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DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
AREA OFFICE
300 ALA MOANA BLVD., RM. 3318, P.O. BOX 50007
HONOLULU, HAWAII 96850

February 27, 1979

REGION IX
450 Golden Gate Avenue
P.O. Box 36003
San Francisco, California 94102

IN REPLY REFER TO:
9.1SS (Johnson
546-5554)

TO: SEE ATTACHED DISTRIBUTION LIST

Subject: Final Environmental Impact Statement
Village Park, Waipahu, Oahu, Hawaii
HUD-R09-EIS-78-6F

Pursuant to Section 102(2)(c) of P.L. 91-190 and implementing Federal regulations, I am forwarding for your information the Final Environmental Impact Statement for the proposed Village Park project, a residential development in Waipahu.

The Draft Environmental Impact Statement was distributed for review and comment on September 29, 1978. Comments received on the Draft have been taken into account in the preparation of the Final Statement. Comments received and HUD discussion of these comments are included in the Final Statement.

Copies of this Final Environmental Impact Statement are available to the public for reading at the HUD Region IX office, Room 7003, Bldg. F., 450 Golden Gate Avenue, San Francisco, California; HUD Honolulu Area Office; State Environmental Quality Commission, Room 301, 550 Halekauwila Street; and libraries in Waipahu, Ewa Beach and Waianae.

Sincerely,

for Alvin K. H. Pang
Area Manager

Enclosure

DISTRIBUTION LIST

Officials

(5)

Copies*

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The Honorable Daniel K. Akaka
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STATE

The Honorable Ben Cayetano
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Wailuku Regional
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Pacific Electrical Contractors
Association
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Honolulu, Hawaii 96814

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Attn: Mr. Robert Kubo, President
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Honolulu
Chancery Office
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United Brotherhood of Carpenters
and Joiners of America
Local No. 745
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Honolulu, Hawaii 96817

Waipahu Businessmen's Association
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Waipahu, Hawaii 96797

Waipahu Community Association
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Oswald Stender
c/o Campbell Estate
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Wally Inouye
c/o Makakilo Community Association
92-650 Aloko Street
Honolulu, Hawaii 96706

Neighborhood Board No. 23
P. O. Box 267
Ewa Beach, Hawaii 96706

HUD-R09-EIS-78-6F

Village Park
Waipahu, Oahu, Hawaii

Final Environmental Impact Statement

Waitec Development Inc.
828 Fort Street
Honolulu, Hawaii 96813

February, 1979

Prepared by:

Honolulu Area Office
U.S. Department of Housing and Urban Development
300 Ala Moana Blvd., Room 3318
Honolulu, Hawaii 96850

8/30

SUMMARY

Status:	*Final Environmental Impact Statement*
Subject:	
Responsible Federal Agency:	*U. S. Department of Housing and Urban Development* *Honolulu Area Office* *300 Ala Moana Blvd., Room 3318* *Honolulu, Hawaii 96850*
Individual to be Contacted:	*Frank L. Johnson (808) 546-5554*
Name of Action:	*Administrative*
Description of Action:	*Private development of a residential community on 316.4 acres in Waipahu, Oahu, Hawaii, with an estimated population of 6540. Development will provide 1445 single family detached units on 241.9 acres; 310 condominium units on 13.5 acres; 4.5 acres of commercial; 1 grade school and 2 parks on 15.4 acres, the balance of land remains in gulch, easements or unaccessible land.*
Environmental Impact and Adverse Effects:	*Urbanization of the project site forecloses its use for future agricultural production. Adverse impacts will result from vehicular noise, liquid waste treatment and disposal for Phases I-IV. Increased housing opportunities will be available to the community.*
Alternatives Considered:	*Industrial, commercial, agricultural, recreational, alternative site designs and no project.*
Comments requested from:	*See Distribution List.*
Date Statement made available to EPA and Public:	*DRAFT - September 29, 1978* *FINAL -* FEB 27 1979

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CHAPTER I

DESCRIPTION OF THE PROPOSED ACTION

AUTHORITY

The National Environmental Policy Act (NEPA) of 1969 (P.L. 91-190) established new policies, goals, and procedures for protecting and enhancing environmental quality. The Act further directs the Federal government to use all practical means, including financial and technical assistance, to implement the national policy. HUD has promulgated its regulations to implement NEPA in accordance with guidelines issued by the Council on Environmental Quality, and other public laws and directives. In November 1974, HUD established a new threshold that automatically required the preparation of an Environmental Impact Statement (EIS) for all HUD-assisted housing projects having more than 500 units or subdivisions having more than 500 lots.

This EIS was prepared by the Honolulu Area Office in accordance with the provisions of applicable laws, Executive Order 11514, HUD Handbook 1390.1 and other agency directives.

PROJECT RELATIONSHIP TO HUD PROGRAMS

The Honolulu Area Office of HUD administers various mortgage insurance programs which are designed to meet the national goal of "a decent home and suitable living environment for every American family" - established by the Housing Acts of 1949 (P.L. 81-171) and 1968 (P.L. 90-448). HUD's housing programs are designed to achieve these goals by providing mortgage insurance to homebuyers under favorable financing terms in the purchase of new and existing dwellings.

Under the various mortgage insurance programs, the homebuyer makes a small downpayment and obtains a mortgage for the balance of the purchase price. The mortgage loan is made by a bank, savings and loan association, mortgage company, insurance company, or other HUD approved lender and the mortgage is then insured by HUD. Through this mortgage insurance HUD protects the lender against loss of the mortgage. The lender can, therefore, allow more liberal mortgage terms than the homebuyer might otherwise be able to obtain.

The mortgage insurance is not a government loan. HUD does not lend money or build homes under the mortgage insurance programs. The authority or controls over the decision to build the subdivision or multifamily development is exercised by the City and County of Honolulu. The homes acquired with HUD mortgage insurance must be constructed to local building

standards and HUD Minimum Property Standards to insure that the purchaser receives a livable house which is soundly built and suitably located as to site and neighborhood. If HUD does not provide mortgage insurance, the primary impact will be on the pool of potential buyers for a given subdivision or residential development. Without the lack of favorable financing terms which HUD mortgage insurance makes available, the pool of potential buyers will reduce as those unable to make higher initial downpayments and higher interest payments drop out.

The subject of this EIS is a proposal to provide mortgage insurance for the purchase of one-to-four family dwellings under Section 203 of the National Housing Act and mortgage insurance for rental or cooperative multifamily housing for low and moderate income families.

HUD eligibility determination of any residential development within the project area will result in the availability of mortgage insurance to qualified homebuyers, or to qualified developers of multifamily projects, all subject to HUD underwriting procedures and requirements.

RELATIONSHIP OF PROJECT TO LOCAL POLICIES

The proposed action is consistent with all applicable state and local land use regulations and standards. In 1969 the State Land Use Commission converted the land use to urban, while the General Plan for Oahu was amended in 1971 to permit the land uses proposed for the project site. The proposed action also complies with applicable zoning ordinances.

Chronology of Events in this Chapter provides additional details on applicable ordinances and events leading up to the present status of the project.

SPONSOR

The proposed action will be undertaken by a newly formed company in Hawaii, Wai-Tec Inc., located in Room 600, 828 Fort Street Mall. Wai-Tec Inc. is a subsidiary of Tecon Services Inc., a Nevada based company licensed to do business in Hawaii.

LOCATION

The Village Park project is located approximately 15 miles northwest of downtown Honolulu and can be reached within a 30-minute drive via the H-1 Freeway. The project site is defined by the H-1 Freeway along the south boundary, Kunia Road on the western boundary, sugar cane land to the north of the site and Waikele Gulch on the eastern boundary. (Plates A & B)

The site is on the northwest fringe of Waipahu which is located less than two miles away. The 316.38 acre site can further be identified as Tax Map Key 9-4-02-17 and is owned by the Robinson Estate.

PROJECT SITE IN THE REGIONAL SETTING

The proposed project is on the north side of the H-1 Freeway and above Harborview Subdivision, a 680 lot subdivision that was developed by HSM Ventures in the 1960's.

Approximately four miles north of the project site is Mililani Town which started construction in 1967 and has approximately 5,100 units completed. It was developed as a "new town" on 3,660 acres owned by Castle and Cooke on lands previously used for raising pineapple.

Mililani Town's facilities include schools, parks, a fire station and a shopping center. Plans are underway to develop an additional 500 acres of land between the H-2 Freeway and Kam Highway.

Village Park is located within two miles of Waipahu Town which will provide for public service and community facilities. These include police and fire protection, education, health and social services, sewage treatment and solid waste disposal. Other services and facilities include shopping areas, medical, recreational and cultural facilities.

The relationship of the project site to other important destination areas on the island are as follows:

Destination Area	Trip Purposes	Distance in Miles
Downtown Honolulu	Shopping, employment	15
Honolulu International Airport	Transportation, employment	11
Pearl Harbor (Shipyards)	Employment	8
Campbell Industrial Park	Employment	7
Waikiki	Recreation, entertainment employment	18

OTHER MAJOR ACTIONS IN THE REGION

Plate B shows the locations of these proposals currently under construction or proposed. The following discussion describes the type of project and its role within the regional setting:

Federal

- *Gentry-Waipio*

The Gentry-Waipio project is being developed by Gentry Pacific Ltd., a Hawaiian based company. The project area contains 510 acres with 278 acres for housing and 120 acres for light industrial uses. Other uses include a commercial area, an elementary school, churches, community and district parks, open space and rights-of-way. 1/

The project will provide 3,700 units in a variety of housing types including single family detached units, attached units (Gentry plan), townhouses, low-rise and mid-rise condominiums.

- *Makakilo*

The planned residential community of Makakilo is located approximately 19 miles west of Honolulu. There are over 1,700 existing units currently in the area and there are plans for an additional 3,693 units on 373 acres. Unit prices will range from $45,000 for garden apartments to $80,000 for single family homes. Makakilo will ultimately consist of approximately 6,000 housing units on 865 acres. 2/ The area is being developed by Finance Realty Company over an 8-year period.

- *Ewa Village*

An enlarged village, developed around the existing Ewa Village on Campbell Estate lands, it will encompass about 950 additional acres and be a part of the new urban center in Honouliuli as proposed in its regional framework plan. 4/ Approximately 3,200 housing units are proposed by the plan. The type of dwellings and price ranges are not available at this time.

- *Barbers Point Deep Draft Harbor*

The proposed deep-water harbor already approved by Congress, was authorized under Section 301 of the River and Harbor Act of 1965 (P.L. 89-298). It will be constructed by the Army Corps of Engineers to fill the need for a second Oahu commercial port. Located approximately 16 miles west of Honolulu, the harbor would be excavated inland from the shore creating a 94-acre basin, which would accommodate presently-used vessels as well as those expected to call at Oahu ports over the project life of 50 years. Estimated first cost of the harbor is $52.4 million.

- *Honouliuli Wastewater Treatment System*

The Honouliuli WWTP and its supporting facilities will cost an estimated $72 million which would provide for secondary treatment. An EPA grant will provide 75% of the funds while the state's share will be 10% and

the City and County's 15%. It will be located on a 51 acre site in the northeast corner of Barbers Point Naval Air Station. Most of the land, 48 acres, was purchased by the City from the Navy in fee. The remaining 3 acres belonged to the Campbell Estate. Major project facilities include a 25 MGD secondary treatment plant (by activated sludge process), a deep-water ocean outfall, and a network of force mains, gravity sewers and pump stations to consolidate and convey flows to the plant. 6/ There are five major collection points for raw sewage. Pearl City, Kunia, Waipahu, Honouliuli and Ewa. The Village Park project is within the tributary area of the Honouliuli sewarage system. As of this date, only the ocean portion of the Barbers Point outfall is complete.

The City and County is planning to seek a waiver from EPA on the secondary treatment. If it is approved, the cost for the WWTP facilities would be $12 million less or approximately $60 million.

- *Aliamanu Military Housing*

Ultimate housing development includes 2,700 military family units on 387 acres at Aliamanu Military Reservation in the Salt Lake area of Honolulu. Units are available for both Army and Navy personnel and total development will house approximately 12,000 persons. 7/ Although not in the boundary delineating the Ewa submarket, these units will reduce demand on the housing market as military personnel will then occupy base housing.

State

- *West Oahu College*

Current plans are to build a four-year West Oahu College on land adjoining Leeward Community College now used by the Navy for underground oil storage. The Governor's plan will permit the college to use the Leeward Community College facilities, such as the theatre, cafeteria and student center. 3/ The college, a leeward campus of the University of Hawaii, is estimated to cost $40 million to build. Over the past two years, it has been operating out of temporary facilities in a rented office building near Pearl City.

Private

- *Mililani Town*

Mililani Town, a new town, covers a total land area of 2,500 acres. The Oahu General Plan permits the development of 700 additional acres. Another 1,500 acres of land northeast of the H-2 Freeway is planned for urban use but has not been released by the State Land Use Commission

Mililani is currently producing approximately 400 single family and town-house units per year. The prices range from $40,000 to $60,000 for townhouse and $66,000 to $85,000 for single family units.

The landowner is Castle and Cooke, Inc.; Mililani Town, Inc. owns the developed acreages, buying the land from Castle and Cooke and selling it in fee.

- *West Beach*

Located just south of Nanakuli, this resort-residential development will occupy about 516 of the total 830 acres. 4/ A condition of zoning by the State Land Use Commission is the creation of a buffer zone between West Beach development and the proposed Barbers Point Deep Draft Harbor.

In the initial stage of construction, approximately 190 acres are for a golf course, 95 acres for nine hotels and their lagoons, 75 acres for a marina and an activity center, 30 acres for recreation and open space, 32 acres for schools and a village center, and the remainder in roads, streets and residential areas. The first stage will incorporate virtually all of the proposed range of resort and community facilities. About halfway through completion of this stage, construction will proceed on the 2,110 residential units. These will include 610 single family and 1,500 multifamily units. The residential units will occupy 175 acres and cost approximately $124 million. Total cost of the entire West Beach project is estimated at $335 million.

West Beach Development Corporation owns the development rights on this area of the Campbell Estate. The Estate will lease the land to the resort development while the residential area will be sold in fee.

- *James Campbell Industrial Park*

The Campbell Industrial Park is located on the southwest corner of the Honouliuli plain between the proposed deepwater harbor and Barbers Point Naval Air Station and is approximately 25 miles from downtown Honolulu. Most of the land in the initial 1,314 acre industrially-zoned land is leased or committed with an additional 1,500 acres now planned for immediate expansion. The park is occupied by light, medium and heavy industries with warehousing foreseen as the predominant use. Parcels are subdivided from one acre or more according to industrial need. Over the past eighteen years of development, over 99 firms of varying sizes and types have become tenants employing more than 2,100 persons with an annual payroll in 1976 of over $20 million. 8/ Campbell Park is the first and only large-scale industrial complex outside metropolitan Honolulu.

- *Waiawa Industrial Park*

Covering a gross area of 63 acres, this industrial park is located in a gulch between the Crestview/Seaview subdivisions and Pearl City. Lots from 9,000 square feet to over 15,000 square feet are being sold at $12 per square foot. Approximately 25% of the area has been sold in fee to light industrial users, mostly for warehousing and distribution concerns.

- *Theme Park*

A theme park, to be called "Caneland," was given a conditional permit by the City & County Department of Land Utilization. It will be located off Kalaeloa Road leading to the Campbell Industrial Park. Of the total 45-acre site, 30 acres are planned for initial development (18 acres of amusement facilities and 12 acres for parking). "Caneland" is expected to open in the early 1980's at a cost of between $12 to $14 million. The planners, E. K. Fernandez Shows, expect an initial annual payroll of about $2 million with a planned opening of about 203 days per year.

NATURE AND PURPOSE OF THE PROPOSED ACTION

The Village Park project is a proposal that will provide two types of dwelling units, single family detached and condominium units, two parks, a grade school and a neighborhood shopping area.

A more detailed breakdown on the number of units, price ranges and land area follows in Table I-1.

TABLE I-1

PROPOSED LAND USES

Land Use	Area in Acres	Percent of Area	Dwelling Units
Residential			
Single Family	240.8	76.1	1435
Condominiums	13.5	4.3	310
School	6.0	1.9	
Parks (2)	15.2	4.8	
Commercial	4.5	1.4	
Easements	10.4	3.3	
Gulch	26.0	8.2	
TOTALS	316.4 Acres	100.0%	1745

Source: Site Plan dated April 19, 1978

Growth Trends in the Ewa-Waipahu Area. The Ewa Census District, defined as Hickam-Aiea-Pearl City-Ewa-Waipahu, has witnessed a tremendous growth in the last decade. In 1960, the population was 79,000; in 1970, it was 132,000 for a 67% increase. More recently, the July 1975 population estimate was 163,000, a 23% increase over 1970, with an average increase of 6,000 residents per year. This district has the greatest percentage of increased growth on the island of Oahu. Continued growth of the Ewa District is anticipated due to the historical trend of urbanization of Oahu, the planned residential proposals, the convenient accessibility to this area, and the extensive Capital Improvements Program scheduled for Leeward Oahu.

Based on the projected population increases determined by the City & County Department of General Planning, it is estimated that 3,300 to 4,300 new housing units per year are required between 1970 and 1985. 9/ The Village Park project anticipates providing 4 - 5% of that housing requirement.

Description of Housing Units. The project proposes to offer two types of dwelling units on leasehold land owned by the Robinson Trust. The lease rent has not been determined at this writing; however, it is anticipated that it will be reflected in the selling price to be competitive with other housing developments in the area. More detailed information follows:

- *Single Family Detached Units (1,435)*

  Lot area varies from 4,000 to 5,000 sq. ft.
  Floor Area: 1,000 to 1,200 sq. ft.
  Price Range: $70,000 to $76,000 (Leasehold)

  These units will be developed in accordance with current subdivision standards with approximately 90% in 3-BR units and 10% 4-BR units.

- *Condominium Units (310 units)*

  Lot Area: 3.2 to 5.3 acres for each project (3)
  Floor Area: 950 to 1,200 sq. ft.
  Price Range: $35,000 and up

  These units will be the last units to be developed. Current scheduling anticipates these units to start construction in 1982 or after; consequently, the price range cannot be accurately forecasted at this point. It is intended, however, that the condominium units will be selling $3,000 to $5,000 less than a comparable single family detached unit being sold in the same time period.

- *Development Schedule.* Based on the current development schedule, the project will be developed over a six year period as shown in Table I-2.

TABLE I-2

DEVELOPMENT SCHEDULE

Phase	Year	Area in Acres	Units or Lots
1	1979	23.6	136
2	1979	16.8	102
3	1980	26.0	137
4	1980	15.8	86
5	1980	24.7	120
6	1981	18.9	112
7	1981	18.4	120
8	1982	24.1	152
9	1982	9.4	65
10	1982	21.5	137
11	1983	14.4	97
12	1983	10.5	67
13	1983	17.4	104
14*	1984	3.2	80
15*	1984	5.0	124
16*	1984	5.3	106
		255.0	1745

*Condominiums

Source: Site Plan dated April 19, 1978

School. Six acres are set aside for construction of Hoaeae Grade School. It is centrally located within the project as shown on Plate C. The site is located adjacent to a 10-acre public park. A gulch 300' - 350' wide is also located along the western boundary of the school.

Parks. Two park areas with 10 and 5.2 acres are planned for the project. The 10-acre park site will be located next to Hoaeae School while the 5.2-acre park site will be in the northeast portion of the project.

Commercial. A 4.5-acre commercial site is proposed at the entrance to the project site between the two collector roads that connect with Kunia Road.

Easements. Four easements are recorded on the property and consist of 9.7 acres which are used for roadway, utility, powerline and hauling sugar cane. Each of the easements are discussed in Chapter II, Easements.

Gulch. Twenty-six acres of the project site are in a gulch that runs almost the entire width of the site from the northwest boundary to the southeast boundary. It is 300-400 feet wide and will have common boundaries with Hoaeae School, the 10-acre park and the condominiums. Current development plans call for the Home Owners Association of the condominium units to own and maintain the gulch area.

CHRONOLOGY OF EVENTS

1860 - Project site was portions of Royal Patent 4490 Land Court Award 10474 Apana 9 to N. Namauu and Royal Patent 4486 Apana 1 Mahele Award to Luluhiwalani.

Unknown - James Robinson purchased lands in Hoaeae and Waikele that included project site.

1897 - Project site as part of larger land area leased to Oahu Sugar Co.

1961 - State Land Use law approved by resolution of the state legislature, project site designated for agricultural use.

1964 - First General Plan for Oahu adopted, project site designated for agricultural use.

Jan.
1966 - Development agreement signed - Robinson Estate and H. K. Horita.

Sept.
1969 - The State Land Use Commission designated the 316.4 acre site for urban use.

May
1971 - The City and County of Honolulu passed Ordinance #3734 and #3735 which amended the General Plan for the project site. This amendment would permit residential, low density apartments, schools and commercial land uses.

June
1971 - Subdivision application received by HUD for feasibility analysis for 3,000 units.

Jan.
1973 - The City and County approved Ordinance #4084 which rezones the property to be consistent with the amendment to the General Plan made in May 1971. Section III of Ordinance #4084, however, requires the developer to submit a rezoning request for the 4.5 acres of commercial area prior to the commencement of construction in Phase IV.

The PD-H Districts, R-58, R-48 and R-22 as a part of the above ordinance which permitted up to a maximum of 3291 dwelling units in townhouses, 3-story condominium units and 10-story mid-rise structures.

Apr.
1973 - Subdivision application received by HUD in June 1971 placed on inactive list.

1973 -
1976 Changes occurred in the housing market that warranted re-evaluation of initial site planning concept. Demand for single family detached units over townhouse and condominium units developed.

Dec.
1976 - Subdivision application received by HUD for feasibility analysis of 1,800 units. Application triggers requirement for HUD to prepare EIS.

May
1977 - Subdivision application received by HUD for feasibility analysis for Phases I and II. Processing suspended pending finding by HUD in Final EIS.

Oct.
1977 - Sponsor submits request to City Council to modify site planning concept.

May.
1978 - Revised development concept approved by the City and County of Honolulu.

June
1978 - Phase I received tentative approval from the Department of Land Utilization.

Sept.
1978 - HUD Draft EIS issued.

Jan.
1979 - Construction Plans approved by City & County.

Feb.
1979 - HUD Final EIS issued.

VIEWS OF CONCERNED PUBLIC

A-95 Review

In response to a Notification of Intent to File for Federal Assistance, three agencies were provided an opportunity to consult with HUD. The three agencies included:

The Department of Labor and Industrial Relations
Hawaii Housing Authority
State Historic Preservation Officer

The first two agencies had no objection to the project while the third agency did not reply.

In addition to the request for comments from the Areawide Clearinghouse, the Honolulu Area Office transmitted a Notice of Intent to File an EIS along with descriptive material on the project to other county agencies and invited comments on the proposed project. Those agencies include:

Parks and Recreation
Board of Water Supply
Police Department
Fire Department

None of the above agencies had any objections to the project.

State Agencies

The same materials were also transmitted to the following state agencies:

Department of Education
Department of Transportation
Department of Health
Office of Environmental Quality Control

None had objections to the project.

Federal Agencies

The same materials were also transmitted to the following Federal agencies:

Environmental Protection Agency
Corps of Engineers
Fish and Wildlife
Commandant, 14th Naval District
Soil Conservation Service

Two agencies responded with comments, the Navy and the Soil Conservation Service.

The Navy noted two concerns that should be addressed: (1) Siltation of Waikele Stream resulting from construction and (2) phasing of construction to avoid three acres of the site that will be encumbered by the explosive safety quantity distance (ESQD) until 1982. This concern is discussed in greater detail in Chapter II, Site Hazards.

The Soil Conservation Service expressed concern for the urbanization of 316.4 acres of prime farmland, (also a concern of the West Oahu Soil and Water Conservation District).

Other

In processing the developer's application for a planned Development-Housing District, the City and County Department of Land Utilization, actively

sought public input. Notices were sent to 28 interested parties in the community which included property owners, civic organizations and other concerned groups. A public information meeting was held February 9, 1972 which was not well attended. No objections to the project were presented at the meeting nor were objections submitted afterwards to the Department of Land Utilization.

PRESENT STATUS OF PROJECT

- Publication of Final EIS - February 1979.

- Target date for completion of Phase I grading: March 1979

- Target date for starting house construction: April 1979

SUMMARY OF MAJOR ACTIONS IN THE REGION

The major land developments discussed above in Other Major Actions in the Region are summarized below to show the estimated date for project completion, type of development and the potential population that could be generated by these proposals.

Location/Proposal	Type of Development	Estimated Date Completion	Dwelling Units	Estimated Population*
Waipahu-Crestview Area				
Village Park	Housing	1985	1,745	6,540
Ewa-Makakilo				
Makakilo	Housing	1995	3,693	11,800
West Beach	Housing	2000	2,100	6,700
West Beach	Resort	1995	1,200	13,000
Campbell Industrial Park	Employment	2000	-	-
Honouliuli WWTP	Utility	1982	-	-
Barbers Point Deep Water Harbor	Port Employment	2000	-	-
Caneland Theme Park	Recreation	1990	-	-
West Oahu College	Education	NA	-	-

Other Areas				
Gentry/Waipio	*Housing*	*1985*	*3,700*	*11,800*
	Employment	*1985*		
Mililani Town 48/	*Housing*	*1980*	*800*	*2,560*
	Housing	*1990*	*3,452*	*10,000*
Waiawa Ind. Park	*Employment*	*NA*	*-*	*-*
Kahe Point Theme Park	*Recreation*	*1985*	*-*	*-*

**Population estimates based on: 3.2 persons for dwelling unit and 1.8 persons per hotel room.*

The cumulative impacts of these proposed actions on the region can best be evaluated by comparing the population generated by these proposals to the population projected for these same areas by the State Department of Planning & Economic Development as follows:

Area/Project	*Population 1975 47/*	*Population 2000*	*Project's Population as a percent of Total Project for the Area*
Waipahu-Crestview	*15,169*	*42,000 (1)*	*-*
Village Park	*-0-*	*6,540*	*24.4%*
Ewa-Makakilo	*21,464*	*92,000 (1)*	*-*
Makakilo	*-0-*	*11,800*	*16,7%*
West Beach	*-0-*	*19,700 (3)*	*28.0%*

Sources: (1) Memorandum to Richard L. O'Connell, Director, State Office of Environmental Quality Control from Hideto Kono. Subject: Makakilo Draft EIS, September 22, 1978. (Based on Series II-F projection.)

