
Total Cost	2,486	2,694	2,540	2,493	2,398

* Connection Cost Added.

Benefit Cost Analysis

	Annual Road Users Cost	(Benefits) Annual Road Users Saving	Annual Cost	(Costs) Difference in Annual Cost	Benefit Cost Ratio
Basic*	1,793,971	---	5,500	---	---
I	1,188,239	605,732	214,559	209,059	2.90
II	1,253,409	540,562	228,847	223,347	2.42
III	1,190,158	603,813	217,725	212,225	2.85
IV	1,193,706	600,265	215,112	209,612	2.86
V	1,243,226	550,745	203,890	198,390	2.78

* 1) Based on travel from Palani-Kuakini Highway intersection to the temporary Alii Drive connection at Keauhou.

2) Road user cost based on interrupted flow conditions-loose tangent.