(2) Includes both visitors and residents as noted in above Summary of Major Actions in the Region.

It should be pointed out that the above population data does not necessarily represent official City & County policy. The Series II-F population projection for Oahu is currently being evaluated by the City before it adopts a revised policy on Oahu's population distribution in view of the Series II-F projections.

The above discussion was limited to population and the project's impact on projections. For the potential impact of these same actions on transportation facilities, refer to Table II-3, Potential Vehicular Trips Generally Proposed Land Developements Served by the H-1 Freeway in the Ewa Area, page II-23a.

CHAPTER II

PROBABLE ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

The design and construction of Village Park will be influenced by many environmental factors indigenous to the project site. During construction and upon completion of the project, the magnitude and character of the impacts will change from short to long-term. This chapter analyzes the project's physical characteristics (both natural and man-made), the economic and housing market aspects, social services and community facilities. It also covers an over-all view of the proposed project, specific phases of design and construction as they relate to a particular environmental component, the anticipated impacts of implementing the project and mitigative measures to avoid or lessen adverse impacts.

These analyses cover various impacts in the context of their relationship to the applicable governmental standards and regulations (i.e. air and water quality, noise, liquid and solid waste), established historical values (national and Hawaii historic registers) and whether the needs (e.g. utilities, roads, schools, parks) can be adequately provided by proposed infrastructures or other municipal services.

Probable impacts are also identified by their short or long-term effects and examined for their primary or secondary effects.

PHYSICAL CHARACTERISTICS (NATURAL AND MAN-MADE)

Land Characteristics

Topography

INTRODUCTION

A topographic survey of the site made by Park Engineering, Inc., indicates that the site slopes down from north to south with gradients of 5 to 10 percent. Two (2) drainage ways traverse the middle section of the site with side slopes over 40 percent and depths to 50 feet. The width of the western drainage way at the top is 300 feet, wider than the eastern one. The ground elevation ranges from 135 to 315 feet MSL. Figure 1, Topography/Slope Analysis, shows the topography of the site and land area in various slope categories.

Waikele Gulch, located along the eastern boundary of the site, is 130 to 200 feet deep. At the top, its width ranges from 800 to 2000 feet. The side slopes of Waikele Gulch is generally very steep, about 100% or more.

IMPACTS

The site planning concept requires mass grading of the site. This will be done in increments of 9 to 26 acres for the various phases.

The expected impacts because of modifying the topography are as follows:

- *Fugitive dust will be created by grading operations.*
- *Exposed soil during construction period will subject site to erosion during rainy weather.*
- *Slopes up to 20' high may be created that will be subject to erosion during the lifetime of the project.*

MITIGATIVE MEASURES

- *Dust and potential soil erosion can be minimized by compliance with Chapter 23, Revised Ordinances of Honolulu, as amended.*
- *Slopes created during construction of the project should be planted to minimize erosion and to enhance the aesthetic appearance of the project.*

Soils

INTRODUCTION

The red to reddish brown residual soil found on site generally falls within the clayey silt ML and MH category of the Unified Soil Classification System. The detailed soils investigation at the southwest corner of the site indicated that the surface soils are underlain by rocks, generally near depths of about 10 feet. Boulders and cobbles were encountered at lesser depths. 10/

The USDA Soil Conservation Survey's Soil Survey for Oahu classifies the soil as the Molokai silty clay loam, MuA to MuD, depending on the slope of the land. 11/

The insitu soil has moderate permeability properties. The soil has slight erosion hazard for slopes less than 3 percent; slight to moderate for slopes of 3 - 7 percent; moderate for slopes of 7 - 15 percent and severe erosion hazards for slopes of 15 to 25 percent. 11/

Where the site was formerly planted in sugar cane, generally the top two to three feet was disturbed by cultivation. The soil near the surface generally has low expansion properties. However, variation

in the degree of weathering and composition of the parent rock may influence the varying degrees of expansive properties of the sub-surface soils. Soil deposits are seldom uniform; therefore, more compressible soil or a seepage zone can be anticipated.

IMPACTS

The soil characteristics will not be modified as a result of implementing the project; however, during the construction phase a number of impacts resulting from construction activity can be identified as follows:

- *The red to reddish brown clayey silt soils when exposed during grading and construction of site improvements will be subject to erosion by wind and water.*

- *Water erosion generally will result in sediment transport. The sediments will eventually deposit in Pearl Harbor, since the major drainageway below the project site is fully improved.*

MITIGATIVE MEASURES

- *Limit land area exposed during construction period.*

- *Confine grading and site improvements to dry seasons.*

- *Provide dust control measures.*

- *Shorten the length and gradient of runoff sheet flow.*

- *Compact exposed ground surfaces with smooth roller after each day of grading.*

- *Soils investigation reports for each phase can evaluate the strength, consolidation and expansive properties of the soil.*

Geology

INTRODUCTION

The Hawaiian Islands form the southeast end of the Hawaiian Archipelago, extending for about 1600 miles to the northwest until Midway Island. The islands and sea mountains in the Archipelago are tall volcanic peaks rising from the ocean floor. Kauai, the northern-most island, is the oldest while the others decrease in age moving to the southeast.

Oahu, like the rest of the Archipelago, is of volcanic origin. It was built around the remnants of two domes or shield volcanos. 2/

The Waianae dome is older than the Koolau dome and has been subjected to greater erosion. These volcanos erupt quietly with little explosion and spread rapidly from the vent. The highly mobile lava is rich in iron and magnesium but poor in silicon. The lava, called basalt, forms about 95% of Hawaii's igneous rock.

Oahu's formation began during the Tertiary time when its Waianae volcano emerged. Later, its Koolau volcano emerged east of the Waianae Range as a separate island. During the late Tertiary period, Koolau's lava flowed over Waianae to form the Schofield Plateau. Both the volcanos are extinct, deeply dissected by erosion. Oahu's other geomographic features are the coastal plains formed by the alternating sea level. 13/14/

The project site is located on the southern slopes of the Schofield Plateau where the lava has weathered to form red to reddish brown lateritic soils. The degree of weathering varies with climatic condition, depth, etc. and its depth extends to as much as 20 - 30 feet at places near the project site.

IMPACTS

There will be no change in the regional geology of the area from the Village Park project based on the following:

- *There are no known geological hazards at or near the project site.*

- *There are no unusual or unique geological features at or near the project site.*

MITIGATIVE MEASURES

None required.

Seismicity

INTRODUCTION

Recent explorations by geophysical methods have shown that faults and rift zones cut through every one of the major Hawaiian Islands. These faults and rift zones are branches of a gigantic fracture system known as the Molokai Fracture (Figure 2). The earthquakes on Hawaii are associated with fault motions just as those in California. Historically, there are no known earthquake epicenters on Oahu. These are generally located to the southeast, the most seismically active area being the southern half of the island of Hawaii. Periodically, earthquakes have been felt on Oahu. There were four known earthquakes: 1868, 1871, 1938 and 1947, that caused some damage in Honolulu. 15/

On April 26, 1973, another earthquake was felt on Oahu. The earthquake was measured at a magnitude of 6.2 (Richter) at the epicenter near Honomu on the island of Hawaii (approximately 200 miles from Oahu). The City of Hilo, approximately 12 miles from Honomu, suffered substantial damage. No damage was reported on Oahu.

Quantitative data on earthquakes, such as location of epicenter, depth, origin time and magnitude, can only be obtained from instrumental recordings. Because Hawaii always had a good number of earthquakes, seismographs were installed as early as 1903. There are now over twenty seismograph stations in operation throughout Hawaii.

The closest station to Village Park is the Kipapa Gulch station. It was built in 1957 by the Coast and Geodetic Survey as part of the Magnetic Observatory network. It is 70 meters above sea level at 21 25' 24" N. Lat. and 158 00' 54" W. Long.

Seismic risk maps show zones of approximately equal risk. They are based upon damage from past earthquakes and show the regions of greater and lesser intensity of ground shaking. The seismic probability map for the United States was compiled by the U.S. Coast and Geodetic Survey in 1949, where it is part of the Uniform Building Code being used as the legal basis for establishing earthquake design criteria. 16/ The seismic zone map for Hawaii, as it appears in the present UBC, is shown on Figure 3.

The seismic risk in the various zones are given in Table II-1. The seismic risk classification for Oahu by UBC and the HUD MPS is Zone 1. 17/ Dr. Furumoto, et al, have recommended that Oahu be reclassified to Seismic Risk Zone 2, as risks have been underestimated for the island. 15/

TABLE II-1

PRESENT SEISMIC ZONING FOR HAWAII

Zone 0	*No damage - corresponding to an intensity on the Modified Mercalli (MM) of less than 4*
Zone 1	*Minor damange - corresponding to an intensity on the MM scale of less than 6*
Zone 2	*Moderate damage - corresponding to an intensity on the MM scale of less than 7*
Zone 3	*Major damage - corresponding to an intensity on the MM scale of 7 and above*

IMPACTS

Construction of the project will not alter the seismic characteristics of the site but the seismic risk zone will influence the structural design of the buildings.

MITIGATIVE MEASURES

- *All building construction should meet the requirements of the UBC and the HUD MPS for Seismic Risk Zone 1, except where further requirements must be met for public buildings.*

- *Where applicable, seismic loading needs to be considered for site improvements and infrastructures as well.*

- *Hoaea Grade School will be constructed in Village Park; consequently, all structures funded by the State must be designed according to Zone 3 requirements. 16/*

Ground Water

INTRODUCTION

The lava rock formation underlying southern Oahu is very permeable and carries large quantities of basal ground water. The basal ground water floats on top of the salt water because of its lower specific gravity. 13/14/

Although the project is approximately one mile from the north end of Pearl Harbor's West Loch, the basal ground water level is 15 - 20 feet above sea level at the site. The high water level is caused by the sedimentary deposit called caprock, formed over lava along the coast and confining the basal ground water. The permeability of caprock is much lower than lava rock. 18/

Several deep wells adjacent to the project were installed by the sugar plantation and the Board of Water Supply. Since the aquifer and the material above it are lava, there is no subsidence due to drawdown from these wells.

The project is part of the ground water recharge area. However, due to its size and low rainfall, the site is not considered a significant recharge area. The construction of impervious surfaces such as roads, pavements, buildings, walks and paved surfaces will reduce the effectiveness of the site as a recharge area. Construction of the project with an impervious storm drainage collection and disposal system will further reduce the amount of water available for recharge.

Visher and Mink indicate that fresh basal water is suitable for domestic and agricultural use. 18/ Some chemical contamination occurs at the basal water table underlying cultivated areas because of the deep infiltration of irrigation water carrying fertilizer salts in solution.

IMPACTS

- The collection and diversion of stormwaters prevent water percolating into the soil and recharge of the basal ground water.

- Conversion of the site to urban use will prevent chemical contamination of the basal water from fertilizer salts carried in irrigation waters.

For further discussion on impacts related to water resources, storage and distribution, refer to Water Supply in this chapter.

MITIGATIVE MEASURES

- Conservation methods for both urban and irrigation uses should be explored and enforced to prevent waste.

- Technological advances in the field of water reuse desalinization, demineralization of brackish water sources, and waste prevention should be incorporated into the management of water resources on Oahu.

For further mitigative measures that relate to water resources, storage and distribution, refer to Water Supply in this chapter.

Climate

Hawaiian Islands

The high humidity normally found on large land masses at this latitude is diminished in Hawaii. This is due to a stationary high pressure area northeast of the Hawaiian chain which produces steady northeasterly trade winds most of the year. The typical weather pattern for the islands includes infrequent severe storms, mild and equable temperatures year-round and great variability in rainfall over short distances. 19/

Because of its location in the tropics, the length of the day in the islands is relatively consistent. This results in uniform temperatures year-round. Extremes in temperature do occur, however, due to changes in elevation. Average readings in temperature decrease by approximately 3.2^{o}F for each 1,000 feet of elevation. Therefore, the average temperature at the top of Mt. Kaala (elevation

4,020 feet) could be approximately 13°F below those temperatures along the sea coast.

The rainfall over the islands is generally greater than that recorded over the open sea and varies greatly, depending on the exact location of each island. The islands receive up to 15 times more rainfall annually than the average over the surrounding ocean, but certain locations record less than a third of the 25-30 inches per year of the open sea average. The higher elevations and windward areas generally receive the most rain, with leeward lowlands being the driest.

The prevailing wind throughout the year is the northeasterly trade wind -- so much so that in Hawaii, "windward" refers to the direction of the trades, not to the existing wind at the particular time. The effects of terrain on the wind are varied so that neighboring localities can differ widely in their protection from, or exposure to, winds from particular directions.

In summary, extremes in temperature and rainfall do occur in Hawaii. However, they are usually predictable and associated with altitudinal variations. The climate in general is moderated by the trade winds, and the frequency as well as the intensity of severe storms is far less than those in continental climates.

The Project Area

Precipitation

The project site is located above Waipahu with elevations ranging from 170' to 300' MSL. The annual average precipitation at the project site is approximately 25".

Temperature

The temperatures on Oahu are generally representative of the semi-tropical climate of Hawaii, with no extreme seasonal variations. Readings at the Honolulu International Airport indicate an average temperature for the coolest month (January) to be 72.3°F. The average monthly temperatures for the project site recorded over a 12-year period are shown in Figure 4. This data reflect average monthly minimum and maximum temperatures, along with the monthly average (mean) high and low temperatures. Figure 4 shows the temperatures range from a monthly low of 58.1 to a monthly high of 80.4 during the winter months, to a similar range of 65.0 to 84.1 during the summer months.

Wind

Figure 5 illustrates the predominant wind speeds, directions and frequency at the Naval Air Station, Barbers Point. The mean long-

term wind speed can be estimated at approximately 8.9 knots, with the most typical wind direction from the NE for 22% of the time. Other predominant winds come from the NNE and ENE as noted on Figure 5.

IMPACTS

Development of the project is expected to have minimal impact on existing climatic conditions of the area. Temperatures are expected to change on a long-term basis as plantings in the area mature. Runoff generated by precipitation or storms will increase as the development is implemented. This subject, its impact and mitigative measures, is discussed in the section on Storm Drainage/Flooding.

MITIGATIVE MEASURES

Though no adverse impacts are anticipated from typical climatic conditions at the project, these conditions do influence the planning, design and construction of the proposed project. Factors such as wind, air circulation, sun and heat and "Kona" storms will influence house orientation, siting of houses, on-site and off-site construction practices and procedures. These climatic factors are changing constantly and will affect those environmental components such as air quality and soil erosion covered elsewhere in this chapter.

Biota/Vegetation and Wildlife

INTRODUCTION

Flora

Except for a few steep slopes in the gullies, most of the Village Park project area had been placed in sugar cane production since the early 1900's when its original flora was removed. In the mid 1970's, cane production was discontinued in the westerly 50%-60% of the site. Cane production has continued in the Easterly portion of the site. Since it is generally considered highly unlikely that rare and endangered species of flora would remain or proliferate after agricultural use was discontinued, no detailed flora survey was undertaken by the developer.

A reconnaissance of Biota conditions of the site was conducted by HUD staff on 1/3/78. Particular attention was focused on the second growth area, where agricultural production was discontinued. A list of the plant observations is included in Table II-2.

TABLE II-2

FIELD SURVEY OF PLANT MATERIALS - VILLAGE PARK

Plant materials below are listed alphabetically by scientific names, along with their common name or Hawaiian name where known. 21/ The status or relative abundance of the species are also noted by the following symbols:

A ABUNDANT, generally the major or dominant species in a given area.

C COMMON, generally distributed throughout a given area in large numbers.

O OCCASIONAL, generally distributed throughout a given area, but in small numbers.

U UNCOMMON, observed uncommonly, but usually more than 10 times in a given area.

R RARE, observed 2 to 10 times in a given area.

Scientific Name	Common Name	Relative Abundance
Amaranthus spinosus L.	Spiny amaranth (pakai-Kuku)	C
Cassia leshenaultiana	Partridge pea (lauki mau'ulei)	O
Chlovis inflata link	Swollen fingergrass (mau'ulei)	O
Crotalavia incana L	Fuzzy rattlepod	O
Cynoden doctylon (L.) pers.	Bermuda grass	C
Cypyerus gracilis R. Br.	McCoy grass (oka-kilika)	C
Emilia javanica (Burm f.)	Red pua-lele	O
Eugenia cummimii (L) Druce	Java Plum	R
Euphorbia geniculata ortega	Wild spurge (Kaliko)	C
Euphorbia glomerifera (Milsp)	--	C

Grevillea robusta A cunn. in R. Br.	*Silky Oak (Oka-Kilika)*	*U*
Ipomoea stolonifera (cyrill) J.F. Gmel	*White - flowered beach morning glory*	*C*
Ipomoea tuboides degner van ooststr.	*Hawaiian moon flower morning glory*	*C*
Leucaena leucocephala (lam) dewit	*Koa-haole*	*A*
Macaranga tanarius (stickm.) Muell.-Arg.	--	*A*
Momordica clarantia L.	*Balsam pear*	*O*
Panicium maximum Jacq.	*Guinea grass*	*A*
Passiflora foetida L	*Scarlet-fruited passion flr. (Pohapoha)*	*C*
Psidium cattleianum Sabine	*Purple strawberry guava*	*R*
Ricinus communis L.	*Castor Bean*	*O*
Rhychelytrum repens (Willd.) C.E. Hubb	*Natal Redtop*	*C*
Saccharum officiarum L.	*Sugar cane (Ko)*	*A*
Sonchus oleraceus L.	*Spiny Sowthistle*	*C*
Trichachne insularis (L) Nees	*Sourgrass*	*C*
Walthevia indica L.	--	*O*

The primary objective of the reconnaissance was to survey the general site area and sample the various plant associations. Because the intent was not to make an exhaustive search solely for plant species, the list is not to be considered complete.

The area was dominated by "scrub brush" averaging two to four feet high, with some scattered plants taking on tree form up to 6-8 feet. There were a few specimen trees observed of ornamental character or maturity warranting unusual preservation attention. Aside from the predominance of scrub brush, there was general evidence of

Leucaena leucocephala, Panicium maximum, Trichahne insularis, Cynoden doctylon, Chlovis inflata link, and scattered "Volunteer" Saccharum officiarum L. (sugar cane). Panicium maximum (Guinea Grass) grow predominantly within the westerly portion of the area while Ipomoea tuboides degener and Ipomoea stolonifera (lavender and yellow in variety) were scattered along former cane haul roads. No species of flora were found on the site at the time of the reconnaissance, which are in the "List of Endangered and Threatened Wildlife and Plants" and supplements maintained by the Fish and Wildlife Services of the United States Department of Interior.

Fauna

During the field reconnaissance, observations indicated that the insects, avifauna, and mammals living in the gulch are exotic species which are not rare or endangered. It was felt that the fauna in the gulch would be greater than that which is found in the more open project area. Various common bird species, such as the barred dove, lace-necked dove, common mynah, Japanese white-eye and red-crested cardinal, may nest or frequent the site. Butterflies, of common variety, were very abundant. Also, some "pests" (house mouse, Polynesian rat, roof rat and the Indian mongoose) are likely to be in the area, particularly within scattered surface dumpings of solid waste materials.

IMPACTS

The native ecological systems were altered long ago. The original vegetation formed on the residual surface soils from weathered lava rock were disturbed by agricultural practices primarily through the cultivation of sugar cane. In those areas where sugar cane has been discontinued scrub brush, together with scattered clumps of native and non-native plants, invaded the uncultivated portion of the property. There is no evidence of residual pesticide, fertilizer or other soil pollutants based on the types of plants present, and on the lack of visual injuries by chemicals on the flora from agricultural activity. Surface drainage from the proposed development will flow into storm drains and natural ravines. These drainage waters may contain small amounts of chemical residues from fertilizers and pesticides and other residential pollutants. The drainage waters should have no significant effect on the plants or animals. Impact on the fauna of the project is expected to be minimal. No rare or endangered species were observed. Those mammals of suspected presence are considered to be "pests," and their displacement is not seen as being detrimental.

MITIGATING MEASURES

Approximately fifty acres of the site will be retained for public parks or natural open space. Additionally, with the planting of various fruit trees, ornamental plants and trees, it is anticipated that more suitable foods and nesting areas will be created for the various birds. During site work and construction, these birds may be temporarily displaced; however, based on past experience, these birds normally return and adapt well to urban/suburban environment. Several acres of proposed slope control vegetative cover, together with landscaped buffer screen treatments proposed throughout the development, will further aid in mitigating the impacts arising from the loss of habitats and wildlife.

Historic Preservation

INTRODUCTION

This section evaluates: (1) the site for potential historic and archeological values, (2) the impacts of these values on the project and (3) mitigative measures.

Potential for Historic and Archeological Values

Chronology of Events, Chapter I, noted that the project site was placed under sugar cane cultivation in the late 1890's and has been under cultivation ever since. During this 80-year period rocks were cleared from the site and used to stabilize steep slopes that create reservoirs for irrigation. They were also collected and placed in piles within the site to minimize conflict with harvesting equipment.

Since approximately 88.7% of the site was under cultivation over the past 80 years or more the only area of the site with potential historic or archeological values would be located in the gulch area that consists of approximately 26 acres or 8.2% of the site. The gulch is approximately 2000' long, varies in depth from 30' - 40' and is 60' - 100' wide at the bottom. Site inspection by HUD staff did not reveal any structures or rock formations that would appear to warrant a reconnaissance survey or analysis by a qualified archeologist.

The potential of the site for historic or archeological values for qualification on the National Register of Historic Places appears quite remote in view of the previous use of the site and lack of significant structures or rock formation on the site. Further, review of the Federal Register published February 7, 1978 that lists sites on the Register and sites being nominated to the Register does not list the project site.

The development plan for the site provides for the preservation of the gulch in its existing condition. The ownership and maintenance responsibilities will lie with condominium units in Phases 14, 15 and 16 located adjacent to the gulch. The gulch area adjacent to the school will be maintained by the condominium units.

As long as the gulch will remain undisturbed and not developed no further survey for historic or archeological values will be performed. 22/

IMPACTS

None

MITIGATIVE MEASURES

Perform archeological survey if gulch is developed.

Easements

INTRODUCTION

This section discusses: (1) the easements for the project (Plate C), (2) the purpose and disposition, (3) their impacts on site planning and (4) mitigative measures.

The purpose and Disposition of Each Easement

Easement "D"

The 15' wide easement contains .73 acres for a waterline in accordance with the Board of Water Supply. The waterline will be relocated within street rights of way during construction of Phase II.

Easement "4"

A 60' easement containing 1.46 acres of land for roadway and utilities. The roadway will be deleted, however, the easement will be retained, along with the two waterlines, to become a part of the adjacent lots. The total width of these properties will then vary from 80' to 100', depending upon the location of the waterlines. These lines will pump water from Waikele Stream to a reservoir above the project.

Easement "B"

A 60' wide easement (containing 7.55 acres of land) for the Oahu Sugar Company will remain after completion of the project. The roadway protected by the easement will be used by the company to haul its sugar cane from the fields west of Kunia Road to its sugar mill in Waipahu. The easement enters the site on Kunia Road and parallels the west and south boundaries of the project from Kunia Road to an underpass of the H-1 Freeway, approximately 3500' east of Kunia Road.

The existing unpaved road is oiled occasionally to reduce dust. The question of paving the road upon completion of the project has not been determined yet.

Easement "C"

This 3.66 acre easement protects the existing cane haul road servicing fields north of the project site. It will be relocated along the south and east boundaries of the project to maintain access to the upper fields. Its location on the east boundary will coincide with the U.S. Naval Access Road. This road serves the Naval Reservation in Waikele Gulch, used for ammunition for storage.

IMPACTS

Easement "D"

- *Its relocation represents an added inconvenience during construction but not significant.*

Easement "B"

- *Maintenance of this easement precludes development of 7.5 acres of land for residential use.*

- *Use of roadway within easement by trucks hauling sugar cane will result in excessive noise. See section on Noise, this chapter, for additional information.*

- *Heavy equipment, trucks and other vehicles using the roadway are hazardous to small children.*

Easement "4"

Retention of this easement will:

- *Preclude development of 1.46 acres of land for residential use.*

- *Require continued unlimited access to waterlines.*

- *Require maintenance of easement area by adjoining lot owners.*

- *Widen properties by 30'.*

Easement "C"

Its relocation along the south and eastern boundary will have the following impacts:

- *Less land area will be required (from within the project) for the roadway than the existing alignment.*

- The oiled surface of the roadway along the eastern boundary will lessen dust.

MITIGATIVE MEASURES

Easement "D"

- Non required.

Easement "B"

- Mitigative measures concerning noise are covered under Noise, this chapter.

- Barriers to prevent access to the cane haul road by children should be required along the entire length of the road abutting the project site.

Eastment "4"

- Assurance of continued high level of maintenance should be provided for the additional open space created by the easement.

Easement "C"

- Attenuation of excessive noise levels covered under Noise, this chapter.

- Barriers should be provided along the relocated cane haul road as noted above.

Land Use

INTRODUCTION

This analysis reviews: (1) land uses in the surrounding area, (2) the land uses within the proposed project and (3) impact of the project on surrounding land uses resulting from its implementation.

The Surrounding Land Uses

Efforts to urbanize the 316.4 acre project site began in 1966 through a development agreement between the Robinson Estate and the developer. The State Land Use Commission subsequently designated the project site for urban use in September 1969. The Oahu General Plan was subsequently amended in May 1971 to permit development of the site for residential use. About 274 acres of the site is classified as prime agricultural land which is less than .6% of the 48,800 acres of prime farmland on Oahu.

Ordinance #4084 was passed in January 1973 to rezone the property. This would implement the development plan permitting residential, low-density apartments, schools,and commercial land uses. The development plan proposed approximately 3300 units in town houses, 3-story condominium units,and 10-story mid-rise structures.

Changes in the housing market between 1973 and 1976 caused the sponsor to revise plans and try to meet the high demand for the single-family detached dwellings.

The project site is located in an area designated on the Oahu General Plan as the urban-fringe of Waipahu-Crestview. This is shown in Plate D. The land uses surrounding the project site are as follows:

Lands to the northwest and southwest of the project are for raising sugar cane. These lands extend to Wahiawa and Makakilo and were recently classified as prime agricultural land in a joint study by the U.S. Soil Conservation Service and the State Department of Agriculture. 23/ The land use designations on both the State General Plan and the Oahu General Plan show continued agricultural use for these lands. 24/

Waikele Gulch is located along the east boundary of the project and is used by the Navy to store ammunition. The land use designation on the Oahu General Plan shows continued military use of the gulch.

Harbor View Subdivision is located below the H-1 Freeway which defines the south boundary and the project. Harbor View was developed in the late 1960s by Herbert K. Horita, who also began plans to develop Village Park.

Proposed Land Uses

The current development plan providing for 1745 units was approved in conceptual form by the City and County in May 1977.

The land uses proposed by implementing the project are listed in Table I-1, Proposed Land Uses.

A description of the proposed land uses follow:

Residential

Approximately 80% of the site will be for housing: 1435 single-family and 310 condominium units. The condominium units will be developed on both sides of the major gulch, with residents owning the land area up to the center line and being responsible for its maintenance.

The higher density and flexible site planning provided by the condominium concept permits greater efficiency in the use of the steeper portion of the site.

The single-family units will be developed on 241.5 acres on lots that vary in size from 4000 to 6000 square feet.

School

This plan also calls for construction of Hoaea Grade School for students of the project. However, there is a possibility that Hoaea may not be required if student enrollment of Honowai Elementary School, located in Harbor View, continues to decline. Additional information under Education in this chapter discusses the school requirement in greater detail.

Parks

The proposed park areas include one 10-acre park adjacent to Hoaea and a 5.2-acre park located in the northeastern section of the project.

Commercial

A 4.5-acre commercial area is planned at the project's entrance, to be bounded by the two collector roads serving the project and Kunia Road. This area will serve primarily a convenience shopping area for the project's residents.

Easements

Easements are not classified as a land use but prevent land from other productive uses. The nature and purpose of these easements are covered under Easements in this chapter.

Gulch

The gulch has 20-40% slopes. Its center line, used for drainage, prevents most of the area from being developed.

IMPACTS

The loss of prime agricultural land may be considered an adverse impact from the agricultural perspective. However, the assessment of the merits to urbanize the site is not the role nor responsibility of HUD. Both the state and City and County of Honolulu have approved the project which is consistent with applicable land use controls. These approvals then become an expression of housing needs for an expanding population on Oahu. The purpose of this EIS then is to disclose impacts that result from urbanization of the project site. These impacts are:

- Urbanization of the project forecloses the option for continued or other agricultural use.

- Urbanization of the project may stimulate further urbanization of agricultural land north of the project.

- Increased housing opportunities for medium income families.

- Increased capital investment by the state and city and county will be required to provide community facilities and continued municipal services for the completed project.

- Specific physical impacts will occur. These impacts are discussed in greater detail under other sections in this chapter.

MITIGATIVE MEASURES

- Mitigative measures in terms of alternate land uses are discussed in Chapter III, Alternatives to the Proposed Action.

- Compliance with local land use regulations, building codes, and ordinances.

- Mitigative measures in terms of specific physical impacts are discussed under separate subjects in this chapter.

Storm Drainage/Flooding

INTRODUCTION

This section discusses: (1) the watershed, its land area and location of characteristics, (2) impacts on drainage patterns resulting from project implementation and (3) mitigative measures.

The watershed for the central drainage way traversing the project extends about 26,000 feet north to an elevation of 920 feet (MSL). The watershed contains about 1,297 acres to the H-1 Freeway. The major portion of the watershed is cultivated in sugar cane, which is irrigated by ditches. Several open earth reservoirs for the irrigation are located within the watershed. The upper reaches of the watershed, west of Kunia Road, is cultivated in pineapple.

When the 316-acre project is fully developed approximately 254 acres will drain to the central drainage way while the remaining 62 acres will drain to Waikele Stream.

The rational method was used to determine peak runoff from the watershed because of insufficient data on stream flow of a similar watershed. Also, the ground cover changes between sugar cane and pineapple fields in the watershed. Therefore, an "adjusted" runoff

was determined based on a portion of the field being harvested and in bare condition. The determination was based on the harvesting schedule of the sugar cane fields. Peak runoffs were also determined for minimum and maximum runoff conditions, i.e., the cultivated fields being fully covered or all bare ground condition.

HUD's analysis revealed that the adjusted peak runoff to the H-1 Freeway is estimated at 2517 cubic feet per second (cfs), which will increase by approximately one to two percent upon completion of the project.

This was to determine the effect of the proposed development to the estimated 100-year peak runoff for the existing condition of the watershed. It is felt that the adjusted ground cover represents a more realistic condition.

The Storm Drainage Standards, City and County of Honolulu, dated March 1969, indicates a design peak flow of 5,000 cfs for the estimated 1297-acre watershed.

Since Waikele Stream has a large drainage basin, 45.7 square miles, the proposed development will have minimal effect on the peak stream flow.

There are three drainage structures in addition to Waikele Stream that will convey runoff from the proposed project beyond the H-1 Freeway. These include 3 - 14' structural plate culverts, an 84" sectional plate pipe, and a 48" Corrugated Metal Pipe (CMP). The 3 - 14' culverts are part of the central drainage way and have a combined capacity of 5,000 cubic feet per second (cfs).

The central drainage way from the H-1 Freeway to West Loch, Pearl Harbor, is fully improved based on 50-year storm frequency. However, the design capacities are not consistent. The design capacities vary from 2270 to 5000 cubic feet per second (cfs). The two 12'4" x 7'9" structural plate arch culverts crossing Farrington Highway have the lowest design capacity, 2270 cfs.

Since the runoff increase due to the development is small (one to two percent for adjusted condition), the effect on the capacities of the channel improvements downstream should be minimal.

IMPACTS

- *The project site has favorable terrain features which will minimize flood hazards, provided improvements are kept outside of the flow line of the two (2) drainage ways traversing the site.*

- *The site has favorable gradient for disposal of storm runoff, with drainage ways to contain it.*

- *The main drainage structure crossing the H-1 Freeway is sufficient to convey the City and County of Honolulu design peak flow across the highway.*

- *The environment will have minimal negative impact on the project.*

- *The impact of the project will be negative on the short-term; however, on the long-term the impact may be negative or positive depending on the condition of cultivated fields within the watershed and the drainage ways traversing the project site.*

- *The ground exposed during construction could increase runoff and soil erosion.*

- *On the long-term the impact will generally be negative, since the development of the project will tend to increase runoff from the watershed. This will occur since some of the cultivated fields will always have ground cover at various stages of growth. However, a small positive impact will occur upon completion of the project that will minimize erosion of the project site.*

- *Increase in runoff will further contribute to the existing potential flooding condition to the area surrounding the two 12'4" x 7'9" culverts crossing Farrington Highway.*

MITIGATIVE MEASURES

- *The design of the project should recognize the earth reservoirs located upstream of the project.*

- *Siting of buildings and other structures within or near the drainage ways traversing the site should be coordinated with the appropriate water surface profile determination of the drainage ways for 100-year or higher flows.*

- *The onsite storm drainage system should be designed and constructed in accordance with the Storm Drainage Standards, City and County of Honolulu, dated March 1969.*

Transportation/Circulation

INTRODUCTION

This analysis examines: (1) the vehicular access to the project site, (2) the impact of additional traffic generated by the project, (3) the internal roadway system that serves the project and (4) mitigative measures to minimize adverse traffic conditions.

Vehicular Access to the Project Site

The roadways impacted by the proposed development are Kunia Road and the H-7 Freeway. Kunia Road is designated Federal-aid Secondary Route 750.

Kunia Road

Kunia Road provides the only vehicular access to the site. The existing two-lane roadway, State Route 750,has each lane moving in the opposite direction. Both lanes are within a 60' right of way that connects State Route 90 (Farrington Highway in Waipahu) located one mile south of the H-1 Freeway and State Route 78 (Wilikina Drive in Wahiawa). The distance between Farrington Highway and Wilikina Drive is approximately 10 miles. Current peak hour traffic is approximately 1,200 vehicles per hour (both directions), while the capacity of Kunia Road is estimated at 2,000 vph (two lane uninterrupted). Therefore, the existing roadway has adequate capacity for today's traffic. 25/

H-1 Freeway

The H-1 Freeway, located along the south boundary of the project, provides the primary connection between the eastern (Waialae) and western (Nanakuli) parts of Southern Oahu.

Major destination areas located along the H-1 alignment are readily accessible from interchanges that connect to local arterials.

At the Kunia interchange, the H-1 Freeway has four eastbound and three westbound lanes. Projected 1990 peak hour traffic levels of 2,788 vph (westbound) compared to its service capacity (Level of Service C) of 4,000 vph shows that the H-1 Freeway has adequate capacity for accommodating additional traffic. (Figure 9)

Kunia Interchange

Kunia Interchange provides for all movements to and from the H-1 Freeway. Figure 6 shows the existing interchange and the traffic patterns approaching the interchange for access to other areas adjacent to or beyond it. Figure 9 shows the 1990 traffic volumes while Figure 10 shows proposed improvements to Kunia Road.

The Internal Roadway System

The Proposed Development Plan (Plate C) shows that the project is serviced by a 60' collector road that connects with Kunia Road. It also connects to a secondary loop collector road in the site's eastern portion. The minor streets have widths of 32' and 44' with 20' and 28' of paving. The secondary collector road has a right of way width of 56' with 40' of paving.

All roadways can accommodate the projected traffic load for the areas they serve. However, the only problem area anticipated is Intersections "A" and "B" with Kunia Road.

Other Developments in the Ewa Area

A number of major developments proposed in the Ewa area were noted in Chapter I, OTHER MAJOR ACTIONS IN THE REGION. The potential number of vehicular trips generated by these proposals are listed below in Table II-3.

HUD did not attempt to translate these potential trips into vehicles per hour for a peak hour condition for any projected time period for there are many variables that could influence these projections, i.e., viability of project, economic conditions, different peak hour loading for different land uses and alternate routes within the region (Farrington Highway).

The purpose of Table II-3 is to point out the potential traffic generators in the region to permit an overview of how Village Park relates to other developments in terms of additional traffic on the H-1 Freeway.

TABLE II-3

POTENTIAL VEHICULAR TRIPS GENERATED BY PROPOSED LAND DEVELOPMENTS SERVED BY THE H-1 FREEWAY IN THE EWA AREA

	1978	1985	1990	1995	2000
(1) Waianae Coast	18,700	25,000	31,000	35,900	37,000
(2) Kahe Point Theme Park	-	1,800	1,800	1,800	1,800
(3) West Beach	-	950	8,920	18,350	19,200
(4) Campbell Industrial Park	5,400	9,050	10,500	13,400	16,600
(5) Barbers Pt. Deep Water Harbor	-	2,050	3,450	5,600	7,000
(6) Caneland Theme Park	-	-	1,800	1,800	1,800
(7) Makakilo	9,800	29,000	30,700	30,700	30,700
TOTALS	33,900	67,850	88,170	107,550	114,100

Sources:

(1) State of Hawaii Department of Transportation
1978 volume shown is January 1977 traffic count and 1995 projection. Other traffic volumes for 1985 and 2000 were interpolated by HUD staff.

(2) EIS for Kahe Point Theme Park prepared by Environmental Communications Inc.

(3) EIS for West Beach prepared by Environmental Communications Inc.

(4) Report: Plan for Barbers Point Harbor Facilities and Expansion of James Campbell Industrial Park prepared for the Estate of James Campbell by Tippetts-Abbett-McArthy-Stratton, Engineers and Architects, New York, June 1977.

(5) Reference (4) above and Barbers Point Harbor Final EIS prepared by Department of Army, U. S. Army Corps of Engineer District, Honolulu, July 1976.

(6) *Reference (4) above.*
(7) *State of Hawaii, Department of Transportation*
Letter to Benjamin Lum, Department of Housing and Urban Development dated February 10, 1978.

IMPACTS

- *1390 additional trips will be generated during the peak hours upon completion of the project based on .8 trips per unit. 26/*

- *The project will increase the peak hour traffic volume on Kunia Road from 1473 vph to 2480 vph (a.m. peak) and 1615 vph to 2622 vph (p.m. peak). This represents traffic increases of 68% and 63% respectively.*

- *Ingress and egress from Village Park through Intersections A and B decreases Kunia Road's efficiency to accommodate projected traffic.*

- *No adverse impact on the H-1 Freeway is anticipated. Only 460 vehicles per hour will be added to the H-1 Freeway during the peak hour traffic.*
- *The Kunia Interchange will be impacted by additional traffic generated by the proposed project.*

MITIGATIVE MEASURES

The following measures proposed to accommodate increased traffic volumes as a result of the project are summarized from the "Traffic Study Report for Village Park - Waipahu, Oahu, Hawaii," prepared by Park Engineering, December 1976.

- *Widen Kunia Road in front of the project site to four lanes by 1980.*

- *Increase capacity of Kunia Intersection (see Figure 7).*

- *Signalize Intersections A and B by 1982.*

- *Signalize intersection of Ramps KA and KI with Kunia Road.*

Air Quality 26/

INTRODUCTION

The purpose of this section is to: (1) discuss the concern for air quality, (2) identify potential sources of air pollutants, (3) evaluate the significance of these impacts and (4) outline the mitigative measures.

Concern for Air Quality

Public concern about noticeably deteriorating air quality throughout the United States resulted in the Federal Clean Air Amendments of 1970. As a result, Federal and State Ambient Air Quality Standards have been set for six major air pollutants as shown in Table II-4. With the exception of the photochemical oxidants, each of the

TABLE II-4

SUMMARY OF
STATE OF HAWAII AND FEDERAL
AMBIENT AIR QUALITY STANDARDS

POLLUTANT	SAMPLING PERIOD	FEDERAL STANDARDS		STATE STANDARDS
		PRIMARY	SECONDARY	
1. Suspended Particulate Matter (microgram per cubic meter)	Annual Geometric Mean	75	60	-
	Annual Arithmetic Mean	- -	-	55
	Maximum Average* in any 24 Hours	260	150	100
2. Sulfur Dioxide (microgram per cubic meter)	Annual Arithmetic Mean	80	-	20
	Maximum Average* in any 24 Hours	365	-	80
	Maximum Average* in any 3 Hours		*1300*	400
3. Carbon Monoxide* (milligrams per cubic meter)	Maximum Average in any 8 Hours	10		5
	Maximum Average in any 1 Hour	40		10
4. Hydrocarbons:* Non-methane (micrograms per cubic meter)	Maximum Average in any 3 Hours	160		100
5. Photochemical* Oxidants (micrograms per cubic meter)	Maximum Average in any 1 Hour	160		100
6. Nitrogen Dioxide (micrograms per cubic meter)	Annual Arithmetic Mean	100		70
	Maximum Average in any 24 Hours	-		150

** Not to be exceeded more than once a year.*

Source: 40 Code of Federal Regulations, Part 50 and State of Hawaii Public Health Rules and Regulations, Chapter 42.

pollutants listed in Table II-4 is a primary pollutant (i.e., it is emitted to the atmosphere directly or quickly forms there as a result of the emission of requisite precursors). The photochemical oxidants, however, are a class of secondary pollutants which form in the atmosphere via complex non-linear chemical reactions involving both natural constituents of the atmosphere and other pollutants (primarily the nitrogen oxides and certain hydrocarbons). Photocatalytic sunlight is a necessary ingredient for these reactions.

Each of the pollutants listed in Table II-4 has the potential to cause adverse health effects or produce environmental degradation when it is in sufficiently high concentration. Federal Ambient Air Quality Standards have been set at levels below which known adverse effects are not expected to occur, but State standards include an extra margin of safety designed to protect especially sensitive individuals or environments. They also allow the possibility that unknown undesirable effects could result from long-term exposure to presently allowable concentrations of these pollutants. Thus the State standards for each pollutant and exposure period considered is significantly more stringent than the comparable Federal limit.

The Federal government in December 1977 proposed Ambient Air Quality Standard for airborne lead of 1.5 micrograms per cubic meter of air (calculated on a monthly average). The standard was adopted on October 5, 1978. Once a standard is promulgated, the State must then develop and implement a control plan to insure that the standard will be attained by 1982 and maintained thereafter.

Existing Sources of Air Pollutants

The nearest state Department of Health Air Quality Monitoring Station is located at the sewage treatment plant in Pearl City, about 4 miles east of the proposed project site. Summarized values of particulate matter, including sulfur dioxide and nitrogen dioxide monitored at the Pearl City Station during 1976, are listed in Table II-5. Recorded maximum values of the three pollutants monitored were substantially less than allowable State and Federal limits. Northeasterly trade winds blow over the project site from the Pearl City direction about 85 percent of the time. It thus seems reasonable to assume that measurements taken in Pearl City are representative of ambient pollutant levels at the proposed project site.

TABLE II-5

AMBIENT AIR POLLUTANT LEVELS
AT PEARL CITY (1976)*

Pollutant	Maximum	Average	Minimum
Particulate Matter	83	41	16
Sulfur Dioxide	50	5	5
Nitrogen Dioxide	44	26	11

*All values in micrograms per cubic meter for a 24-hour period.

TABLE II-6

EVENING PEAK HOUR CARBON MONOXIDE CONCENTRATIONS
AT AIEA AND PEARL HARBOR (1976-1977)

Location	No. of Records	Maximum Concentration*	Average Concentration
Aiea	40	2.3	1.4
Pearl Harbor	15	2.5	0.3

*Maximum hourly reading between 1500 and 1800 Hawaii Standard Time. All concentration in milligrams per cubic meter.

Source: Both tables, Hawaii State Department of Health, Environmental Protection and Health Services Division, records.

Unfortunately, carbon monoxide, photochemical oxidants and hydrocarbons are not measured at the Pearl City Station. Hydrocarbons, in fact, are not monitored on a regular basis anywhere in the State and carbon monoxide and photochemical oxidants are monitored only at the Department of Health building near downtown Honolulu. Values of air pollutants recorded at this building are not likely to be representative of the lower levels that would be expected in suburban areas such as the one being considered here.

There was, however, a special carbon monoxide monitoring project carried out by the Department of Health from November, 1976, through April, 1977, during which hourly concentrations were measured at Aiea Elementary School (about seven miles east of the project). Evening peak hour readings at these locations are summarized in Table II-6. Both of these sites are suburban in nature and should thus be comparable to the subject site. Although the number of records is small, Table II-6 indicates that carbon monoxide levels in the general area of the project are well below State or Federal limits.

IMPACTS

- *Potential Sources of Air Pollutant Emission - Air pollutant emissions can come from fixed or mobile sources. Geometrically these sources can be described as points, areas or lines.*

- *Point Sources - Fixed point sources are operations such as factories or power plants. Potentially significant fixed point sources located in the Pearl City/Waipahu area include oil-fired steam electric plants at Waiau and Pearl Harbor and a sugar refinery in Waipahu. The Campbell Industrial Park is seven (7) miles southwest with two oil refineries, a cement plant and other industrial operations. Primary emissions from these sources would be sulfur dioxide and particulate matter, along with substantially smaller amounts of carbon monoxide. Measurements of sulfur dioxide and particulate matter at Pearl City indicate that these fixed point sources must not be contributing pollutants to the local atmosphere in amounts likely to exceed State or Federal Standards. This would hold even under worst case meterological conditions, since the highest 24-hour values of these pollutants were found to be significantly less than allowable limits.*

- *Total Suspended Particulates - During the construction phase of this project the pollutant of primary concern will be suspended particulate matter. This would be generated by the wind blowing over cleared building sites, or by heavy trucks and construction machinery traveling over unpaved areas within the worksite. Emissions of this type are called "fugitive dust" and in this case the project site would be a source of such emissions. Frequent watering down of the dust in construction areas can essentially eliminate this problem. Such action is required by State Air Pollution Control Laws and in any event can be expected to occur naturally on about one-third of the work days because of normal rainfall on the construction site.*

Since the development is slated to be carried out in discrete increment, only part of the project site will be a potential emission source at any given time. This should further mitigate the problem of fugitive dust.

Another area of concern will be the open field burning of sugarcane. Each sugarcane field is burned at harvest time, but fields are harvested only once every two years. The fire usually lasts no longer than one hour involving fields as large as 45 acres. Primary emission products are carbon dioxide and water vapor including large and small particulates. Some invisible carbon monoxide is also generated when the combustion process is incomplete. The particulates, large carbon particles, are locally called "black snow." These large particulates present no serious health threat but can cause property damage in terms of soiling. The smaller particles are of more concern from a human health standpoint. However, if the fields are burned under suitable meterological conditions, these fires are not likely to produce excessive particulate concentrations. 28/ State Public Health Regulations (Chapter 43, Section 7c) set "burn - no burn" conditions and empower the Department of Health to prescribe burning conditions to minimize the impact of such fires. Judging from maximum particulate levels recorded at the Pearl City monitoring station, particulate concentrations exceeding allowable limits are not likely at this project site even though such fires will periodically take place.

- *Line Sources - The major air quality impact of this project on the surrounding environment and on future residents as well, will undoubtedly come from mobile sources. These sources would be the 1,390 peak hour vehicle trips that could come as an indirect result of this project. The primary pollutants emitted by vehicles are carbon monoxide, hydrocarbons, and nitrogen dioxide. Of these, some of the hydrocarbons and nitrogen dioxides react in the atmosphere with sunlight to produce the photochemical oxidants commonly known as smog. The rate at which these reactions occur depends on many factors. Also, it is not possible to predict expected downwind concentrations of photochemical oxidants using the simple models of atmospheric pollutant dispersal currently available.*

- *Carbon monoxide, on the other hand, is a relatively stable gas and several straight forward methods of assessing its downwind concentrations using simple mathematical models have been developed. Such models usually treat the roadway as a line source with an emission strength directly proportional to the number of vehicles likely to travel over each lane of the roadway. Parking lots such as the one for the project's commercial center can be treated as an area source, with carbon monoxide emissions proportional to the number of vehicles operating over a fixed time period.*

- *Since carbon monoxide is the abundant of automobile pollutants, a microscale analysis of expected carbon monoxide concentrations at*

selected critical receptor sites can serve as an adequate screening process. This will assess the potential air quality impact of the proposed project. 29/

- *Microscale Carbon Monoxide Analysis - This analysis is based on a technique described by the Environmental Protection Agency. 30/ The method contains two inherent sets of assumptions:*

- *Emissions - Vehicle emission rates are based on 1975 vehicle mix containing 88 percent automobiles with 20 percent of all vehicles operating under "cold start" conditions at low altitudes. Outside air temperatures at the point of emission are assumed to be between 68 and 86 degrees Fahrenheit.*

- *Atmospheric Conditions - A worst case wind direction (i.e., least favorable angle to the roadway) and wind speed (1 meter per second) with atmospheric stability category D are assumed for pollutant concentration computations at selected receptor sites.*

- *Worst case carbon monoxide concentrations using this method are determined using a set of precomputed graphs based on a Gaussian - diffusion model called HIWAY. The interpretation and interpolation involved in using these graphs limits the precision of the results to an estimated ± 0.5 milligrams per cubic meter.*

- *The assumptions built into the model fit this project reasonably well, but there are a few variations worth describing. Because the model works with a fixed atmospheric stability it will always yield the highest concentrations when the number of vehicles operating is highest. For the roadways in the vicinity of this project site, traffic volume is highest during the afternoon/evening rush hour. That time was used for determining traffic volumes and pollutant concentrations for this study, even though atmospheric conditions and vehicle operating parameters likely to give highest ambient concentrations of carbon monoxide are probably more common during morning rush hour. This is because the most stable atmospheric conditions tend to occur in the morning. And in suburban subdivisions, a significant proportion of the vehicles are operating under the higher, pollution-producing "cold start" mode in the morning rush hour than in the evening. So, if morning rush hour traffic volumes had been used in the model, it would have yielded lower concentrations than those determined.*

- *As it stands, the assumption that 20 percent of the vehicles are operating in the cold start mode during evening rush hour is probably an overestimate of actual emission rates at that time.*

- *It is also unlikely that the evening rush hour traffic mix will contain only 88 percent automobiles at this location. The proportion will probably be much higher. Since the traffic study for the project did not indicate the number of trucks and buses likely to be*

operating during the P.M. rush hour, the model assumption was modified to treat a vehicle mix containing only automobiles. This is because the actual percentage of non-automobiles is probably very small.

- Atmospheric stability category D is the most stable (therefore least favorable) condition that would be expected in an urban area. This project area is more suburban in nature and could have more stable conditions than those considered in the model. The next most stable category, E, could double predicted concentrations if used in the model. This category, however, is unlikely to occur other than early in the morning. 31/ Since the detailed atmospheric sounding necessary to determine actual stability conditions at this site is not available, the category used by the model was assumed to be representative.

- The model designed to give carbon monoxide concentrations at receptor sites a fixed distance of ten meters from the roadway being considered. For a closer distance, say three meters, a correction factor of 1.3 should be applied to reported values. For more distance receptor points, correction factors of less than one are applied (e.g., at a distance from the roadway of 30 meters, the correction factor becomes 0.5). Since all residences were at distances greater than ten meters from the roadway, carbon monoxide concentrations were computed for both the ten meter distance and for the nearest dwelling unit.

- Furthermore, receptor sites at the intersection of two roadways will receive maximum concentrations of carbon monoxide. This is so long as the receptor site is equidistant from both roadways. Consideration of receptor sites not equidistant from the intersecting roadways will yield significantly lowered predicted concentrations.

- Other specific assumptions used for this particular analysis are as follows:

  Background Carbon Monoxide Concentrations. The eight-lane, H-1 Freeway is just south of this project and several industrial sources of carbon monoxide are further to the southwest. A nominal background value of 1 milligram per cubic meter was thus included in this analysis to represent the contribution of distant emission sources not directly considered in the analysis.

  Emission Factors. The model is based on emission values representative of vehicles in 1975. Target years for this study are 1979 and 1990. These years represent initial impact during the earliest phases of construction and final impact after the project is

completed and established. It was thus necessary to modify the 1975 emission values to treat these years. Since carbon monoxide concentrations are directly proportional to emission values, this amounts to developing a single correction factor to be used for each target year. As stated earlier, it was assumed that traffic would wholly consist of automobiles (light duty vehicles). The technique prescribed by EPA was used 32/ No adjustments were made for air-conditioning or trailer towing and the national age-mix of vehicles for each target year was assumed. This method resulted in a 0.97 emission rate adjustment factor for 1979 (i.e., nearly the same as for traffic in 1975) and a 0.22 factor for traffic in 1990 (indicating the significant carbon monoxide emissions reductions expected to occur with the full implementation of stringent emission control standards in 1982).

Roadway Configurations and Traffic Volumes. The traffic data provided was used without modification. 27/ Where it was necessary to assume a green-to-cycle ratio for traffic lights, a figure of 0.8 for Kunia Road traffic was used. Vehicle speeds of 25 miles per hour were assumed for traffic flow downstream from signalized intersections.

Roadway Capacities. For both Kunia Road and the subdivisions a capacity of 1,200 vehicles per lane per hour was assumed. For the H-1 Freeway, the capacity was assumed to be 2,000 vehicles per lane per hour. These capacities were selected to meet the Level of Service E requirements of the model.

Receptor Sites. Three receptor sites were selected for analysis as shown on Plate C. Sites A and B were selected at the intersections of project roadways with Kunia Road. Site C was selected to evaluate the impact of H-1 Freeway traffic on the subdivision.

Commercial Traffic. Since the P.M. peak hour is being considered for this study, it is likely that traffic in the commercial areas' parking lot will have some impact on the carbon monoxide concentrations at the dwelling nearest to Site B. From the site plan, it appears that there could be 150 parking spaces in this commercial area. During peak hour, about 30 or 50 percent of the automobiles would be either arriving or departing, with an average of two minutes to enter and park and one minute to leave. Let's treat the parking lot as an area source about 90 meters from the dwelling under consideration. This will result in adding 1.2 milligrams per cubic meter to concentrations there in 1979 and about 0.3 milligrams per cubic meter in 1990.

Significance of Pollutant Emissions (Carbon Monoxide). Results of the peak hour microscale carbon monoxide analysis are presented in Table II-6. There is no problem meeting State or Federal one-hour standards at any of the critical receptor sites considered. Since

TABLE II-7

RESULTS OF MICROSCALE CARBON MONOXIDE ANALYSIS
(P.M. PEAK HOUR - WORST CASE CONDITION)
FOR SELECTED RECEPTOR SITES IN PROPOSED VILLAGE PARK PROJECT[a]

(DISTANCE IN METERS)

		Year					
		1979		1990		Standards	
Site	Configuration	10 m	Nearest[b] Dwelling	10 m	Nearest Dwelling	State of Hawaii	Federal
A	Without Project	8.7	---	3.8	---	10	40
	With Project	---[c]	---	6.0	2.5	10	40
B	Without Project	8.7	---	3.8	---	10	40
	With Project	9.4	2.6	5.3	1.5	10	40
C	Without Project	---	4.7	---	1.8	10	40
	With Project	---	4.7	---	1.9	10	40

[a] See Plate C for location of receptor sites. All concentrations in mg/m^3. m = meters.

[b] Concentrations calculated for a distance of 10 m from roadways and at nearest dwellings to receptor sites. At Site A nearest dwelling to intersection is 60 m away. At Site B nearest dwelling is 200 m away, but calculated concentrations also include contributions from parking in commercial area.

At Site C nearest dwelling to freeway is 75 m away.

[c] The intersection near Site A will not be constructed until after 1979.

TABLE II-8

PEAK EIGHT-HOUR CARBON MONOXIDE CONCENTRATIONS AT SELECTED RECEPTOR SITES IN VILLAGE PARK[a]

(DISTANCE IN METERS)

		Year					
		1979		1990		Standards	
Site	Configuration	10 m	Nearest Dwelling	10 m	Nearest Dwelling	State of Hawaii	Federal
A	Without Project	5.2	---	2.3	---	5	10
	With Project	---	---	3.6	1.5	5	10
B	Without Project	5.2	---	2.3	---	5	10
	With Project	5.6	1.6	3.2	0.9	5	10
C	Without Project	---	2.8	---	1.1	5	10
	With Project	---	2.8	---	1.1	5	10

[a]Based on data in Table II-7. All concentrations in milligrams per cubic meter. m = meters.

these sites were selected because they would be likely to have the highest peak hour carbonmonoxide concentrations in the project area, it would appear that there are no sites in Village Park sites where these one-hour standards will not be met, even under worst case meterological condition.

Eight hour carbon monoxide concentration estimates based on utilization of the 0.6 "meterological persistence factor" suggested in Reference 1 are shown in Table II-8. Close to the intersection at Site B, there might be some problem meeting the stringent State eight-hour standard in 1979, but this problem is likely to exist whether the project is undertaken or not. By 1990, there are no problems foreseen at any of the sites considered.

MITIGATIVE MEASURES

One way to help mitigate any potential air pollution problems near intersections is to plant right away a tall dense vegetative cover there. Such plantings must be done carefully so that driver visibility there will not be impaired later, thus necessitating removal of the vegetation for safety reasons.

Noise

INTRODUCTION

The purpose of this section is to (1) discuss noise and its impact on humans, (2) determine the existing and future vehicular noise levels at the project site, (3) evaluate noise sources and the impact of existing and projected noise levels on residents in the proposed project and (4) outline procedures and alternatives for achieving compliance with HUD criteria. The technical analysis and recommendations of this assessment were prepared by Dr. Iwao Miyake, with HUD staff assisting in field measurements of traffic volumes and 24-hour measurements of noise levels.

Noise and its Impact on Humans

A Definition

Noise can be defined simply as one or a group of loud, harsh nonharmonious sounds or vibrations that are unpleasant and irritating to the ear. "Whether a sound becomes noise, whether it is wanted or unwanted, it is injurious; (however) in many instances (whether a sound becomes noise) is all in a point of view." The degree of annoyance is not necessarily related to the intensity of the sound; it may often be influenced by subjective factors, such as familiarity and personal attitudes... Since annoyance is largely an individual response, and varies with persons and situations, it can be said that "what makes a sound a noise is a matter of psychology rather than acoustics."

Human Response to Noise

Since there is a large spread in everyday signals received by the human ear and the ear's sensitivity is more logarithmic, it was decided to express sound levels on a logarithmic scale. For example, 10 decibels (dB) is 10 times more intense than one dB, 20 dB is 100 times more intense (10X10), while 30 dB is 1000 times more intense (10X10X10). The logarithmic scale permits a system to compress the large spread of intensities to a more practical numerical system. Thus, "decibels" are logarithmic and are abbreviated "dB."

Sound measurements are taken with either "A-scale," "B-scale," or "C-scale" on the sound meter and are shown as dB(A), dB(B) or dB(C). HUD uses the "A-scale," since it closely represents the frequency characteristics of the average human ear for various intensities. A convenient method for relating to the increased loudness is that the intensity of sound doubles with every six dB. Man's response to various sound levels is illustrated in Figure 11, Sound Levels and Human Response.

Physical/Psychological Effects

Physical effects caused by exposure to moderate noise volumes, e.g., the passing of a heavy truck rated at 80 dBA, produces a number of physical changes. Blood vessels in the brain dilate while vessels in other parts of the body constrict. Blood pressure rises, and the heart rhythm changes.

Pupils dilate and the blood cholesterol level rises. Various endocrine glands pour additional hormones into the blood. Even the stomach changes its rate with acid secretion. While most of these reactions are only temporary, the modern environment presents ever-changing noise levels that some of these "temporary" effects become chronic.

Because the brain interprets it as a danger signal, noise interrupts thought and mental concentration. This, in turn, not only lowers the working efficiency of people doing exacting or predominantly mental work but the constant distraction of noise makes them more nervous, irritable, and generally unsettled...

Reaction to Noise

The Individual. Research on people's reaction to noise found that the response differs from person to person. Studies have also shown why people complain, with the most often cited reasons to be:

- *Interference with rest and recreation*
- *Interference with speech communication*
- *Interference with radio and music listening*
- *Interference with sleep.*

The severity of the complaints is associated with a combination of the following factors:

- *The nature of the noise spectrum (frequency content, amplitude)*
- *The loudness and duration of the noise*
- *The time of occurrence (day, evening, night)*
- *The number of occurrences per day*
- *The loudness of the noise above the ambient noise*

- *The activity the person happens to be engaged in when the noise intrusion takes place*

- *The health and noise exposure history of the person.*

Because reaction to noise is subjective, complaints to noise should be expected. Studies have shown that approximately 10 percent of the population is apparently supersentive to noise and would object to any noise, except that of their own creation. The remaining 90 percent react in various degrees to noise. Approximately 25 out of 100 persons tolerated noise of any level. A large majority of the remaining 65 did not complain until the indoor noise level exceeded 56 dBA for more than 10 percent of the exposure time. This means, for light weight structures such as those found in Hawaii, the outdoor L_{10} value should not exceed 66 dBA. For concrete and masonry structures, the outdoor L_{10} noise level can be as much as 70 dBA. Complaints are expected to increase rapidly as the noise level exceeds these limits.

The Community. In evaluating traffic noise impacts in a community, it is important to consider differemces in the response of people to daytime and nighttime noise. In most homes, the daytime (7:00 a.m. to 10:00 p.m.) activities will increase home noise levels. This self-generated noise will mask or partially mask out most of the intruding exterior noise. Experience has shown that most people will not complain until the intruding noise level becomes 5 or more dB higher than the ambient noise level inside the home. At nighttime (10:00 p.m. to 7:00 a.m.), the self-generated noise drops rapidly. This can make noise hardly audible during the day, annoying at night.

IMPACTS

Existing and Future Noise Levels

Noise Sources

Aircraft Operations

Honolulu International Airport, Hickam Air Force Base, and Barbers Point Naval station are all active airports located within 10 and 17 miles of the project. Aircraft operations which would likely impact the project site would be those generated by aircraft using the runways of Honolulu International Airport and Hickam Air Force Base.

The number of aircraft operations (318,000 annually) reported by FAA, along with application of the HUD Noise Assessment Guidelines, places the project site in the Clearly Acceptable Category.

Vehicular Traffic

Data used for assessing the noise levels for both existing and future traffic were based on the following sources:

- *State Department of Transportation, Highways Division*

- *Traffic counters supplemented by visual counts of multi-axled vehicles by HUD staff - October 23 and 24, 1975*

- *Oahu Sugar Company*

Existing Noise Levels

Extensive noise data was collected by HUD staff between October 1975 and 1976 using a hand held B & K 2205, type 2 meter, at six selected positions shown on Plate C. The sites were selected based on the relationship of the housing units to the Cane Haul Road, Collector Road, Freeway, and topography.

Recent sample noise readings were taken at the above sites, this time approximately 50 feet from the edge of the Cane Haul Road. These readings were taken with a hand held B & K 2206, type 1, Precision Sound Level Meter, to confirm the findings of HUD staff. Since there were no significant differences between the sample readings and HUD data, no corrections for differences in measurement and distance were made. Table II-9 shows the current noise levels of samplings taken 50 feet from the Cane Haul Road.

Projected Traffic Noise

The traffic volume predicted for 1998 was reduced to an hourly volume by assuming that the vehicular distribution pattern found in 1975 is typical and will not change significantly with time. This assumption became valid in 1975 by analyzing traffic counts on a given roadway over a four-year period. Tables II-10 and II-11 show the hourly traffic volume and noise levels for 1998 at 100 feet from the center line of the nearest lane of H-1 Freeway. The average daytime and nighttime noise levels are also shown. The daytime L_{50} average is 70.3 dBA and the nightime average is 61.7 dBA. The daytime L_{10} average is 75.9 dBA and the nighttime average was 68.3 dBA. These noise levels indicate, excluding Cane Haul Road traffic noise, that all areas 100 feet or less from the H-1 Freeway will fall in the "Normally Unacceptable" category of HUD by 1990.

The average daytime and nighttime noise levels contributed by the traffic on H-1 Freeway at the project's receptor sites (Plate C) are shown on Table II-12.

Table II-13 shows that all sites 50 feet from the Cane Haul Road will be in the "Normally Unacceptable" category by 1998, even without truck noise on the Cane Haul Road.

Noise levels projected to 1990 agree within 1 dB for the noise levels calculated for 1998. Consequently, these figures and graphs are used. Figures 12 through 15 show the hourly noise levels for the receptor sites. Figure 16 shows the 1998 traffic pattern and related hourly noise levels at 100 feet from the center of the nearest traffic lane of the freeway.

The results of the foregoing analysis shows that existing noise levels found on proposed lots along the Cane Haul Road fall into the Discretionary Normally Unacceptable category. The results are also in accordance with HUD criteria. The following phases will then require measures to attenuate excessive noise to comply with HUD Circular 1390.2.

Phases 2, 4, 5 and 15

By 1990 these phases will be subjected to noise levels projected as follows:

L_{10} - 75 dBA

L_{50} - 70 dBA

All residential units built on lots bordering the Cane Haul Road in these phases will suffer from excessive noise, particularly during the harvesting season when trucks haul sugar cane to the mill in Waipahu. Trucks can pass through the area every 15 to 20 minutes day and night. Noise from these trucks will range between 70 and 90+ dBA at 50 feet from the Cane Haul Road. The high noise levels can remain for as long as one minute per passage of each truck. As a result, it will be noisy for all residential units built on these lots unless the units are acoustically designed and oriented. Phases 7, 8 and 13 are affected.

MITIGATIVE MEASURES

HUD participation in residential units subject to excessive noise levels must be sited or designed to comply with HUD Circular 1390.2.

A number of techniques to attenuate noise to acceptable levels are listed as follows:

Site Planning

- *Provide adequate setback from Cane Haul Road -- not less than 60 feet.*

- *Provide barrier walls in key areas.*

- *Plant tall, thick hedges along Cane Haul Road boundary to screen out traffic on H-1 Freeway and Cane Haul Road.*

Architectural

- *Buildings should be double wall or concrete masonry with view windows on the Cane Haul Road side.*

- *The sound transmission loss of the exterior walls should be at least 20 dBA.*

- *Bedrooms should be placed on the side away from the Cane Haul Road.*

- *The living room and kitchen should face the Cane Haul Road.*

- *For critical noise areas in Phases 5 and 15, air conditioning or forced ventilation systems should be considered.*

TABLE II-9*

DAYTIME NOISE READINGS IN dBA (1978)
50 FEET FROM CANE HAUL ROAD

LOCATIONS										
S13-A		S-5		S-15		S-6		Station 5	
L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}
64	74	72	76	73	81	82	75	64	71

TABLE II-10*

1998 HOURLY TRAFFIC VOLUME AND NOISE LEVEL @ 55 MPH
H-1 FREEWAY-EAST KUNIA ROAD

TIME	No. of Auto	No. of Truck	Total No.	Total L_{50}	Total L_{10}
07-08	4946	163	5109	71.9	78.7
08-09	3440	221	3661	71.7	79.0
09-10	2988	281	3269	72.2	78.7
10-11	2638	224	2862	71.1	77.8
11-12	2528	189	2717	70.3	77.9
12-13	2583	215	2798	71.0	78.4
13-14	2916	234	3150	71.4	78.8
14-15	3308	251	3559	72.0	79.1
15-16	5557	145	5702	72.1	77.7
16-17	5448	28	5476	71.3	73.9
17-18	4074	17	4091	70.2	73.1
18-19	3368	25	3393	69.3	72.5
19-20	2155	30	2185	67.4	71.6
20-21	1693	28	1721	66.0	70.6
21-22	1569	26	1595	65.9	70.5
22-23	1397	17	1414	65.5	69.9
23-24	973	19	992	63.9	69.3
24-01	563	9	572	61.2	67.6
01-02	257	2	259	55.2	64.2
02-03	238	4	242	54.8	64.2
03-04	198	0	198	53.2	63.3
04-05	495	9	504	60.3	67.1
05-06	3061	36	3097	68.8	72.5
06-07	5776	117	5893	72.3	77.0

*Noise Study of Village Park, Kunia and H-1 Freeway, by
Iwao Miyake, Accoustical Consultant, Honolulu, HI May 1978

TABLE II-11*

1998 PREDICTED HOURLY NOISE LEVEL @ 55 MPH
H-1 FREEWAY-EAST OF KUNIA ROAD

TIME	Noise Level @ 100 Feet					
	AUTO		TRUCK		TOTAL	
	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}
07-08	70.7	73.2	65.6	77.2	71.9	78.7
08-09	69.2	72.1	67.9	78.0	71.7	79.0
09-10	68.5	68.5	69.6	78.2	72.2	78.7
10-11	68.0	71.2	68.1	76.7	71.1	77.8
11-12	67.8	71.1	66.6	76.8	70.3	77.9
12-13	68.0	71.2	67.8	77.5	71.0	78.4
13-14	68.4	71.5	68.4	77.9	71.4	78.8
14-15	69.0	71.9	69.0	78.2	72.0	79.1
15-16	71.2	73.6	64.5	75.6	72.1	77.7
16-17	71.1	73.5	50.1	63.1	71.3	73.9
17-18	70.0	72.7	48.5	61.5	70.2	73.1
18-19	69.1	72.0	49.3	62.3	69.3	72.5
19-20	67.2	70.7	50.9	63.9	67.4	71.6
20-21	65.8	69.7	50.1	63.4	66.0	70.6
21-22	65.7	69.8	49.6	62.6	65.9	70.5
22-23	65.3	69.5	46.0	59.0	65.5	69.9
23-24	63.7	68.7	47.0	60.0	63.9	69.3
24-01	61.0	67.4	40.5	53.5	61.2	67.6
01-02	55.0	64.0	27.5	40.5	55.2	64.2
02-03	54.6	64.0	33.5	46.5	54.8	64.2
03-04	53.2	63.3	0	0	53.2	63.3
04-05	60.1	66.9	40.5	53.5	60.3	67.1
05-06	68.6	71.6	52.4	65.4	68.8	72.5
06-07	71.8	74.2	62.3	74.0	72.3	77.0

Daytime (7:00 a.m. - 10:00 p.m.) Avg. L_{50} - 70.3 dBA
L_{10} - 75.9 dBA

Night-Time (10:00 p.m. - 7:00 a.m.) Avg. L_{50} - 61.7 dBA
L_{10} - 68.3 dBA

*Noise Study of Village Park, Kunia and H-1 Freeway, by Iwao Miyake, Accoustical Consultant, Honolulu, HI May 1978

TABLE II-*12**

AVERAGE NOISE LEVELS IN dBA
CONTRIBUTED BY H-1 FREEWAY IN 1998,
AT VARIOUS STATIONS

TIME	STATIONS											
	S-5		S-6		S-15		S-13		S-10A		S-10B	
	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}
7:00 a.m. – 10:00 p.m.	60.6	66.2	57.3	62.9	61.5	67.2	51.0	56.8	55.8	61.4	56.9	62.3
10:00 p.m. – 7:00 a.m.	52.0	58.6	48.7	55.3	53.0	59.6	42.7	49.0	47.2	53.8	48.1	55.9

TABLE II-*13**

AVERAGE NOISE LEVEL IN dBA
CONTRIBUTED BY H-1 FREEWAY IN 1998
50 FEET FROM CANE HAUL ROAD

Time	S-5		S-6		S-15		S-13		#5		#6	
	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}
7:00 a.m. – 10:00 p.m.	70.3	75.9	72.5	78.1	71.0	76.7	51.8	57.6	67.0	72.6	56.9	62.3
10:00 p.m. – 7:00 a.m.	61.7	68.3	63.9	70.5	62.5	69.1	43.5	49.8	58.0	65.0	50.3	55.7

*Noise Study of Village Park, Kunia and H-1 Freeway, by
Iwao Miyake, Accoustical Consultant, Honolulu HI May 1978

Energy

INTRODUCTION

This analysis examines: (1) the available energy sources for the proposed project, (2) an estimate of energy requirements based on residential units and projected population including estimates for the 4.5 acre commercial area, school and parks, (3) impact of the project on power sources and four mitigative measures.

Power Sources

The Hawaiian Electric Company (HECO) has an extensive capacity to supply the electrical energy requirements for the project. HECO currently has a generating capacity of 1,210,000 kilowatts, with its capacity increasing up to approximately 1,400,000 kilowatts by 1985. The energy requirements of the project will be fed from a power pool supported by the three generating plants located in downtown Honolulu, Waiau, and Kahe.

An existing overhead power line passes through the project along its south boundary and will remain to provide power. A substation will be required after approximately one-half of the project is built. This substation will need 10,000 to 15,000 square feet of land to accommodate the necessary equipment and facilities. The proposed location of the substation is along Kunia Road adjacent to and north of the project.

Energy Requirements of the Project

The estimated electrical power demand for the project is as follows:

PROJECTED DAILY POWER CONSUMPTION

Land Use	Power Requirement Per Unit/Day	Total Daily Requirement
Residential	400 Kilowatts (1745 units)	6,980 Kilowatts
School	300	300
Parks	100	100
Commercial	500	500
		7,880

Based on the total energy requirements of the project, the increased demand is difficult to measure. For if the project was not built here, the energy requirement in 1985 for the same population distributed elsewhere on Oahu would be the same. The intensity of development

and its location would offer many variables; however, the net result would be the same. Thus, there would be no significant increase in power requirements for Oahu as a result of implementing the project at this point in time.

In any case, the energy requirements of the project compared to the existing capacity of Hawaiian Electric Company and HECO's projected capacity by 1985 is estimated as follows:

- *The total daily power requirements of 7,880 kilowatts for the project compared to a total daily output of 1,210,000 kilowatts by Hawaiian Electric represents .57% of the total energy produced for Oahu.*

- *As mentioned above, the Hawaiian Electric Company is expected to increase its output capacity to 1,400,000 kilowatts within the next six years. When this happens, the project's percentage of the total energy produced for Oahu will drop to .498%.*

IMPACTS

- *There will be short-term impacts during excavation and placement of underground electrical lines and transformers within the project and along Kunia Road on the west boundary. This activity will be difficult to identify during the construction phase, since other construction activities will be carried on at the same time.*
- *A long-term impact will come from the 46 KV power transmission line, together with Oahu Sugar's electrical line, along the south and west boundaries of the project. These lines will interrupt view planes of the Pearl Harbor and Waianae areas from residential units located north and east of the power lines.*

MITIGATIVE MEASURES

- *As a result of rising oil costs, more consideration is being given to coal as a partial substitute in the production of energy for Oahu. However, the U.S. Department of Energy gave the Hawaiian Electric Company an exemption for not converting to coal up until 1980. The question of converting to coal will then be re-examined after 1980. Coal may save oil but, at the same time, will contribute to air pollution.*

- *Other new sources of energy are being investigated and may be employed in the future. However, it appears that no energy-generating sources other than oil and coal will be feasible for Oahu in the near future. Atomic energy would not be cost-effective in Hawaii at this time. This is because the demand of the geographical area served would not be large enough to warrant the construction of an atomic reactor. Geothermal energy is being investigated along with wind and solar energy. Of these, the latter appears to have the greatest potential, especially on a small scale. When inexpensive solar collectors can be*

mass-produced and installed in single-family homes, an estimated 30% reduction in electric consumption may occur. Public awareness, cost factors, and availability of approved solar systems will generate demand for this energy source, especially for new homes.

- Mitigation for the long-term problem of rising energy costs and decreasing energy resources lies in the public's implementation of known, and the development of new, conservation measures.

- More immediate energy conservation measures may be applied through imaginative building design (i.e., proper insulation, correct orientation of buildings in relation to sun and wind, efficient, lighting systems, and built-in energy-saving features for appliances).

Water Supply

INTRODUCTION

The following review of water supply covers the environmental concerns that relate to:

(1) The water demand of the proposed project,

(2) A description of the water source, storage facilities and distribution systems,

(3) The impact of the estimated water demand by the project on the existing and proposed water sources, storage facilities and delivery system, and

(4) Mitigative measures.

Estimated Water Demand of the Project

The total equivalent population of the project is estimated at 6540 persons for 1745 dwelling units on the 316 acre site. The average water consumption of the project is estimated at 1.01 million gallons per day (mgd) assuming an average water use of 150 gallons per capita per day (gcpd).*

Existing Water Distribution System

Water service will be provided to the project by the BWS from an existing 12 inch water main located in the western end of the project. This main presently extends southerly under the H-1 Freeway and serves 324 housing units-6-A, 6-B and 7 in the Harbor View development which have an estimated water consumption of 0.13 mgd. The total

*Based on a net water meter use study by the City and County Board of Water Supply.

above Harbor View units and Village Park is estimated at 1.14 mgd. The 12 inch main is served from a 16 inch diameter cast iron water main. This 16 inch main connects to the Kunia 440 Reservoir, built in 1970 on the east side of Kunia Road approximately 4,000 feet north of Village Park. Detailed design plans of the proposed water distribution system for the project are not available. These plans should include mains with a minimum diameter of eight inches with the mains located throughout the project in dedicated easements and maintained by the BWS.

The Kunia 440 Reservoir has a spillway elevation of 440 feet and a floor elevation of 420 feet. 34/ It has a storage capacity of 1.5 million gallons and is planned to supply a maximum elevation in the service area of 340 feet. Since the maximum elevation of the project is 310 feet, the reservoir will provide adequate pressure to Village Park.

Existing Water Supply Facilities

The project is shown in Service Area 7B on the BWS 2020 Plan of February 1971. 34/ Service Area 7B covers 76 square miles. The de facto civilian population in 1970 was 47,300 (after a ten-year period of rapid growth averaging 7.4% per annum increase), much of which was caused by residential subdivision development in Waipahu. The BWS in 1970 distributed an average of 8.4 mgd of water supply to this service area of which 2.6 mgd went to the Standard Oil Company at Campbell Industrial Park. 3/

The primary sources for these areas are Kunia Wells I and II, Waipahu Wells, and Hoaeae Wells. These wells supply the requirements for the entire region, with the Kunia and Hoaeae Wells also exporting water to service Area 7A. Expansion of the Waipahu and Hoaeae Wells from two to four deep, in addition to the recent completion of Kunia Wells II, has added to the total production capacity of the area, which is presently under rapid urbanization. Kunia Wells II serves the new subdivisions along Kunia Road south of the H-1 Freeway with two wells having a sustainable capacity of 2.5 mgd and will serve Village Park.

The BWS records for water consumption in 1977, along with a map of Oahu's Water Use Districts, indicate a change in boundary lines since release of February 1971 2020 Plan. The eight service areas are consolidated into six Water Use Districts, and the project now appears to be in the Pearl Harbor District, as are Kunia Wells II and Kunia 440 Reservoir.

The 1976-1977 records show for the Pearl Harbor District a total 12 month average draft of 68 mgd from the 17 well sources, and the two shaft sources, of which 0.30 mgd was supplied by the Kunia Wells II. The long term allowable BWS draft for the Pearl Harbor District was reported to total 72 mgd from the system, of which 2.5 mgd could come from Kunia Wells II.

Water Service Facilities

Storage and Pressure Conditions

The Kunia Reservoir located at an elevation of 440 feet is planned to supply a maximum elevation in the service zone of 340 feet. The maximum elevation of the project site is 310 feet. Minimum water pressure conditions are expected to be satisfactory in the project site.

Water Well Supplies and Storage

The existing two Kunia wells are reported to have production rates of 1,750 gallons per minute (gpm) for each well. The existing Kunia 440 Reservoir has a capacity of 1.5 million gallons (mg). These facilities presently provide service to 324 units existing in the Harbor View development south of the H-1 Freeway. With Village Park, the total water demand is estimated to be 1.14 mgd. With the two existing wells, the storage capacity required is 0.66 mg to serve both the existing portion of Harbor View Units 6-A, 6-B and 7, along with the Village Park project. The reservoir capacity required is 0.873 mg, less than the 1.5 mg existing in the Kunia 440 Reservoir. 36/

This indicates the existing two Kunia II water wells and Kunia 440 Reservoir are expected to provide adequate capacity for development of Village Park, with reserve capacity for future development.

Quality of Water Supply to the Project

The BWS provides domestic water supply under permit from the State Department of Health, with the latter routinely monitoring the quality of water supplied. Chemical and bacteriological qualities of the water supply from the Kunia II wells by BWS meets State Department of Health and United States Public Health Service Drinking Water Standards.

IMPACTS

- *Water demand of the project is 1.01 mgd, or 40% of the 2.5 mgd total pumping capacity of the two Kunia II wells.*

- *The water demand of Village Park could be a significant long-term negative impact on the pumping capacity of the Kunia II wells. The water demand will remove from availability the 1.01 mgd of water supply to other future development in this service area. Conversely, the availability of unused groundwater supplies in existing BWS water wells, and its planned effective utilization for domestic purposes in Village Park as approved by BWS and City and County of Honolulu, would be considered a positive impact in the planning process for orderly development of the area.*

- *The 0.873 mg reservoir capacity required by the development is 58% of the 1.5 mg capacity available in the Kunia 440 Reservoir. This requirement could be considered a significant long-term negative impact on reservoir capacity. This requirement could also be a positive impact in that it plans effective utilization of an available existing resource and fills a demand for service required in proposed development approved by the City and County.*

- *The project's estimated water demand of 1.01 mgd is 40% of the 2.5 mgd sustainable capacity of the two existing Kunia II wells and could be considered a significant long-term negative impact on these two wells.*

- *The project's estimated water demand of 1.01 mgd constitutes 6.6% of the total 15.27 mgd recorded in 1977 from the Pearl Harbor District 12 month average draft. This 15.27 mgd came from the 12 well systems and the Pearl City Shaft water supply. The 1.01 mgd demand is 2.3% of the long-term allowable BWS draft for the Pearl Harbor District of 43.25 mgd and constitutes a minor long-term negative impact on the draft for the Pearl Harbor District where the project is located.*

- *Construction activities can cause temporary impacts to any occupied homes close to the water supply facilities under construction.*

- *Removal of sugarcane fields from irrigation by construction of Village Park may considerably reduce net water use in the area. This reduction would be a long-term positive impact on the total water resources of the area; the difference being the replacement of surface water supply consumption with a lower groundwater consumption.*

- *A positive long-term impact can be expected from the 1,800 additional dwelling units sharing in the costs of maintenance of the water system operated by the BWS and the extension of water service to this planned community.*

- *The project would not cause a long-term negative impact on the environment because Village Park could be adequately served from existing water supply and storage facilities planned and constructed by the Board of Water Supply. Additional water mains and a distribution system required to serve Village Park would be a minor short-term impact on the environment during construction periods.*

- *The existing ground level water storage tanks in the southwest corner of the project may have a minor long-term negative impact from an aesthetic viewpoint.*

MITIGATIVE MEASURES

- *Consider reuse of the secondary treated effluent from the proposed Honouliuli Wastewater Treatment Plant for sugarcane irrigation under proper conditions.*

- *Construction of facilities on project site must comply with Board of Water Supply Standards prior to acceptance by the City and County for maintenance.*

- *Painting and decorative screening should be provided for the existing water storage tanks and facilities located at the southwest corner of the project.*

- *Continued monitoring of water quality by the State Health Department to assure compliance with Federal and State water quality standards.*

Solid Wastes

INTRODUCTION

The following review of solid wastes covers the environmental concerns that relate to:

(1) The volume of solid wastes generated by the project.

(2) A description of the existing and proposed disposal facilities.

(3) Collection system.

(4) The impact of solid wastes generated by the project on the collection systems and disposal facilities.

(5) Mitigative measures.

Solid Wastes Generated by the Project

The Village Park Development is estimated to generate an average of 12.9 tons of solid wastes per day, assuming a total equivalent population of 6540 persons, and 4 lbs. per day of solid wastes per capita. 39/

The equivalent population of 6540 persons on the 316-acre site is estimated from approximately 1745 dwelling units of single family and condominium units, a neighborhood shopping center, and one school-park complex.

The 4 lbs. per capita per day of solid wastes is the result of reducing the total of 7.8 lbs. per capita per day cited in a waste management study for all of Oahu. 39/ This reduction of an estimated 3.8 lbs. per capita per day is a prediction of demolition and wood wastes not expected at Village Park.

Existing Solid Waste Facilities

Collection of Solid Wastes

The sponsor proposes refuse collection by a private collectors for the condominium units, and City & County refuse collection for the single family units. Collection would be made by the private collector from 3 cubic yard refuse containers at condominium and shopping center areas. Collection equipment will include the use of 20 cubic yard compactor trucks, usually front loader types. City & County equipment would then be used for the single family areas.

Disposal Sites for Solid Wastes

Palailai Sanitary Land Fill

Because of the acute shortage of city-owned disposal sites, the City and County of Honolulu is encouraging private collectors serving the Village Park area to use the Palailai Sanitary Landfill site located near Makakilo City. The landfill is approximately 3 miles west of Village Park on the north side of the H-1 Freeway. This landfill is the only private disposal site on Oahu. Palailai is a former rock quarry being restored by Pacific Rock and Concrete Co., Ltd., under a 30-year lease agreement with the landowner, Campbell Estate; however, the agreement had expired on December 1978. A renewable five year Conditional Use Permit was granted April 1973 by the City and County to Pacific Rock and Concrete to operate the site as a sanitary landfill. The permit may be renewed for another five years.

An Environmental Impact Statement completed in July 1972 for restoration of the Palailai Quarried Site by Sanitary Landfill Methods was approved by Honolulu. 40/

The Palailai site was opened in January 1974 as a sanitary landfill by Pacific Rock and Concrete. The City and County of Honolulu used either the Palailai disposal site when the Waipahu incinerator was closed for repairs, or the Kapaa landfill site, which couldn't accommodate transfer trailers.

Both the City and County and private collectors are charged $5.98 per ton to dispose of refuse into the Palailai disposal site.

The disposal site is 90 feet deep and covers 29 acres. It has a capacity estimated at 3,300,000 cubic yards and could continue operations for 10 to 15 years depending on usage, recycling practices adopted, and amount of diversion from incinerators. 40/ In 1975, Palailai was handling 250 tons of refuse per day, and had an estimated life of 15 years. However, it could handle up to 600 tons per day in the future. The total rock quarry and disposal area is 118.3 acres.

Pacific Rock & Concrete is developing another quarry about one-half mile west of the present site. Until this other site is developed, Pacific plans to quarry for rock material at Palailai while operating the landfill.

Kapaa Sanitary Landfill

It is estimated that 55% of all solid wastes collected on Oahu goes to the only city-owned major landfill located on the windward side of the Kapaa landfill. This site is expected to be filled by April 1979. Most of the remaining solid wastes are handled at the City & County's Waipahu incinerator.

Three additional sanitary landfill sites adjacent to Kapaa are under investigation through an EIS that would extend operations at Kapaa for an additional 10-year period. However, if one of the sites is determined unacceptable from an environmental standpoint, operators at the Kapaa landfill would only continue for another 5 years.

Other Sanitary Landfill Sites on Oahu

Wahiawa refuse is being diverted to the Waialua landfill, while the Waianae landfill is presently not capable of handling the large volumes of refuse generated in the Pearl City and Ewa refuse districts.

In 1974, 120 tons of refuse was hauled per day at the Kewalo Transfer Station. Since the Kapaa landfill was not able to accommodate long transfer trailers, refuse was hauled 26 miles further to the Waianae landfill rather than disposing wastes into the Palailai landfill.

Incineration

The Waipahu incinerator was built in 1970 to handle 600 tons of refuse per day. By 1974, this incinerator was only handling 300 tons per day until major repairs were made. Repairs are now complete increasing the incinerator's capacity to 500 tons per day.

Collection and Disposal

The sponsor proposes to have private collectors provide service to the 310 condominium units, while the remaining single family units will be serviced by the City & County of Honolulu.

The use of private collection service for the condominium units is a City & County requirement calling for convenient vehicle access and compliance with street standards.

Acceptability of Disposal of Solid Wastes to Regulatory Agencies

The private collector for the condominium units will be licensed by the City & County, Department of Finance, Division of Licenses. In the case of the collector using the Palailai disposal site, it is operating under a Conditional Use Permit issued by the City Council. The State Health Department monitors the disposal site by issuance of a permit to operate a Solid Waste Disposal Facility in accordance with Chapter 46, Solid Waste Management Control, State of Hawaii. The private collector will also be required to comply with other governmental regulations including a PUC license for operating heavy duty vehicles on public roadways.

An Environmental Impact Statement for restoration of the Quarried Site by Sanitary Landfill Methods was approved by the City and County. The EIS concluded that water supplies used for domestic purposes would not be contaminated by landfill operations, provided that recommended measures were used. 40/

Future Plans for Disposal of Solid Wastes

There is an acute shortage of City and County-owned sites available for disposal of solid wastes. Three sanitary landfill sites are being considered in the leeward area.

(1) Kaloi Gulch, approximately 2 miles west of Village Park, on the north side of the H-1 freeway.

(2) Makaiwa Gulch, approximately 3 miles west of Makakilo.

(3) Nanakuli, 7 miles west of the project.

The anticipated life span of these potential sites are 50, 30 and 27 years respectively, based on a disposal rate of 500 tons per day. The selection and development of one of these sites should be

available by 1981, when the first Village Park units will be occupied.

The privately owned and operated Palailai disposal site is operating at 250 tons per day. It has a future capacity for receiving 600 tons of solid wastes per day, approximately 20% of the total refuse of Oahu and should operate from 10 to 15 years.

A study completed in 1975 indicated that it would be feasible to generate power from the solid wastes on Oahu. The initial capacity would be 2000 tons per day, with provisions for expansion to 3000 and 4000 tons per day by the year 2000. No excess capacity would be designed in the first phase of the facility. The Waipahu incinerator would be maintained to handle the excess solid wastes. 41/

IMPACTS

The 12.9 tons per day of solid wastes from the project will be collected by both private and public systems. The impacts on these systems are considered separately as follows:

Disposal by Private Collectors

The condominium units will generate approximately 2.2 tons of refuse per day. This refuse will be disposed of in the Palailai landfill. This disposal rate represents .88% of the 250 tons per day loading of the site, or .37% of the 600 tons per day of the privately owned landfill site. The impact on the private collection system and disposal is considered a minor, long-term negative impact.

Disposal by City and County Refuse Division

The single family units will generate approximately 10.76 tons per day, to be disposed at the Waipahu incinerator as its capacity permits. The remaining refuse will be disposed in a sanitary landfill in the leeward area, to be available by 1979.

The impact of solid waste disposal on the incinerator and/or the sanitary landfill site will be dependent upon the disposal rate at the incinerator and the daily loading capacity of the selected sanitary landfill. In either case, the daily solid waste disposal will not exceed 2.15% of the 500 tons per day loading capacity of the Waipahu incinerator, or the selected sanitary landfill, based on 100% disposal of refuse from the project. In either case, it is a relatively minor, long-term negative impact.

The 12.9 ton solid waste per day from the project amounts to 1.26% of the 1,026 tons of solid waste per day on Oahu in 1970, excluding demolition wastes. This is a minor, long-term negative impact on the total refuse disposal facilities the City and County of Honolulu must plan for.

There is a change expected in the composition of solid wastes handled from this project site. Presently, harvested sugarcane is hauled from the site in large cane haul trucks to the refinery. Development

of the project will result in refuse trucks hauling 13.5 tons per day of solid wastes from the project to the Palailai disposal site, the Waipahu incinerator, and a sanitary landfill disposal site

A net change in traffic patterns will result in:

- *A minor, long-term impact on the public street system between the project site and the Waipahu incinerator.*

- *A minor, long-term impact on the H-1 Freeway between the project site and the Palailai sanitary landfill site in addition to one of the sanitary landfill sites to be selected by the City and County. These sites are located 2 - 7 miles west of the project site, and are on the north side of the freeway.*

- *A minor, long-term positive impact in terms of less noise from cane haul trucks since sugarcane cultivation will be terminated from this 316-acre field.*

A significant, negative impact on refuse disposal facilities could result if new disposal sites are not developed:

- *On one of the sites under consideration by the City (Kaloi Gulch, Makaiwa Gulch, or Nanakuli), or*

- *If the waste heat recovery from refuse for a power generation plant is not constructed.*

MITIGATIVE MEASURES

- *The development of additional area at Palailai disposal site by Pacific Rock and Concrete would extend the life of the site and mitigate the long-term impact of the 2.22 tons per day of solid wastes from the Village Park condominiums.*

- *The development of either additional incinerator capacity at the Waipahu incinerator, the construction of a plant using refuse for power generation, or the acquisition of new sanitary landfill disposal sites by the City and County will be required after Palailai's disposal capacity has been reached.*

- *The private collection proposed by the developer for the condominium units will reduce the potential adverse impact on the City and County refuse collection facilities and disposal sites. This collection service, however, could possibly cost the property owners more in higher rates.*

Liquid Waste

INTRODUCTION

The following review of liquid wastes covers the environmental concerns that relate to: (1) sewage flow generated by the project, (2) a description of the existing and proposed sewerage system facilities, (3) the impact of the project's projected sewage flow on the existing and proposed sewerage system and (4) mitigative measures.

Project Sewage Flows

The development of Village Park is expected to generate a total of 0.68 million gallons per day (mgd) of sewage flow. This flow would come from a total equivalent population of 6540 persons assuming an average sewage flow of 100 gallons per capita per day. 37/

The equivalent population of 6540 persons is estimated from a total of 1745 dwelling units of single family homes and condominium units, plus a neighborhood shopping center and one school-park complex on Village Park's 316-acre site.

Description of Sewerage System

The Project

The land use plan shows gravity sewers collecting sewage from the development, discharging the sewage through two main collector sewers under the H-1 Freeway and finally into the City and County of Honolulu sewerage system. An existing 12-inch city sewer has been installed under the H-1 and will serve the western part of the development. A proposed 18-inch sewer will have to be installed under the H-1 in the Cane Haul Road underpass. This 18-inch sewer will connect into into the city system in Harbor View Development, and serve the eastern part of Village Park.

Capacity of City Sewage Collection System

The City Public Works Department verified that the downstream city sewer collection system and pump station have the capacity to serve the project from the 12- and 18-inch trunk sewers. The sewage will flow by gravity through Harbor View to the Kunia Pump Station, where an 18-inch force main discharges the sewage into a 30-inch interceptor flowing to the Waipahu Pump Station. The sewage will then flow to the Waipahu sewage treatment stabilization ponds located on Waipahu peninsula. 37/

Capacity of the Waipahu City Sewage Treatment Plant

This treatment plant has a maximum capacity of 3.6 mgd equivalent flow of sewage. This capacity is based on total suspended solids and biochemical oxygen demand (BOD) in its discharge to Pearl Harbor's Middle Loch.

The State Health Department has limited future sewer connections to the sewage plant to a maximum equivalent sewage flow from the plant of 3.6 mgd. In 1973, the City Public Works Department reserved capacity in the existing plant for future sewer service. This reserve capacity was planned to serve the first four phases of Village park comprising 716 dwelling units with a sewage flow of 0.286 mgd. Since 1973, the site planning concept changed from a high intensity development with 3300 units in town house and condominium units, to the current proposal of 1435 single family and 310 condominium units. The change reduced the reserve capacity in the Waipahu Sewage Treatment Plant to approximately 450-500 unit, or an equivalent sewage flow of 0.18 to 0.20 mgd.

After Phase 4, no further building permits will be issued in Village Park without the approval of the State Health Department until the proposed Honouliuli sewage treatment plant is completed in 1981.

Plans for Expansion of City Sewage Treatment Plant Capacity

The City and County of Honolulu has applied for Federal EPA grants to finance planning and design of a new sewerage system for the West Mamala Bay area. This system will make wastewater discharges meet water quality standards established by the state and approved by EPA as Federal Standards.

Construction of the 25 mgd capacity Honouliuli WWTP will replace the existing 3.6 mgd. Waipahu Treatment Plant with a 7 mgd capacity Waipahu sewage pumping station (SPS) and a new force main to the Honouliuli WWTP. The treated sewage will then be discharged into the ocean by deep water outfall off Barbers Point.

In constructing Increment II, the treatment at the Honouliuli Plant will be upgraded in quality to primary treatment after 1981. If EPA requires upgrading to secondary treatment, EPA will provide grant funds for 75% of construction costs with 10% state and 15% City & County matching funds.

The project de facto population to be served by the Honouliuli sewerage system was 132,000 in 1970 and is now expected to increase to 226,800 in the year 2000.

IMPACTS

- *Construction of Village Park will have a significant negative impact on the existing Waipahu City sewage plant capacity. The project will help load the plant to capacity after its first 450-500 dwelling units are provided sewer service. Sewage flow from these first units is estimated up to 0.2 mgd. or 5.5% of the total Waipahu plant capacity. It is significant in that it could increase plant loading from 94 to 100% and decrease remaining capacity from 8% to zero.*

- *Construction of the project removes the remaining available capacity in the Waipahu sewage plant for other developers who would like to be provided sewer service within the period of 1978 to 1981 before the new Honouliuli sewage plant is constructed.*

- *The negative impact on the existing Waipahu sewage plant will exist for the period 1978 until 1981 a significant, short-term, negative impact.*

- *Construction of the project will have a minor, long-term, negative impact on the city sewage treatment facilities after the new Honouliuli sewage plant is completed in 1981, when sewage from the project is estimated to be 0.3 mgd or 1.2% of the 25 mgd capacity of the plant. After 1981, the project sewage will increase from 0.3 to 0.68 mgd or 2.7% of the 25 mgd Honouliuli sewage plant capacity when Village Park is completed.*

- *This 2.7 mgd of the Honouliuli sewage plant capacity will be a major long-term, negative impact on the plant until 25 mgd capacity is expanded.*

- *A positive long-term impact could also come with the construction of the development when owners of the 1745 additional dwelling units will contribute to the Oahu tax base as part of the City and County's share of the new sewage plant construction.*

- *This long-term, negative impact would be mitigated by the additional tax revenues generated from the 1745 new property owners in the project.*

- *Additional pumping costs can be expected from pumping the sewage generated by Village Park from the Kunia Sewage Pump Station (SPS) to the Waipahu SPS and to the Waipahu sewage plant, and after 1981, to the Honouliuli WWTP.*

- *Minor short-term negative impacts on the environment can be expected during construction of the project sewer lines and trunk sewers to Waipahu under H-1.*

- *The installation of a new sewerage system to serve this development on land not previously sewered removes future options for other non-sewered land uses in the area which might not require a sewer system, a possible long-term, negative impact on the environment.*

- *Provision of a public sewer system into the area also provides for orderly development and adequate sewer service to new property owners, a long-term positive impact.*

MITIGATIVE MEASURES

- *Construction of Village Park should be planned so that no more than 450-500 dwelling units (planned in the first four phases) should be connected to the existing Waipahu sewage treatment plant. When more than 500 dwelling units are to be served, it should be determined that the city will provide assurance of sewer service. Capacity is then available by the Kunia and Waipahu SPS into the new Honouliuli WWTP for the remainder of the development.*

- *Delay building the project until Honouliuli sewage plant is constructed to allow for the remaining capacity in Waipahu sewage plant to either remain not used or become available for other development.*

- *Construction of sewerage facilities to service the project should comply with design standards established by the Department of Public Works, to assure acceptance and continued maintenance of the facilities by the City and County of Honolulu.*

Economic and Housing Market

INTRODUCTION

This analysis concerns the potential demographic, housing, and employment impacts that would result from development of the project. Considerations herein include: (1) current and projected housing and population characteristics within the project; (2) prices of proposed units relative to the housing market; (3) employment potential, and (4) cost of public services.

Concerns that surfaced in this review include: (1) potential of overbuilding in the Ewa housing market area (HMA) unless the housing industry and local authorities monitor the production of housing in the HMA, and (2) pricing 84 percent of housing units in the project for higher income family could result in a market sales problem.

The severity of these concerns will depend upon the action taken by developers and their scheduling of construction in other Ewa HMA subdivisions. Developers will try to satisfy the needs of potential homebuyers within the Honolulu SMSA relative to the homebuyers' income capability.

For an overview of the Honolulu SMSA and the Ewa HMA, refer to Appendix 1, incorporated and made a part of this review. The project is situated in Census Tract 89.02, a part of the Ewa HMA in Leeward and Central Oahu. The Ewa HMA is a part of the Honolulu SMSA. According to the 1970 census, census tract 89.02 had a population of 4,420 persons and year-round available housing of 1.141 units. The population and housing units were situated primarily in the Mililani Town and Waipio Acres subdivisions in Central Oahu, about 5 miles north of the project site. The population and housing units in the Mililani and Waipio areas increased to approximately twice the 1970 census figures. Immediately south and east of the project site, across the H-1 freeway, is Waipahu town.

Village Park is one of several projects planned for the Ewa HMA, situated on 316.4 acres of leasehold land at the northeasterly quadrant of the H-1 freeway and Kunia Road intersection is approximately 15 miles northwest of downtown Honolulu. Preliminary development plans call for construction of 1745 housing units including 1435 single family dwelling units and 310 condominium units, all to be constructed over a six-year period starting in 1979.

The current Oahu General Plan adopted by the Honolulu City Council on January 18, 1977, encourages the development of housing, resort facilities, commercial, and light industrial activities in the Ewa area as a secondary urban center. Village Park is consistent with

the objectives and policies of the General Plan, since the project is located in the Ewa HMA targeted for further development and growth.

Census tracts 73 to 89.03, which make up the Ewa HMA, are conterminous with Tax Key Zone 9 and the Ewa Judicial District. The Ewa market area exhibits natural growth potential since it had the highest percentage growth rate of all market areas on Oahu between 1960 and 1970. The growth rate slackened between 1970 and 1976, a result of the decline in the State's economy during 1973 and 1974. There is a higher occupancy of persons per household and a lower median age of the population, indicating that the area has a large percentage of families with children. Until recent years, the Ewa HMA had a high percentage of housing that consisted of detached single family owner-occupied units. Since 1970, there was a substantial increase in construction of multiple-family projects and some high-rise construction in the HMA including Waimalu-Pearl Ridge, Waipahu, Makakilo, Ewa Estates, and Mililani Town. According to the 1970 census, the Ewa HMA also had a lower percentage of substandard housing units with 8%, in comparison with Oahu as a whole with 10 percent.

Sales prices for the project's dwelling units are expected to attract families whose income levels are more similar to families currently residing at Mililani Town, than families residing at other localities in the HMA. The number of housing units proposed for the project could be absorbed by the population attracted to the Ewa HMA, if the population trend continues at the current growth rate. However, there are a number of subdivision proposals now under consideration by various developers that could place more than 21,000 housing units in the Ewa HMA during the next 10 years.

There could be 1200 units built in 1978, 1600 in 1979, 1800 in 1980, 2000 in 1981, and 2000 each year thereafter. Compared with historical building trends, this volume of production annually represents about 40 percent of the total number of building permits issued for the Honolulu SMSA between 1975-1977. While the level of housing production in the SMSA was consistent with the level of demand during the past several years, the development of the total number of units planned for the Ewa HMA could have an adverse impact upon the Ewa housing market, especially in view of the expected price ranges of housing units in the various subdivisions. The capacity for absorption of the proposed housing units should be considered by the developer, since housing units proposed for the various subdivisions in the HMA are being targeted for families in the income category beyond those of the moderate income family. Factors contributing to the absorption rate include the current level of unsold inventory of condominiums apartments and the existing rental units in the private sector that are, or will be, vacated. This is a result of the Department of Defense building 2700 housing units at the Aliamanu Military Housing project and 600 units at Schofield Barracks.

The present population within the project area is zero since there are no housing units at the site. The neighboring community of Waipahu, which the project would eventually become identified with, has a population of nearly 30,000 and 7500 housing units.

Estimated sales prices for the various housing types will range from $35,000 to $76,500 based upon current prices. The single family unit prices will range from $70,000 to $76,500, while the condominium units will range from $35,000 to $65,000. These prices were examined to determine what family income would be required to meet lenders' requirements and qualify for a long-term mortgage loan. From the 1977 median income of $19,100, as determined by the HUD Secretary, HUD staff determined that only 18% or the 310 condominium units will be affordable by the moderate income families whose incomes are in the $15,000 to $23,000 range. The remaining 82 percent would be affordable only by higher income families. The qualifying income to purchase the project's various housing types was compared with income characteristics of families residing at Crestview/Seavuew, Mililani, the Ewa District, and the Honolulu SMSA. The profile reflected a higher median income that was found at Mililani Town, where the highest median family income than was found at Mililani Town, where the highest median family income was found among those areas compared. This comparison was based on the assumption that housing prices would be equivalent to two and one-half times the annual family income.

The characteristics of family income were based on data from 1970 census and adjusted to the 1977 level determined by HUD for use in its housing assistance programs. The adjustment resulted in a 1977 median family income of $21,700 for Mililani, $19,100 for the Honolulu SMSA, $18,600 for Crestview/Seaview, $17,600 for Makakilo, and $16,700 for the Ewa District. The price ranges of the various housing types indicate a potential for a total valuation of over $119,012,500 for the 1745 housing units proposed, an average per unit price of $68,200. Annual family income of $27,300 would be required to qualify for a maximum mortgage loan on a property valued at $68,200. Based upon 1977 family income computed by HUD, approximately 29 percent of the families in the Honolulu SMSA would have qualifying income to purchase $68,200 unit. This analysis excludes families who already own homes who may trade up by applying equity from the sale of a currently owned home. It also does not consider other funds which may be applied towards the reduction of a mortgage loan required to finance the purchase of a $68,200 home.

Families attracted to the project area for the most part will already be employed in other sectors of the SMSA. Creating

or securing jobs in or nearby the project would not be the prime motive for moving into the project. The project is basically residential in nature, except for a small area of 4.5 acres planned for a neighborhood commercial facility, a minimal potential for employment.

For a development the size of Village Park, it is assumed there is a demand for the consumption of goods and services. A potential of 270 retail sales and related job opportunities might be created after 1985 when all the housing units have been fully occupied. This estimate is shown in Table II-14. Retail sales volume in 1985 is based in terms of 1977 dollars and 1977 median family income for the project area.

TABLE II-14
FORECASTED LEVEL OF RETAIL SALES GENERATED
BY THE VILLAGE PARK PROJECT
(Constant 1977 Dollars)

Estimated 1985 Median Income (1977 Dollars)*	$ 26,000
Percent Expended for Retail Purchases**	42%
Retail Purchases per Family	10,920
Number of Households	1745
Total Local Retail Purchases	16,200,000
Estimated Sales per Square Foot	100
Square Feet of Space	162,000
Job Potential (600 sq. ft. per employee)	270

It should be noted that this forecast reflects only a potential for job opportunities in the retail sector. However, this brief analysis supports the general understanding that a neighborhood shopping center can be supported by a population of 5,000-40,000 people. 43/

* HUD EMAD estimate

** HUD EMAD estimated based on DPED publication 42/

As mentioned earlier, families attracted into the project will include many currently living within the Honolulu SMSA. These families will already be employed and have established shopping habits and patterns. Therefore, it is expected that major retail purchases would continue at established facilities such as the Pearl Ridge regional shopping center, Ala Moana regional shopping center, metropolitan Honolulu and Waipahu business districts.

There will be both short- and long-term impacts upon the economic environment resulting from development of the project. Short-term for the purpose of this review is defined as the period the project is under development, whereas long-term is defined as the period following completion and occupancy of the 1745 housing units.

There will not be any dislocation of housing or employment in the project area as a result of development, since a large portion of the land is currently vacant and productively inactive. Temporary construction employment will be created to build the infrastructures and housing units. Other service-related jobs will be created in the area of planning, development, administrative, marketing, and sales. Significant increase in the tax base of the project area can be expected, resulting from increase of income-earning families residing there. However, a large portion of this income would be a transfer from one area to another within the SMSA. The prime tax revenue, however, will be from real estate taxes generated as a result of the proposed development.

Assuming 100 percent owner-occupancy and current home exemption of $12,000 per home, the taxable value of the residential properties in the project would be approximately $50,460,000. Real property tax potential at a rate of $15.37 per $1,000 of taxable value would be approximately $775,000. Real property tax of $73,000 per year can also be anticipated from the 4.5 acre commercial site using an assessed rate of $15.37 per $1,000 of taxable value. The total income for real property taxes generated upon completion of the project is then estimated to be $848,000 based on 1977 dollars.

Additional local and state tax revenues, collectible from the residents at the project, could exceed $3,029,000. These revenues will be derived from:

1.	State Income Tax	$2,020,000
2.	General Excise Tax	679,000
3.	Auto Taxes	330,000
		$3,029,000

These tax revenues represent a transferral within the SMSA and may not contribute toward the expansion of the local tax base.

TABLE II-15
FORECAST OF COSTS TO LOCAL GOVERNMENT
TO PROVIDE SERVICES AND FACILITIES FOR
RESIDENTS OF VILLAGE PARK
(After 1985 - 1977 Constant Dollars)

Service or Facility	Capital Costs	Annual Operation Costs
Police Protection	$	$
15 officers @ $15,000 per year		225,000
Fire Protection (1)		
- Capital cost including land, building, and equipment	0 to 169,000	
- Annual operating cost including salaries, material, utilities and fuel		0 to 96,000
Education (2)		
- Land acquisition and building improvements for K-6 school	0 to 5,300,000	
- Bussing intermediate and high school from project to Waipahu Intermediate and Waipahu High School		74,000
- Teachers salaries at K-6, intermediate, and high schools for students residing in Village Park		526,500
Parks and Recreation (3)		
- Community Park, 10 acres	572,600	7,600 to 15,200
- Neighborhood Park, 5.2 acres	123,900	5,700 to 7,600
Refuse Collection		
- One crew of 3 men		72,000
TOTALS	$696,000 to 6,165,000	$838,800 to 957,600

(1) Existing fire station expected to provide protection through 1985 without additional improvements. The costs reflected under this service represent a pro rata share of the units in Village Park, compared to the projected units served by the Waipahu Fire Department, if a new station was to be developed after 1985 with a ladder and engine company.

(2) Construction of school is dependent upon assurance of 500-600 students in Village Park. If enrollment at Honowai Elementary School continues to decline and if there is 20-30% less students than the projected enrollment (570), the school will not be built.

(3) Site improvement costs by developer, land to be dedicated to City and County of Honolulu.

Fiscal impact upon local government as a result of implementing the project requires capital expenditures for community services, annual funding of operational costs and maintenance and upkeep of facilities and services. The initial cost for capital improvements for facilities and equipment is estimated to be $696,000 to $6,165,000. The annual operating costs for subsequent services is estimated at $838,800 to $957,000 summarized above in Table II-15.

Social Services/Community Facilities

INTRODUCTION

This analysis identifies the social services and community facilities impacted and created by development of the project. The state agencies for education, health, and public welfare will serve the requirements of the residents. City and County agencies will provide police and fire protection, transportation, and parks and recreation facilities. The location of these facilities and services are shown on Figure 17, Community Facilities/Municipal Services.

New social patterns of relationship will be developed within Village Park together with the communities of Gentry-Waipio, Crestview, and Seaview, as they will develop new relationships with the Waipahu urban center and surrounding communities. The primary concern will be the acceleration of impact on the various services as the project is developed and the pressure added to services, which, in some cases, are inadequate for present population demands. Both will have direct and indirect effects on land uses and population growth in adjacent areas

Police Protection

INTRODUCTION

The City and County Police Department will serve the residents of the proposed Village Park project. Present police facilities are located at substation in Pearl City on Waimano Home Road, Figure 17. Village Park residents will be part of the Waipahu police "beat" and could expect a nominal (4±minute) response time to calls. The average response time within the entire Waipahu District is 6.09 minutes. The existing crime rate in the immediate area is very low, consisting mainly of nuisance calls for dumping solid waste materials and related refuse, motorcycle noise, children and pet problems. There are no immediate plans for an additional police station facility in the area, according to the chief of the department.

IMPACTS

- The existing police force cannot provide adequate protection for the projected population of the project.

- An additional 13 uniformed officers will be required to service the project's population, based on a need of 2.1 officers per 1000 persons. 44/

- Additional police services may be required to accommodate the needs of the school, commercial area, park and open spaces, and traffic generated by the additional 2800 automobiles from the area.

- *The city's commitment to provide increased police services will require additional public expenditures for public facilities and salaries.*

MITIGATIVE MEASURES

- *Provide fencing, alarms, and other safety devices in park areas, open spaces, and commercial areas.*

- *Supplement public protective services with private services or community volunteer groups.*

Fire Protection

INTRODUCTION

The Village Park project receives fire protection from the City Fire Department. The proposed development site is currently served by a fire station located at 94-121 Leonui Street, Waipahu Industrial Park, Figure 17. This fire station houses an engine company of 18 personnel (6 per platoon), an aerial ladder company of 18 firefighting personnel (6 per platoon), and headquarters for a battalion chief and his aide. Although this fire station serves the entire Waipahu area and furnishes supportive services to Ewa-Makakilo and Ewa Beach, it is anticipated that this facility should be able to furnish adequate protection for Village Park at least during the early stage of development. 45/

IMPACTS

- *A population increase in the Waipahu area resulting from construction of Village Park, and development in other areas, will result in increased emergencies handled by the fire department.*

- *A new fire station will be required during the latter stages of Village Park's development. 45/*

- *The city will be committed to provide continued fire protective services. These services will require additional personnel, capital expenditures, and operating funds.*

MITIGATIVE MEASURES

- *Structures located within 500 feet at sugarcane, grass or open space should have a noncombustible or fire-resistant roof.*

- *The roadways serving the project should be properly designed, have properly spaced fire hydrants strategically located and a sufficient water supply with adequate pressure.*

- *The site selection and location of a new fire station should be carefully studied to prevent overlapping of services and to provide an efficient expansion of services to a growing community.*

Public Transportation Service

INTRODUCTION

The only access to the proposed project is Kunia Road, approximately one-quarter mile north of the H-1 interchange. Two routes of the city bus system serving Waipahu leave and enter the H-1 Freeway via Kunia interchange. One bus route consists of Makakilo route 50 at approximately one-hour intervals, while the other consists of Makaha route 51 at half-hour schedules. The frequency of trips on both runs are increased during the morning and evening hours. There is no plan in the near future to extend bus service northerly on Kunia Road from the H-1 interchange to or past the proposed project.

IMPACTS

- *As Village Park develops, public transportation demands will tend to impact the services of the city bus system.*

- *Effective utilization of the public transportation system will depend heavily upon convenience, frequency of service, availability of equipment, energy resources, and costs to residents.*

MITIGATIVE MEASURES

- *During the project's development stages, bus stops could be established at convenient locations at the Kunia interchange to test the potential for servicing the project.*

- *Provide express bus service from within the completed project to major destination areas to maximize efficient use of bus service.*

- *Should the fixed guideway transit system be the preferred transportation choice for Oahu, an express bus service to its nearest station could enhance the overall transportation system.*

Health Care/Social Services

INTRODUCTION

Health care for residents of Village Park is available at the Waipahu Clinic and the Punawai Clinic. The latter is a Kaiser Foundation clinic and as such offers specific local services with access to the larger Kaiser Medical Center. The Waipahu Clinic has a staff of

about 50, serving the basic health needs of residents from Waipahu to Waianae. The Waipahu clinic offers a variety of services such as physical, occupational, speech therapy, public health nursing, childrens health service, leprosy clinics, and complete mental health service. By 1985 the staff is expected to increase to 70, serving varied demands as well as the growing population in the area. The nearest hospital services for residents are available at Wahiawa General Hospital.

Services provided by governmental social services agencies in such categories as child care, adult assistance, and family services are available from the State Dept. od Social Services/Housing. In Waipahu, there is a welfare unit which offers only emergency financial aid for food, shelter, and utility payments. Other public resource groups, such as child and family service, and religious groups also offer various types of aid to those in need.

IMPACTS

- Build-out of the project will result in a long-term negative impact on existing health care facilities serving the community.
- Interim negative impacts will occur on adult, family and elderly health care capabilities of both clinics and the hospital.
- Long term, minor negative impacts on emergency services in terms of available service and distance from facilities that provide these services.
- A commitment to provide adequate health care and social services will require expenditure of public funds for new facilities, staffing and operating funds to maintain these services and facilities.

MITIGATIVE MEASURES

- New medical and social aid facilities and their staffing should be located and designed for cost effective use of public funds .

Educational Facilities

INTRODUCTION

The Waipahu educational complex, of which the proposed Village Park development would ultimately become a part, is under the state's Department of Education. In the present complex, grade levels K-6 are housed in three facilities: Ahrens, Honowai, and Waipahu. The intermediate school students, grades 7 and 8, attend Waipahu Intermediate and the feeder complex students (9-12) compose the

Waipahu High School. Honowai Elementary will serve (by bussing) the proposed Village Park development (estimated enrollment approximately 570, K-6 students) until a minimum of 500, K-6 students reside in Village Park. (Figure 17)

IMPACTS

It is anticipated that the Waipahu educational complex will require, through 1990, the construction of two elementary (K-6) schools. Many of the facilities at Waipahu Intermediate, grades 7 and 8, are old and replacement will become necessary. Waipahu High has 2,100 students and is operating at full capacity. A temporary decrease is anticipated in grades 9-12 over the next 4-6 years due to smaller entering classes. Long-range projections, however, estimate a growth in enrollment in 1995 to be 8,400 (K-6, 4800; 7-8, 1,310; 9-12, 2,300). The above pupil enrollment levels are anticipated on the basis that both Village Park and the Gentry-Waipio developments will proceed as proposed. The ultimate physical plant requirements based on completion of both projects may be two elementary schools.

- *The decision to build Hoaeae Elementary School will be dependent upon the trends of enrollment at nearby Honowai Elementary School and the number of students generated by Village Park.*

- *If Hoaeae Elementary School is not built, students from Village Park will be bussed to Honowai Elementary School.*

- *If Hoaeae Elementary School is built, public funds will be required for construction, staffing, and continued operation and maintenance of the school.*

MITIGATIVE MEASURES

- *If a grade school is necessary in Village Park, Hoaeae Elementary School is tentatively scheduled to be phased in between 1982 and 1985.*

- *Service area adjustments for the schools in Waipahu can be made to prevent overloading of schools with near capacity enrollment.*

- *A major replacement program for Waipahu Intermediate, along with new permanent facilities for Waipahu High School, are included in the 1977-1979 Capital Improvement Program for the State Department of Education.*

Parks/Parks Recreational Facilities/Open Space

INTRODUCTION

The project is a part of the City Department of Parks and Recreation and is served by the presence of neighborhood, district and state park

sites within the county. Neighborhood parks, especially those which are developed, have less than 6 acres in area and attract only local residents. Community parks average 6-10 acres, while district parks are 10-20 acres in size with a special interest, development, or beauty that will attract more than local residents. State parks are those which attract visitors from beyond the district area. There are at present a developed district park in Waipahu, as well as Honowai Park serving as a neighborhood facility. Various beach facilities have been developed by the Parks and Recreation Department at appropriate locations along the ocean front and are reasonably accessible to the project.

IMPACTS

- *Implementation of the project will create a demand for additional park and recreational facilities in the area.*

- *The project's residents will place increased demands on the existing community and regional recreational facilities.*

- *Land area within the project will be required for recreational use, which pre-empts it from being used for additional housing units. The Site Development Plan, Plate C, provides for a 10-acre park adjacent to Hoaeae Elementary School, and a 5.2 acre park site.*

- *Dedication of park areas within the project will be required by the city's parks dedication ordinance #4621.*

- *Acceptance of public parks by the city commits public funds for site improvements and continued maintenance of the parks' areas.*

MITIGATIVE MEASURES

- *Park areas and their improvements to be dedicated to the city should comply with standards established by the Department of Parks and Recreation.*

- *Additional recreational areas could be developed in the gulch area provided that adequate maintenance agreements are acceptable to concerned parties.*

Cultural Facilities

INTRODUCTION

Cultural facilities provide intellectual and artistic activities and opportunities for people. Some facilities are available for the residents of Village Park, but the scope is limited. Waipahu town will probably provide most of the cultural activities for residents

in the area, due largely to the fact that students will be attending the Waipahu Intermediate and High Schools, and Leeward Community College. These institutions will provide the public assembly facilities needed by the community. Through the DOE, Waipahu operates a community school adult education program, and classes are offered in a variety of subjects each school term. The Young Women's Christian Association also offers a number of programs for the community. The Waipahu Library serves a population of approximately 34,000 with a collection totaling 28,000 volumes. Bookmobile services offered from the Pearl City Regional Library extend to Mililani. However, these services will be cut back when the planned community library collection is completed at the Mililani High School. The bookmobile can then service Gentry-Waipio, and possibly Village Park.

Aloha Stadium, located about seven-and-a-half miles from the project, is an island-wide activity center. Other centers for cultural activities are located in Honolulu. With the availability of facilities in both the community and neighborhood parks, limited on-site activity centers will be available for the project residents.

The Waipahu Cultural Garden Park is a proposed botanical garden offsetting an old plantation town complete with a railroad depot. It is an effort to preserve the disappearing plantation lifestyle, the historical background of Waipahu. Located on approximately 50 acres in the heart of the town, the cultural and recreational effort is expected to be a reality within four years.

The Leeward Community College theater provides facilities where a variety of programs are offered to the public. These programs include plays, dances, pageants, the American Conservatory Theater and concerts.

IMPACTS

- *Completion of the project will have a long-term minor negative impact on cultural facilities that serve the community (i.e., Leeward Community College, Waipahu Intermediate, and High School).*

- *The residents in Village Park will place an increased demand on the existing library that is currently inadequate, based on a guideline of 50,000 basic volumes for a population of 34,000 plus 2 books per capita for a population over 25,000.*

- *The project will have a long-term positive impact on cultural facilities that service the island-wide population (i.e., Aloha Stadium, the Blaisdell Center and University of Hawaii).*

- *Expansion of additional facilities or services will require capital expenditure for these facilities and funding for operation and maintenance.*

MITIGATIVE MEASURES

- *Cultural facilities located in the Waipahu area can accommodate increased population through coordination of activities and programs.*

- *Additional library books should be provided to the Waipahu area. It is estimated that 40,000 volumes would be needed.*

Hazards: Natural and Man-Made

INTRODUCTION

This section: (1) identifies both natural and man-made hazards that exist on or near the project site, (2) discusses the impacts of these hazards on the project and (3) mitigative measures to minimize these impacts.

IMPACTS

Natural Hazards

- *Steep Slopes*

  - *The topographic features of the project site were described under Topography in this chapter. Though not a serious site hazard, the gulch running through the project site has steep slopes. These slopes vary from 40% (40' drop in 100') up to approximately 70% (70' drop in 100'). The slope west of the center of the gulch is approximately 2000' long, and extends from the northern boundary to the southern boundary. These slopes vary between 40% to 70%, with an average slope of 40%.*

    The slope east of the gulch centerline is flatter varying from 30% to 50%. Though the gulch is approximately 2000' long, only 800'-1000' of its length has slopes that exceed 50%.

  - *Waikele Gulch is located outside and east of the project. However, the difference in elevation between the site and the bottom of the gulch varies from 115' at the southeast corner of the site to 160' at the northeast corner. This slope is approximately 3000' long and varies from a 2':1' (horizontal to vertical), to slopes that drop nearly vertical. The entire length of this slope is separated from the project by the Naval access road into Waikele Gulch, as shown on Plate C.*

Man-Made Hazards

- *Dust*

  During the harvest of sugar cane, trucks will be hauling sugar cane harvested from the fields west of Kunia Road and north of the project. These trucks will travel on the cane haul roads along the south, southeast and east boundaries of the project. Residential units along the cane haul roads will be subjected to dust emitted from truck traffic.

- *Reservoir Overflow*

  A reservoir, developed for storing water for irrigating sugarcane, is located at an approximate elevation of 370' 1500' above the project site. During extremely heavy rains, these reservoirs may overtop or become weakened and release water over a saturated soil. This could increase storm water flow and subject the project site to potential property damage.

- *Sugarcane Burns*

  The burning of sugarcane is done under "burn" days as permitted under stable atmospheric conditions, and is controlled by the State Health Department. The potential of fire spreading to nearby residential areas, however, remains.

- *Cane Haul Trucks*

  Trucks transport sugarcane from the Oahu Sugar Company fields in Ewa to their mill in Waipahu. Approximately 1.68 miles of the cane haul road is located along the perimeter of the project site. The cane haul road is privately owned and no governmental controls are imposed on its use. Since it is used 24-hours a day by heavy equipment and light trucks, it poses a potential threat to the safety of young children.

MITIGATIVE MEASURES

- *Natural Hazards*

  - *Steep Slopes*

    - *Fences should be provided along the top of steep slopes along the gulch.*

- *Man-Made Hazards*

  - *Sound maintenance practices of cane haul road*

- *Reservoir Overflow*

  - *Design drainage facilities to accommodate potential overflow or failure of reservoir.*

  - *Provide facilities to divert reservoir flow from project site, or*

  - *design on-site drainage system to accommodate reservoir flow.*

- *Sugarcane Burns*

  - *Provide an adequate fire break between the sugarcane and residential area.*

  - *Provide roofs with fire resistant or fire retardant materials within 500 feet of the sugarcane.*

  - *Comply with State Health Department controls for burning sugarcane.*

- *Cane Haul Trucks*

  - *Provide adequate security fences along the cane haul road to prevent children from entering the roadway.*

CHAPTER III

ALTERNATIVES TO THE PROPOSED ACTION

The purpose of this chapter is to develop, describe, and weigh alternatives to the proposed action which can involve significant tradeoffs among the uses of available environmental resources.

The proposed project will have a number of impacts, both beneficial and adverse, in the process of its implementation. Seven alternatives are identified within three main options:

- Alternate land uses
  - Industrial
  - Commercial
  - Agricultural
  - Park/Recreation
  - Combination
- Alternative Site Designs
- "No Project" Alternative

The choice of the most viable alternative depends on a thorough analysis and comparison of the varied factors relating to each, weighed in relation to community values and proposed growth rates and trends for the region.

This EIS evaluates the total project of 316 acres in terms of land use, intensity of development, and building types.

ALTERNATE LAND USES

Industrial

Availability of Other Sites

Campbell Industrial Park is designated as a major industrial area of Oahu. Its location as an industrial site has a disadvantage in terms of trucking costs since it is located in Trucking Zone 4 where the ratio is 6% higher than Trucking Zone 3 which would include the Waipio/Pearl City area.

Several other new industrial subdivisions were developed recently in the airport, Campbell Industrial Park and Waipio areas. In addition, 310 acres of vacant industrial land are situated on Sand Island.

The General Plan for Oahu also shows a 250 acre parcel of land for industrial use in Mililani (north of Gentry-Waipio). However this area

is currently in pineapple production and designated for agricultural use by the State Land Use Commission. The Land Use Commission has, on two occasions, disapproved requests by Oceanic Properties to re-classify the land to urban use.

Village Park

There are several advantages to development of the site for industrial use.

- *It is situated in the urban-fringe area conveniently located in relation to the H-1 freeway and in close proximity to the markets and potential labor force.*

- *It could serve as an employment center for the central corridor and north shore of Oahu as well as for Nanakuli and the west coast of the island. This could reduce traffic to work centers in the downtown area.*

- *Access to the site is by the H-1 Freeway and Kunia Road which connects Wahiawa to Waipahu.*

- *Surrounding areas are compatible to industrial use. These areas include Waikele Gulch on the east, agricultural land to the north, highway/agricultural land use to the west and freeway/residential use to the south.*

- *The creation of a well designed industrial park could attract businesses currently unwilling to combine administrative and warehouse space in the same location. Comparing site, physical characteristics, improvement costs and availability of land in lease, an industrial distribution center could provide needed space at economical and competitive prices.*

Disadvantages fo industrial use of the site include:

- *Air polluting industries would create adverse impacts.*

- *Noise generation would raise complaints.*

- *Implementation of this proposal may conflict with Campbell Industrial Park as a major industrial area.*

- *The existence of several other industrial areas which, in combination, provide adequate facilities to meet the current demand.*

- *Profits in relation to residential proposals may make feasibility of industrial uses questionable.*

Use of the site as an industrial park to attract industries to satisfy their needs reveals a need for strict environmental controls.

Commercial

Availability of Other Sites

The Pearl Ridge Regional Shopping Center is located within eight miles of the project site and is adequately serving the needs of the area.

Sub-regional commercial facilities are also located in nearby Ewa, Waipahu, Waimalu and Pearl City.

Village Park

Disadvantages of the site for large scale commercial purposes outweigh favorable aspects. Close proximity to an existing regional shopping center. Availability of local commercial facilities. Limitations of accessibility due to one highway. Low intensity of development in surrounding area.

Advantages for large scale commercial use are extremely limited due to the overriding disadvantages and problems of business interests and economic feasibility.

Agricultural

Availability of Other Sites

Large parcels of available and properly zoned land with accessible utilities and services comparable to the Village Park site are extremely limited in the Waipahu-Crestview area.

Village Park

The eastern half of the project site is currently under sugar cane production while the western half has been unproductive since 1973. Since the project site is designated for urban use, its conversion now to agricultural use would be very difficult for the following reasons:

- *The General Plan was revised to accommodate the proposed project. This revision is interpreted as an expression of support for the project and a means to achieve development in the fringe area as defined by the General Plan.*

- *The financial commitment required by the State and/or City and County to cover economic losses by the developer (taxes, planning and engineering costs) by a reconversion to agricultural land use without government subsidy would tend to raise the cost of land beyond its capacity to produce a positive cash flow from agricultural production.*

Parks/Recreation

Availability of Other Sites

The only existing large-scale public recreation area is the Ted Makalena golf course near the Middle Loch of Pearl Harbor. The C&C has long-range plans to develop the adjacent Waipahu Garden Park into a regional park. The existing golf course would then become a part of the entire parcel. Other than the above, there are no other large scale park facilities for the region. However, the Department is aware of the need for future land areas for recreational purposes.

Village Park

Public recreational use of the site would be a distinct benefit to the region, especially since there is a lack of public facilities. It has a cool climate, the sloping land provides vistas of the Pearl Harbor and Waianae area; the topography with its gulches provides natural opportunities to modify the site for intensive and/or passive recreational uses.

This course of action has the overwhelming disadvantages of:

- *Limited public funds to purchase the land at a reasonable cost to pay for basic costs, taxes, and profit for the present owner, nor for operation and maintenance.*

- *Additionally, the DPR does not have the manpower or funds for operation and maintenance of a large-scale regional park area or golf course at this site.*

Combination

The alternative of using any two or three of the above land uses in combination is not overlooked. The size, topography, location, etc, of the site proves to be advantageous and compatible to a multiple-use concept. The disadvantages of one alternative could be favorable aspects of another. The overriding planning concept would then be the best use of land area to provide for services, recreation and the general well-being of regional as well as local residents.

ALTERNATIVE SITE DESIGNS

When the project was first initiated, there were plans to build 3,291 housing units with an accompanying 4.5 acres designated for commercial use.

The number of housing units, changes in land use, and other modifications are the result of varied government agencies involved in the review process and analysis. A number of potentially undesirable impacts have led to several changes. The monitoring of housing requirements and market trends will also determine the type and number of units built over the construction period. Continued interest of all agencies, community groups and the general public will most likely result in further monitoring and specific changes to development plan.

"NO PROJECT" ALTERNATIVE

Since the project site is presently vacant, the "no project" alternative is feasible at this time. Therefore, non-implementation would allow the land to remain in its present non-productive state as described in Chapter I. By allowing the terrain to remain undisturbed, the open space value and drainage characteristics of the site would remain unchanged. Any adverse or beneficial impacts created by project implementation would not be generated. For example, there would be no adverse impacts from air pollution, noise, traffic, or requirements for municipal services. The beneficial impacts of controlled land use, services, cultural and recreational facilities would also then be non-existent.

If the project was not implemented at this time, it is probable that the land would remain in its present condition for only a short period of time while other alternatives were being considered by the owners and developer. Some action is likely to take place that could include:

- *Selling the project site.*
- *Allowing the project site to be in open space until the demand for housing creates public or governmental pressure to utiliza this area.*
- *Pressure for urbanizing other agricultural lands or further development of existing urbanized areas to provide housing units that would have been provided by this project.*
- *Allowing for a smaller portion of the site to be developed and/or decreasing the density.*

It is recognized that there may be many more viable alternatives; however, such a list would only be conjecture at this point.

In reviewing the "do nothing" alternative, it should also be noted that economic pressures and land use decisions, made previously by governmental agencies, i.e., the General Plan Amendment and State Land Use designation, would prohibit a change back to the original classification of the land. Costs alone would be prohibitive and/or economically unfeasible for activities not consistent with the urban designation.

CHAPTER IV

PROBABLE ENVIRONMENTAL IMPACTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED

There are a number of environmental impacts which are expected to occur if the project is fully implemented as proposed. Because the nature of the impacts are beneficial, as well as adverse, and because they will occur on either a long-term or short-term basis, a table format facilitates the disclosure of necessary information. This table also provides a quick reference to the impacts of concern.

The impacts are those which would likely be present in any project proposed for housing approximately 6540 people. Also included are impacts of a specific nature to this project,along with a quantification, possible mitigation measures, and HUD assurances.

Refer to Chapter II for detailed discussions of each component.

PROBABLE ENVIRONMENTAL IMPACTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED

Potential Impact	Degree/Nature/Duration of Impact	Significance (degree, extent, severity)	Mitigative Measures	HUD Assurances
LAND USE -Urbanizing Prime Agricultural Land	Minor/Negative/Long Term	Implementation of project forecloses the option for agricultural use of the site.	- No project. - Alternative Sites	
STORM DRAINAGE -Construction period	Minor/Negative/Short-term	Sections of the site exposed during grading and construction will subject drainageways below site to increased siltation.	-Placement and maintenance of siltation basins at strategic areas. Basins will minimize siltation from storm waters draining out of project site. -Compliance with City's Grading Ordinance #3968.	-HUD review of grading plans and specifications. -Compliance with SCS guidelines for grading.
TRANSPORTATION	Major/Negative/Short-term	Traffic generated by the project during peak hour will adversely impact Kunia Road and the Kunia interchange unless these facilities are improved.	-Comply with City street standards. -Provide stop lights at key locations on Kunia Road and the Kunia interchange to accommodate increased traffic. -Increase capacity of Kunia Road and Kunia interchange.	-State and City monitoring of traffic. -HUD participation conditioned upon adequate ingress and egress.
AIR QUALITY -Construction	Minor/Negative/Short-term	Fugitive dust will be generated during 8-year construction period.	-Compliance with City Grading Ordinance No. 3968. -Erosion control planting pursuant to the grading ordinance.	
-TSP, CO and NO_2 and dust from cane haul trucks	Minor/Negative/Long-term Infrequent periods during peak hours.	Air pollution levels will increase because of construction activities. As site is transformed into urban use, pollutant characteristics will change from high proportion of fugitive dust, to CO and NO_2 emitted from vehicular traffic.	-Compliance with Public Health regulations, Chapters 42 and 43 (Ambient Air Quality Standards and Air Pollution Control). -Employment of dust control measures near existing residential units. -Compliance with emission control standards for construction vehicles and autos. -Prevailing trade windswill help disperse CO and other air pollutants.	-Compliance with Clean Air Act.

Potential Impact	Degree/Nature/Duration of Impact	Significance (degree, extent, severity)	Mitigative Measures	HUD Assurances
HOUSING STOCK	Major/Positive/Long-term	Project will provide expanded housing opportunities for 1745 families including 1435 single family detached units and 310 condominium units.		
MUNICIPAL SERVICES AND COMMUNITY FACILITIES				
-Police Protection	Minor/Mixed/Long-term	Project will require City to increase police force by 13 additional officers based on 2.1 officers per 1000 population plus additional officers are needed to service the school, parks and commercial area.	-Tax revenue generated by project should pay for increase in police salaries.	-HUD review of available services and facilities during feasibility analysis of each phase during development of project.
	Minor/Positive/Long-term	Additional jobs will be provided.		
-Fire Protection	Minor/Negative/Long-term	A new fire station in Waipahu will be required during the latter stages of development to accommodate project.	-Tax revenues generated by the project should defray cost of providing new facilities and operating costs.	-HUD review of available services and facilities during feasibility analysis of each phase during development of project.
-Health Care Social Services	Minor/Negative/Long-term	Project residents will impact health care and social services in Waipahu. Expenditure of public funds will be required to expand these services as the Waipahu area grows.	-New medical and social aid facilities and their staffing should be located and designed for cost effective use of public funds. Tax revenues generated by project should help pay for these facilities.	-HUD review of available services and facilities during feasibility analysis of each phase during development of project.
-Educational Facilities Elementary School	Questionable	Construction of Hoaeae School in Village Park not determined as of this writing.	-Tax revenue generated from project will provide funds for educational facilities, staffing, operation and maintenance of existing or proposed grade school.	-HUD review of available services and facilities during feasibility analysis of each phase during development of project.
-Parks and Recreation	Minor/Negative/Long-term	Residents in project will place demands on existing district and regional parks in Waipahu. Recreational space will also be required within the project for neighborhood park use.	-Tax revenue generated by the project will provide funds for expansion of district and regional park facilities. -Compliance with City's Park Dedication Ordinance #4621. -Develop gulch into passive recreational area.	-HUD review of available services and facilities during feasibility analysis of each phase during development of project.

Potential Impact	Degree/Nature/Duration of Impact	Significance (degree, extent, severity)	Mitigative Measures	HUD Assurances
ENERGY	Minor/Negative/Long-term	Project represents a small percentage increase in demand for energy and services.	-Hawaiian Electric Company will provide adequate supply of power to meet demand of project. -Developer and homeowners should consider energy conservation practices such as solar heating, insulation, siting of buildings, landscaping, and other innovative measures.	-Adequate electric power must be available for HUD participation.
WATER -Availability	Questionable	Average daily water requirement will be 1.01 million gallons per day. Basal ground water supply and sustainable yields are unknown. Potable water source may be jeopardized by salt water encroachment.	-Comply with findings and directives of the Board of Water Supply. -Implementation of water development program to increase sustainable capacity. -Alternative sources and conservation measures should be explored to reduce consumption rate.	-Availability of adequate and potable water supply will be a condition of HUD participation.
-Quality	Questionable	Quality of water supplied from Kunia Wells I & II and Hoaeae Wells are expected to comply with State health drinking water standards. Quality could change due to salt water encroachment.	-Continuous monitoring of quality by State Health Department. If supplies are below standard -Require treatment of supply -Develop alternate source -Reduce consumption.	-Compliance with Safe Drinking Water Act.
LIQUID WASTE -Sewerage facilities	Minor/Negative/Short-term	Limited capacity in the Waipahu Sewage Treatment Plant permits Village Park to develop only 450-500 units.	-Construction of Honouliuli Waste water Treatment Plant scheduled for completion in 1982.	-HUD participation conditioned upon adequate sewage disposal facilities.
SOLID WASTES -During construction	Minor/Negative/Short-term	Removal of trash, rubble, and other deleterious material on-site will create dust and have minor impact on sanitary landfills.	-Developer must remove waste material during grading and construction period.	-Monitoring by City & County. -Compliance with recommendations of soils engineer.
-Post construction	Minor/Positive/Long-term	Use of private scavenger encourages expansion of private industry.		
	Minor/Negative/Long-term	Possible increased cost for users of private scavengers.	-Design streets and collection facilities to comply with City standards for trash pick-up.	-HUD consideration of trash pick-up services during feasibility analysis.
	Minor/Negative/Long-term	Additional cost to City in providing service to homeowners.	-Tax revenues generated by project should cover cost of services.	

CHAPTER V

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

Implementation of the proposed project clearly defines the short-term uses of the environment and the maintenance and enhancement of long-term productivity. The short-term uses are the physical actions required to establish and develop this residential community. These actions include clearing, grubbing, installing infrastructures, constructing varied buildings and the developing of support facilities to sustain users at each stage of development.

Short-Term

- Construction-related activities will create noise, increase air pollution, disrupt traffic circulation and generate dust from dump trucks, earth-moving equipment, and various mechanical construction tools, etc. During grading operations, the existing vegetation cover will be lost and surface soils will be subject to erosion. Immediate mitigation measures will be required to prevent increased siltation in streams leading to Pearl Harbor. Construction will result in a short-term negative impact on the environment. Completion of the project in accordance with HUD and local standards provide sufficient mitigation measures to reduce and virtually eliminate these temporary conditions. However, increased traffic,concentrations of CO and ambient noise levels will increase upon completion of the project.

- Jobs will be created during the construction period. In terms of "cash flow", this results in a short-term positive impact on employment within the area.

- Materials purchased and their utilization will also create a short-term beneficial impact on the economy of the area.

Long-Term

- The completed community of 1745 residential units, infrastructures, community facilities and a 4.5 acre commercial area reflects the long-term commitment of resources to the project. The continuing interaction of the community with the surrounding area through its support facilities, services and social activities will contribute to its long-term productivity.

- The development of the project is a long-term commitment of vacant and prime agricultural land to a permanent residential community.

- Maturing of plant materials and maintenance of park areas and private yards will have the positive impact of increasing the livability for all occupants in the community.

- *Air pollution levels will increase slightly due to internal traffic within the project and, to a lesser extent, the use of power tools and equipment used for maintenance of streets and park areas. A negative impact will be the long-term increase of pollution due to increased vehicular traffic on the freeway and Kunia Road at the entrance to the project.*

- *Maintenance of necessary infrastructure elements, community facilities and municipal services will sustain the project at a high degree of livability for an average of 30 to 50 years.*

- *Job opportunities will change from short-term construction-oriented to those created by the service requirements of the intended residents.*

The urbanization of the land forecloses the land's future option for agriculture. Once the infrastructures and buildings are constructed, it would be extremely difficult to change the designated land use to agricultural or other land uses especially in relation to investment and return on private capital.

The project also presents an opportunity for HUD to make housing units available to low and moderate income families and individuals through its assigned housing programs. This opportunity would be consistent with the Department's goal --- "by providing decent housing and a suitable living environment and expanding economic opportunities, principally for persons of low and moderate income."

CHAPTER VI

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Completion of each phase of Village Park will add a progressive and permanent commitment of resources for each development site.

- Conversion of vacant and prime agricultural land to a long-term commitment of 30 to 50 years urbanization would not be retrievable unless structures were demolished or there was a change in land use.

- Building materials necessary to construct the Project will be irretrievably committed. There would be only limited salvage value.

- Human resources and energy expended to construct, maintain, and service the project would be irretrievable.

- Infrastructure and service consumption factors are essentially irreversible.

- State and local governments would have a long-term public financial commitment to support facilities, services and programs such as fire, police, utilities, education, solid and liquid waste disposal, parks and recreation, cultural, social and health care services.

- Environmental resources will be committed or changed according to the community's needs and desires. Air masses will change and become polluted with dust and vehicular exhaust emissions. Water resources will be tapped, used and returned in polluted form to the environment. Ecological balance will be modified between such natural events as precipitation, ground run-off, evaporation and ground water storage as surface permeability is reduced due to construction. The developer must control erosion and establish new drainage patterns with man-made structures and landscaping. All structures emplaced on the site will result in a loss of views, vistas and existing open space.

- Use of the land for urbanization illustrates the trend of growth in an area shown on the C&C General Plan as Urban Fringe. Development will also irreversibly close another gap in the central corridor of the island.

- The present shift in population distribution patterns towards the Ewa and urban-fringe areas will be irreversibly accommodated by implementation of the project.

- The federal government via HUD will have a long-term public financial commitment for mortgage insurance or subsidies associated with certain types of housing developments. Such commitments may present irretrievable financial losses should foreclosures occur.

CHAPTER VII

DISCUSSION OF PROBLEMS AND OBJECTIONS RAISED AND HUD ACCOMMODATION

The Draft EIS was made available to EPA and the public on September 29, 1978.

The State of Hawaii, Office of Environmental Quality Control (OEQC) served as the A-95 Clearinghouse for the distribution of the Draft EIS within the State and City and County governmental agencies. Distribution to federal interests, private industry and individuals were made by HUD.

A total of 129 copies were distributed to various governmental agencies, individuals and private interest groups for their review comments. As summarized below, letters were received from 21 respondents that required a HUD response:

Federal	6
State	5
City and County	6
Private	4

Additional responses were also received from 11 governmental agencies and interested parties that did not require a HUD response.

Several common concerns were shared by a number of reviewers. A brief discussion of these issues follow.

Conversion of Prime Agricultural Land to Urban Use

One of the major concerns that surfaced in the review of the Draft EIS was the conversion of prime agricultural land to urban use. The consequences of this change in land use results in modification of topography, loss of agricultural production and its open space value, increased traffic with increased noise levels and higher CO concentrations at the site.

Each of these issues are discussed in the text and in responses to comments in letters that are a part of this chapter.

Water

There was also concern for the withdrawal of ground water from the Pearl Harbor basal water lens. The rapid development in the Waipahu and Ewa areas over the past ten years has placed heavy demand on ground water sources in the area. Urbanization of agricultural land caused the Board of Water Supply to develop a policy on water usage which is covered in more detail in the text and letters that follow.

Cumulative Impacts of Other Major Developments in the Region

The potential of other major actions in the region to generate traffic was discussed in broad terms. However, the basis for HUD's analysis of Noise and Air Quality was based on data provided by the State Department of Transportation.

Noise

Considerable concern was expressed in the DEIS for adverse noise levels generated by freeway traffic and cane haul trucks on the cane haul road adjacent to the project. These concerns were also picked up by reviewers and are covered in letters in this chapter.

As a result of receiving review comments on the Draft, EIS in accordance with HUD policies on large scale development, the following conditions or requirements will be reflected in subsequent HUD processing of individual development phases of Village Park.

1. *Should potential archeological effects be discovered during grading or construction, the contractor must notify the State Historic Preservation Officer.*

2. *Adequate fire breaks should be provided along boundaries where sugar cane is under cultivation and along top of gulch.*

3. *Protective fencing should be provided along the top of steep slopes and the top of walls in accordance with HUD MPS and Data Sheet 79-G.*

4. *Preliminary soil reports will be required for all housing proposals where fills exceed HUD MPS minimum and where adverse soils are noted.*

5. *All HUD housing units subjected to adverse noise levels should be sited and/or designed to attenuate noise for compliance with HUD Circular 1390.2 Noise Abatement and Control, Departmental Policy, Implementation Responsibilities and Standards.*

6. *Erosion control planting plans, specifications and statement per parts D-6 and D-7 of Data Sheet 79-G should be implemented for all slopes that exceed 6' in fill and 10' in cut.*

7. *Where phases contain common open areas owned by a homeowners association, legal documents must be submitted to HUD for approval.*

8. *Landscape planting plans and specifications prepared by a landscape architect will be required for all open or common areas owned and maintained by a homeowners association.*

9. *Prevent cross-lot drainage in all subdivisions where feasible.*

Other specific issues raised by various respondents and HUD responses are included in the chapter.

The following four letters, although not considered to be responses to comments, however, their content was critical and therefore are included:

1. *Board of Water Supply (Dec. 11, 1978)*
2. *State Historic Preservation Officer (Aug. 17, 1978)*
3. *Waitec Development Inc. (Dec. 5, 1978)*
4. *Headquarters-Fourteenth Naval District (Jan. 16, 1979)*

Following these letters are the comments raised by the various organizations and individuals asked to review the DEIS. Each comment was reviewed and upon additional research, a response drawn up for each.

The last set of letters, ones that did <u>not</u> require a HUD response, are reproduced in the following section titled "Letters Received that Did Not Require a HUD Response."

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA
HONOLULU, HAWAII 96843

FRANK F. FASI, Mayor
YOSHIE H. FUJINAKA, Chairman
KAZU HAYASHIDA
Manager and Chief Engineer

December 11, 1978

Mr. Alvin K. H. Pang
Area Manager
Department of Housing and Urban
Development
Prince Kuhio Federal Building
300 Ala Moana Boulevard
P. O. Box 50007
Honolulu, Hawaii 96850

Dear Mr. Pang:

Your Letter of December 6, 1978 Requesting Information for the Revised Environmental Impact Statement on Village Park, Waipahu, Hawaii

Water is available for the proposed Village Park. Kunia Wells II, reservoir and transmission main installed by the developer will be adequate to serve the development.

We also confirm our policy of requiring the conversion of sugar cane irrigation water to domestic use whenever sugar cane lands are urbanized. This can be done by requiring the sugar industry to reduce their pumpage by the amount formerly used for irrigating the urbanized land.

If you have any questions on this matter, please call Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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

W. Y. THOMPSON, Chairman
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

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

August 17, 1978

Mr. Frank Johnson
Department of Housing
and Urban Development
Area Office
1000 Bishop Street
P. O. Box 3377
Honolulu, Hawaii 96813

Dear Mr. Johnson:

Subject: Kunia Village Park, EIS
Oahu Island, State Clearing-
house ID CH76-316-0

Reference your letter of 16 June 1978 regarding the intent of the sponsor to leave the gulch as is with no encroachment of construction activities into the area, this letter ammends our previous letter of 29 December 1976 and recommends that no archaeological study will be required of the Department of Housing and Urban Development.

Sincerely yours,

Jane L. Silverman

Jane L. Silverman
Historic Preservation Officer
State of Hawaii

WAITEC DEVELOPMENT, INC.

PROJECT: VILLAGE PARK

A Member of the Tecon Group of Companies

☐ 828 Fort Street • Campbell Building • Suite 604 • Honolulu, Hawaii 96813 • Telephone (808) 536-7370

☒ Keith Square Building II • 2024 North King Street • Honolulu, Hawaii 96819 • Telephone (808) 848-2315

December 5, 1978

Mr. T. Harano
Chief Engineer
Land Transportation
Facilities Division
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Harano:

Subject: Village Park Subdivision

Waitec Development, Inc., developers for Village Park, agrees to widen Kunia Road, which fronts our project, improve portions of Kunia Interchange and install traffic signals, as outlined in the recommendations and within the timetable stated on the revised traffic study report dated December 1976.

Very truly yours,

WAITEC DEVELOPMENT, INC.

George H. Jones
Vice President

GHJ:EM:dk

HEADQUARTERS
FOURTEENTH NAVAL DISTRICT
BOX 110
PEARL HARBOR, HAWAII 96860

IN REPLY REFER TO:
002:202:DQ:ry
Ser 74

16 JAN 1979

Mr. Alvin K.H. Pang
Area Manager
Department of Housing and
Urban Development
Area Office
P. O. Box 50007
Honolulu, Hawaii 96850

Dear Mr. Pang:

Village Park

In response to your letter of 4 January 1979, please be advised that the ESQD arcs from Waikele no longer encumber the Village Park property.

The ESQD in question was generated by a transfer shed which has since been demolished.

Sincerely,

L. H. RUFF
CAPTAIN, CEC, USN
DISTRICT CIVIL ENGINEER
BY DIRECTION OF THE COMMANDANT

F E D E R A L

DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION
(Ralph T. Segawa, Division Administrator, October 13, 1978)

COMMENT:

Page II-23 - Kunia Road - The capacity of Kunia Road under ideal conditions, for uninterrupted flow capacity, is 2,000 vph as indicated in the Highway Capacity Manual (your reference 25).

RESPONSE:

HUD agrees that for a two lane uninterrupted flow, the capacity is 2,000 vph.

COMMENT:

Measures proposed to accommodate the increased traffic volumes on Kunia Road and through the Kunia Interchange should be scheduled for timely completion to avoid unsafe traffic congestion within the Kunia Interchange.

RESPONSE:

Improvements to Kunia Road and the Kunia Interchange will be coordinated with the State Land Transportation Facilities Division.

Tentative schedule for improvements to Kunia Road and ramps KA and KI of the Kunia Interchange are planned in relation to the Development Schedule noted in Table I-2, page I-9.

1979-1980	*Widen Kunia Road from Project site to Kunia Interchange. Widen Ramps KA and and KI to two lanes but striped for one lane. (Figure 10)*
1981-1982	*Install traffic signals at intersection of Kunia Road with project's two access roads. Restripe for two left turn lanes at Intersection of Ramps KA & KI with Kunia Road and install traffic signals. (Figure 10)*

COMMENT:

A general plan layout illustrating the proposed improvements of Kunia Road and the Kunia Interchange should be included in the final EIS.

RESPONSE:

A Preliminary Layout Plan (Figures 10 & 10a) shows the proposed improvements to Kunia Road and the Kunia Interchange.

COMMENT:

Existing and projected traffic volumes and distribution through the Kunia Interchange should be included in the final EIS.

DEPARTMENT OF TRANSPORTATION - FEDERAL HIGHWAY ADMINISTRATION

RESPONSE:

The projected traffic volumes with their distribution through the interchange is included in Figure 9. Data on current traffic volumes moving through the interchange is not available.

DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE
(Jack Kanalz, State Conservationist, November 15, 1978)

COMMENT:

As stated in our previous letters of January 4, 1977 and September 28, 1977 (copies attached) the entire 23.1 (corrected to 274) acres of this project is classified as prime farmland and should be preserved.

RESPONSE:

HUD acknowledges the concern for preserving prime farmland. The approval of the project at both the State and County levels was interpreted by HUD as an expression for housing needs in the community.

If the EIS was prepared prior to a decision to urbanize prime agricultural land HUD would be guided by the Council of Enviromental Quality's Memorandum for Heads of Agencies dated August 30, 1976, entitled the "Analysis of Impacts on Prime and Unique Farmland in Enviromental Impact Statements".

COMMENT:

The long-term commitment of prime farmland to urban use should be reflected in your table "Probable Enviromental Impacts which cannot be avoided should the proposal be implemented" (Pages IV - 2,3, and 4).

RESPONSE:

Page IV-2 was revised to reflect the loss of prime farmland.

Page II-17 was also amended to show that the project represents a loss of 0.6% of the prime farmland on Oahu.

DEPARTMENT OF THE ARMY - U.S. CORPS OF ENGINEERS
(Kisuk Cheung, Chief, Engineering Division, October 19, 1978)

COMMENT:

We note that the present City and County of Honolulu Flood Insurance Study designates the Village Park project site as an area of undetermined, but possible, flood hazard.

RESPONSE:

With proper grading and drainage design, the project site will be free of flooding. Siting of buildings within the drainage ways that traverse the site will be coordinated with appropriate water surface determination of the drainageway for 100-year or higher flows.

The onsite storm drainage system will be designed and constructed in accordance with the Storm Drainage Standards, City and County of Honolulu, dated March 1969.

HEADQUARTERS FOURTEENTH NAVAL DISTRICT
(L. H. Ruff, Captain, USN, January 27, 1977)

COMMENT:

The draft Environmental Impact Statement for Village Park forwarded by your letter 9.7SC (Johnson/546-5554) of 28 September 1978 has been reviewed. The Navy has no comments to offer at this time. However, the comments previously provided in our letter 48:09F:SH:amn ser 133 of 27 January 1977 concerning the intent to file an EIS for Village Park still apply.

COMMENT: (Letter 48:09F:SH:amn)

a. The U.S. Navy has a concern with siltation in Pearl Harbor and the water tributaries that empty into Pearl Harbor. A major source of silt has been soil erosion and runoff from construction sites adjacent to streams, such as Waikele Stream. The proposed Village Park development is to be located adjacent to Waikele Stream. The EIS should address the siltation problem and the steps to be taken to prevent the deposition of silt into Pearl Harbor.

RESPONSE:

The Soil Erosion Standards and Guidelines of the Department of Public Works, City and County of Honolulu will be followed to minimize the deposition of silt into Pearl Harbor. The exact steps to be taken to minimize the siltation problem will be formulated in the Soil Erosion Plan just prior to construction, consequently no detailed information is available at this time.

HEADQUARTERS FOURTEENTH NAVAL DISTRICT

COMMENT: (Letter 48:09F:SH:amn)

b. Review has been made of the location map provided with your letter, and it has been found that approximately two to three acres of the proposed Village Park Development will be encumbered by the explosive safety quantity distance (ESQD) arc as shown in enclosure (1). It is suggested that development plans be phased insofar as possible to leave the area covered by the ESQD arc until the latter stages of the overall project development. This will minimize the exposure of personnel to any possible hazards. Should any change in the ESQD arcs occur, and it is now anticipated that the arcs will be eliminated in about the 1982 time frame, you will be notified of the change. It is requested that this Command be advised when construction of any buildings within the ESQD arc is imminent.

RESPONSE:

The above comment was received by HUD on January 23, 1977. In responding to comments received on the Draft EIS by others on the ESQD arc, HUD queried the Fourteenth Naval District. The reply received by HUD on January 16, 1979 follows:

"In response to your letter of 4 January 1979, please be advised that the ESQD arcs from Waikele no longer encumber the Village Park property.

The ESQD in question was generated by a transfer shed which has since been demolished."

U.S. ENVIRONMENTAL PROTECTION AGENCY
(Paul DeFalco, Jr., Regional Administrator, November 17, 1978)

COMMENT:

The Draft EIS does not discuss the Sewer Use Charge community residents will be required to pay, such that the operation and maintenance costs of sewage collection treatment and disposal may be met. This is a significant issue since it is expected that this will be a new charge to many potential residents who have formerly utilized septic tanks or cesspools, as a means of sewage disposal.

RESPONSE:

No significant impact from the Sewer Use Charge is anticipated since a service charge, equal to the Sewer Use Charge, is presently assessed for septic tank or cesspool maintenance.

COMMENT:

DEIS (Page II-55) - The Draft EIS states that the sewage treatment plant "... will be upgraded in quality to primary treatment after 1981. If EPA requires upgrading to secondary treatment, EPA will provide grant funds for 75% of construction costs with 12% State matching funds." The Final EIS should note that State matching funds will be 15% while the City and County of Honolulu will provide matching funds of 10%.

RESPONSE:

The Final EIS notes a change; however, it should be 10% for the State and 15% for the City and County of Honolulu.

DEPARTMENT OF COMMERCE - NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
(Sidney R. Galler, Deputy Assistant Secretary for Environmental Affairs, November 17, 1978)

COMMENT:

Bench marks, triangulation stations and traverse stations have been established by the National Geodetic Survey in the vicinity of the proposed project. Construction required for the project could result in destruction or damage to some of these monuments.

RESPONSE:

HUD is advised that the sponsor's engineers have searched existing survey monument records and no USGS monuments are included within the construction area. However, if any monuments are found, which require relocation, the National Geodetic Survey office will be notified.

S T A T E

OFFICE OF ENVIRONMENTAL QUALITY CONTROL, OFFICE OF THE GOVERNOR
(Richard L. O'Connell, Director, November 3, 1978)

COMMENT: (1)

Information regarding the various construction phases and time-tables should be included in the project description to allow the reviewer a better concept of the proposed action.

RESPONSE:

The construction schedule for each phase is covered on page I-9 under Nature and Purpose of the Proposed Action in Chapter I, Description of the Project.

COMMENT: (2. Page I-12)

As one of the agencies who received the notice of intent, it should not be assumed that we had no objections to the project. At the time the notice of intent was presented there was not enough information to state a position. Therefore, no objections to the project is not a correct assumption.

RESPONSE:

HUD's interpretation of "no objection" from those state agencies listed on page I-12 was based on letters received in response to the Notice of Intent to File an EIS on December 17, 1976. If additional information was requried to establish a position of objecting to the project it should have been done at that time.

The nature of the comments received November 6, 1978, from OEQC in responding to the Draft EIS raises question of a technical nature but does not appear to object to the proposed action.

COMMENT: (3. Page II-22 Drainage)

The draft EIS states, "The environmentwill have minimal negative impact on the project". We assume this statement is reversed from what was intended. If our assumption is correct, the statement is premature. It is important to recognize that surface runoff from city streets may create a water quality problem. Street surface contaminants such as pavement material, motor vehicles residue, air pollutant fallout, vegetation, and litter in runoff can become a serious problem. The impact of such pollutants on Pearl Harbor and Waikele Stream should be discussed in the EIS.

RESPONSE:

Your assumption that the statement is reversed from what was intended is correct and the correction was made in the FEIS on page II-2.

It is recognized that surface runoff from city streets may create a water quality problem; however, detailed information is not available at this time. Therefore, the impact of street surface pollutants on Pearl Harbor and Waikele Stream can only be evaluated in terms of relative magnitude. The street surface

area represents less than 0.5 percent of the Waikele drainage basin. Consequently, the volume of runoff and pollutants are correspondingly very small.

COMMENT: (4. Page II-23 Transportation)

The conclusion, "Current peak hour traffic levels of 2,788 vph (westbound) compared to its capacity of 4,000 vph shows that the H-1 freeway has adequate capacity for accommodating additional traffic", needs to be reconsidered. Traffic projections for the H-1 freeway in the vicinity of Honouliuli Bridge for the years 1990-1995 have been estimated by James Morrow of the American Lung Association of Hawaii to be 88,011 vehicles per day. This figure is derived from proposed developments including Barbers Point Deep-Draft Harbor, Kahe Point Theme Park, West Beach Plan, Makakilo Subdivision and the State Department of Transportation traffic counts. These projections do not reflect other major developments such as Caneland Theme Park, Fort Barrette Theme Park, Ewa Village, Palehua Planned Development Housing and Gentry-Waipio. This overall development including Village Park will place a considerable stress on H-1 freeway. Therefore, it is vital to analyze the traffic from a broader perspective to realistically estimate impacts on H-1.

RESPONSE:

Planned developments west of the Kunia Interchange (i.e. Barbers Point Deep-Draft Harbor, Kahe Theme Park, West Beach Development, Makakilo Subdivision, Caneland Theme Park, Fort Barrette Theme Park, Ewa Village and Palehua Planned Development Housing) will cause considerable stress on H-1. Especially critical will be the section of H-1 west of Kunia Road where the freeway is 4 lanes (2 each way). Should all of the projects be constructed, additional lanes will be required to handle projected traffic.

The basis of the traffic analysis is the State Land Transportation Divisions's current traffic counts and projections. By 1990, service levels on H-1 are expected to be Level of Service "A" eastbound and Level of Service "B" westbound. However, should the aforementioned projects be constructed, traffic volumes of H-1 would be significantly higher. Since the section of H-1 west of the Kunia Interchange has only 4 lanes, that section would operate at Level of Service "F" unless additional routes or lanes are constructed.

COMMENT: (5. Page II-24 Transportation)

The EIS states that Kunia Road "...has adequate capacity for today's traffic". However, with an increase of 68% in the a.m. traffic and 63% increase in the p.m. traffic, improvements and perhaps expansion will be needed to accommodate Village Park.

RESPONSE:

Kunia Road will be widened to provide left turn lanes and auxiliary right turn lanes. Further, signals will be installed at the projects' and signalized; and a bikeway constructed by the developer. These improvements will be done at no cost to the State.

COMMENT: (6. Water)

Although the draft EIS describes water requirements and current supply, there should be discussion of the effect of drought conditions. Also, because the Ewa area has many proposed developments, it is important to discuss the water supply and demand in terms of other proposed projects in order to fully analyze the situation.

RESPONSE:

The effects of drought conditions on water requirements and water supply will involve an increase in demand and a decrease in recharge to the water supply. These effects should be temporary and normal conditions should return after the drought conditions have passed.

The water supply and demand, in terms of other proposed projects in the Ewa area, will require that each proposed project develop their own water source.

COMMENT: (7. Page II-55 Sewage)

The draft EIS states, "After Phase 4, no further building permits will be issued in Village Park without the approval of the State Health Department until the proposed Honouliuli Sewage Treatment Plant is completed in 1981". According to the Environmental Impact Statement for Honouliuli Wastewater Treatment Plant and Barbers Point Ocean Outfall System, Village Park is not included as part of the service area. This inconsistency should be explained.

RESPONSE:

According to the Environmental Impact Statement for Honouliuli Wastewater Treatment Plant and Barbers Point Ocean Outfall System, Village Park is included as part of Tributary Area "C" in Figure I-4, Tributary Areas.

COMMENT: (8. State Plan)

The EIS refers only to the City and County of Honolulu's General Plan. It is important to discuss the proposed action in terms of the newly adopted State Plan.

RESPONSE:

Reference to the State Plan is made on page I-9; however, the impact of the newly adopted State Plan is difficult to assess at this time.

Tables 2 and 3 in Appendix I were revised to reflect the revised population projections established by the Series II-F projections prepared by the State's Department of Planning and Economic Development. Any major change in the population policy of the General Plan will require approval by the City Council and be preceded by public hearings prior to any change in the General Plan.

COMMENT: (9. Page IV-2 Transportation)

Page IV-2 - Transportation - The table indicates that increased traffic will have a minor impact. Our previous comments indicate that traffic will be a major problem.

RESPONSE:

We agree that traffic is a major consideration. The widening of Kunia Road will reduce the impact of the project on Kunia Road. Signalization of intersections on Kunia Road, widening of ramps and left turn and auxiliary right turn lanes will be constructed to accommodate the increased traffic volume.

COMMENT: (10. Page IV-4 Sewerage)

The table indicates that sewage treatment and disposal facilities are available. As noted previously, we question whether Phase 4 of the proposed action is authorized to use the Honouliuli Sewage Treatment Plant.

RESPONSE:

All phases, including Phase 4, of the proposed action are authorized to use the Honouliuli Sewage Treatment Plant. See response to Comment 7 above.

COMMENT: (12. Page V-1 Short-Term Uses Vs. Long-Term Productivity)

The discussion should be expanded. It is necessary to recognize that the proposed action will stimulate growth in the Ewa area resulting in significant secondary impacts such as deterioration of rural life, increased traffic, increased stress on public facilities and utilities, and the quality of life.

RESPONSE:

HUD holds that implementation of the project in itself will not necessarily stimulate growth in the Ewa area. Other major developments in the Ewa area have been proposed in the past several years and were discussed in Chapter I. However, some of the major forces that do encourage growth in the Ewa area are: (1) Climate and topography of the area, (2) The City and County's General Plan that encourages development of the Second Urban Center on Oahu (Ewa - Makakilo), (3) The availability of large land areas under one ownership and (4) The desire of the land owner to develop that land.

OFFICE OF ENVIRONMENTAL QUALITY CONTROL, OFFICE OF THE GOVERNOR

HUD agrees that the secondary impacts cited in the above comment are important considerations. Those issues relating to the quality of life and rural lifestyle are difficult to consider in a project assessment and are more appropriately dealt with within a regional context. It is agreed, however, that urbanization of agricultural land impinges on the open space value of its previous use and contributes in part to the deterioration of the rural quality of the area on a regional scale. The measurement of that change, however, would be conjecture at this point.

COMMENT: (13. Appendix-Population)

The EIS refers to the State's population projections Series E-2. Earlier this year, the State had revised its population downwards to Series II-F. The document should reflect these currently valid projections.

RESPONSE:

Tables 2 and 3 in Appendix I were revised along with subsequent references to the revised population resulting from the Series II-F projections.

STATE OF HAWAII, DEPARTMENT OF HEALTH
(James S. Kumagai, Deputy Director of Health, November 1, 1978)

NOISE

COMMENT:

Please be informed that we have reservations in regard to the proposed project due to the non-compatible use of land. Noise from agricultural activities will have an adverse effect to the residential units near the agricultural fields and Cane Haul Road. In addition, noise from school, recreational and commercial activities can have an adverse effect to the residential units in the neighborhood.

RESPONSE:

HUD agrees that certain portions of the project site will be subjected to high noise levels generated by canehaul trucks and the H-1 Freeway. The sponsor has retained an acoustical consultant to provide guidance in siting structures, design barriers and architectural details to bring noise to acceptable levels.

STATE OF HAWAII, DEPARTMENT OF HEALTH

COMMENT:

The proposed project must be planned, designed and constructed to meet the noise level requirements of Public Regulations, Chapter 44B, Community Noise Control for Oahu.

RESPONSE:

State Department of Health Regulation Chapter 44B, "Community Noise Control for Oahu," states that "no person within the City and County of Honolulu shall make, or cause the making of, or continue to make, or suffer, or permit to be made, or permit the continuance of, from any premise of land owned, rented, leased, occupied or controlled by such person any excessive noise at or beyond (past) the property line of such premise.

Once the property is sold, the developer has no control of the noise generated by the purchaser. The developer will include noise control measures to satisfy the requirements of Chapter 44B, in the design of any commercial or residential buildings which require the use of noisy equipment such as compressors and air conditioning units.

All requirements of Chapter 44B on construction noise and equipment will be met during construction.

COMMENT:

Barrier walls designed to attenuate traffic noise from the Cane Haul Road must be constructed.

RESPONSE:

The major sources of noise in the Village Park development are the cane haul trucks on the Cane Haul Road and the traffic on the H-1 Freeway.

The traffic on Kunia Road contributes a negligible amount of noise to the residential area because the commercial buildings fronting the road serve as noise barriers.

All except 20 residences abutting the Cane Haul Road will be located more than 170 feet away from the center-line of the nearest lane of H-1 Freeway. The 20 residences will be approximately 140 feet from the center-line of the nearest lane. The Cane Haul Road runs along the south and east boundaries of the development. The road is used extensively only during the cane harvesting season.

During the cane harvesting season the noise level of all residential lots abutting the Cane Haul Road fall into HUD's "normally unacceptable" category unless corrective architectural and engineering designs are adopted.

During the off-season, the noise level at all residential lots will remain in HUD's "normally acceptable" category until about 1990. By 1998, the increase in noise level will push all south boundary residential lots into HUD's "normally unacceptable" category unless corrective measures are taken.

To make the lots abutting the Cane Haul Road "normally acceptable" throughout the year, the outdoor noise level must not exceed 65 dBA more than 8 hours per 24 hours day and the indoor noise level should not exceed 55 dBA daytime and 45 dBA night-time.

The noise levels of fully loaded cane haul trucks range between 70 and 95 dBA 50 feet from the center-line of the road, depending on the slope of the road and the elevation of the lot above the road level. This means that the cane haul truck noise must be reduced by as much as 30 dBA in some locations to meet HUD's normally acceptable outdoor noise standard. This would be difficult to achieve unless the City & County of Honolulu Building Department would permit the erection of barrier walls higher than 6 feet.

The indoor noise level, however, can be reduced to an acceptable level by architecturally designing each residence abutting the Cane Haul Road.

The H-1 Freeway traffic noise at the residential site can be reduced to a normally acceptable level by architectural design and engineering considerations such as set back of the buildings and noise barrier walls. In other words, corrective measures taken to reduce the noise from the Cane Haul Road will, at the same time, be more than adequate to reduce the H-1 Freeway noise to a normally acceptable level during the off-season.

It is often suggested that a corridor of trees be planted between the highway and the residential area to serve as a noise buffer. Actually, the noise reduction of such a buffer is due mainly to the distance between the noise source and the receiver and very little to the trees. The trees, unless planted so thickly that visibility through the corridor is blocked, contribute very little toward noise reduction. The noise reduction effect of the trees is more psychological than real. The same psychological effect may be obtained by a thick hedge of tall shrubs plus a few trees between the Cane Haul Road and the residence.

Where the cost of land is expensive, it is not practical to use a noise buffer corridor as a means of noise control. Alternative and less expensive measures should be used, even at a sacrifice of some outdoor style of living. For example, a heavily planted buffer corridor of 300 to 1000 feet wide between the Cane Haul Road and the residences is necessary to preserve the outdoor life style of living. A 300 feet wide corridor will eliminate approximately 500 residences from the project. This, in turn, will almost double the land cost of the remaining units. It is obvious that an alternative solution using architectural design, and a combination of barrier walls, tall, thick, flowering hedges and reasonable building setback from the Cane Haul Road, would be a more practical solution.

STATE OF HAWAII, DEPARTMENT OF HEALTH

The Developer has engaged an acoustical consultant to provide the expertise necessary for the design of all units abutting the Cane Haul Road, to preserve as much as possible the outdoor style of living.

COMMENT:

Construction activities must comply with the provisions of Public Health Regulations, Chapter 44B, Community Noise Control for Oahu:

a. *Must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the regulations.*

b. *Construction equipment and on-site vehicle or devices requiring an exhaust of gas or air must have a muffler.*

c. *Must comply with the conditional use of permit as specified in the regulations and the conditions issued with the permit.*

RESPONSE:

All such activities will be met during construction .

COMMENT:

All heavy vehicles traveling on trafficways to and from the construction site must comply to the limits stated in Public Health Regulations, Chapter 44A, Vehicular Noise Control for Oahu.

RESPONSE:

All heavy vehicles traveling to and from the construction site will meet the limits stated in Public Health Regulations, Chapter 44A, Vehicular Noise Control for Oahu.

COMMENT: SEWAGE DISPOSAL

The City and County of Honolulu was notified, via a letter dated December 24, 1974, to Mr. Kazu Hayashida from Mr. George Yuen that an increase in the flow rate would be allowed at the Waipahu Stabilization Ponds provided that the effluent limits of the permit were not violated.

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

RESPONSE:

No response required.

UNIVERSITY OF HAWAII AT MANOA, ENVIRONMENTAL CENTER
(Doak Cox, Director, November 6, 1978)

COMMENT: (Other Major Actions in the Region I-4)

The listing of the proposed, approved and on-going projects provided at the beginning of the text, presents an interesting summary of activity in the Leeward area. It would be helpful in evaluating the impacts of this project with respect to the multitude of other developments if a table similar to I-2 were presented for all the "major actions in the region." The table should include for example, the number of units, expected population and date of occupancy.

When reviewing an EIS it is important to assess the project not only for its direct environmental effects, but also for its cumulative and regional effects. This is one of the weaknesses in this statement--it does not discuss the Village Park project in relation to any of the other projects listed. This is especially critical when assessing water, sewage and traffic impacts, which will be discussed further.

RESPONSE:

The section on Summary of Major Actions in the Region, Chapter I was inserted to include information on other potential developments in the Ewa area. The potential number of dwelling units, population and estimated date for completion of the projects are included.

The assessment of Village Park in relation to other projects or the cumulative impact of all the major developments in the area was not considered by HUD to be a function of a project type EIS. The assessment was meant to evaluate the project against existing facilities and services that would be impacted by the project along with those physical impacts generated by implementing the project. The cumulative impact resulting from development of all proposed actions in the region is beyond the scope and responsibility of HUD. It would appear that the format for this type of analysis would best be considered in an EIS as part of the planning process for the Ewa region.

COMMENT: (General Plan Population Distribution Policy I-8)

The EIS refers to Village Park as being in the Ewa Census District, then refers to a statement allegedly made by the Department of General Planning that 3,300 to 4,300 new housing units per year are required between 1970 and 1985. Here it footnotes the General Plan. The GP, however, places the proposed development in the "urban fringe" area of Waipahu-Crestview (see EIS Plate D) where the GP originally projected a population increase of 21,000, 1975 to 2000. This has since been revised downward, as have all population area projections. In sum, the EIS fails to indicate the relation of its projected population to the total increase projected for its population area in the General Plan.

RESPONSE:

The estimate of 3,300 to 4,300 new housing units per year was prepared by HUD based on the series E-2 projections which was included in the Oahu General Plan. The implications of the revised populations contained in the series II-F is discussed under Summary of Major Actions in the Region, Chapter I.

COMMENT: (Land Use Implications II-19)

The discussion on the conversion of prime agricultural land to urban use should be expanded, especially in relation to the State's commitment to maintain agricultural activity and preserve prime agricultural land. The intrusion of urbanization into this prime agricultural area not only decreases the amount of some of our most productive soils, but it adds additional cost burdens on the sugar industry through restraints on burning and new safety precautions on cane hauling. Was Oahu Sugar Company consulted during the preparation stage of this EIS? Who will bear the cost of fencing of cane haul roads and more frequent oiling which will be necessary?

RESPONSE:

A discussion on the conversion of prime agricultural land to an urban use would not serve any purpose at this point in time. The decision to urbanize the project site was made in September 1969.

Oahu Sugar was consulted by both HUD staff and the sponsors' engineers on various aspects of developing the project.

The sponsor will be required to provide protective fencing along the cane haul road on subdivisions where HUD participates.

Oiling of the cane haul road will be done by Oahu Sugar Company.

COMMENT: (Housing Costs II-60, V-2)

The stated objectives of the housing project are to provide low- to moderate-priced housing. The average per unit price, $68,200, can only be afforded by 29% of the population. Based on this information, the housing development seems primarily aimed at moderate, and even high income families ($25,000 or more).

Page II-60 very clearly cites that "18% of the 310 condominium units will be affordable by the moderate income families...the remaining 82% would be affordable only by higher income families." The statement on page I-2 stating that this project will provide housing for low- and moderate-income families is misleading. Perhaps the statement should be reworded to state specifically that the project is primarily designed for high income families with only 18% of the units affordable by moderate income families.

If the condominiums are the lower priced units, and the objectives of the project are to provide low- to moderate-priced housing, why are these units being constructed last? Should the lower cost units be built in the first increments before the prices of construction materials and labor increase and force the prices up even further? What is the rationale for the order of construction?

RESPONSE:

The subject project -- "is a proposal to provide mortgage insurance for the purchase of one-to-four dwellings under Section 203 of the National Housing Act and mortgage insurance for rental or cooperative multifamily housing for low and moderate income families." Page I-2. The primary objective of the project never was intended to provide the major portion of its units to low and moderate income families. Ordinance 4084 required "A minimum of 15% of the units shall be marketed at prices comparable to those established by the Federal Housing Administration or other government agencies for low/moderate income families."

COMMENT: (Gulch I-10, II-1, II-14, II-18)

As stated in the EIS, the Navy will continue to use the Waikele Gulch to store ammunition and the Homeowner's Association of the condominium units will commonly own and maintain the gulch area. From the description provided, accessibility to the gulch appears limited, especially with the steepness of its slopes. (page II-1: can a slope be more than 100%, as stated?) How can a Homeowner's Association maintain an inaccessible piece of land? What kind of maintenance will be required? What kind of safety facilities, if any, will be provided to discourage young children from entering the area? Are there any dangers involved in locating residences so close to an ammunition depot? Will prospective buyers be warned of this potential hazard? Has the gulch ever been surveyed by a qualified archaeologist? Has the Bishop Museum been consulted about this project?

RESPONSE:

Vehicular access to the gulch is clarified by Plate C, (revised). The cane haul road is separated from the Navy access road which does provide vehicular access to the gulch over reasonable road gradients estimated at 10%.

Slopes having a 1:1 ratio (horizontal to vertical) is equivalent to 100%. There are many conditions throughout Oahu where the slope far exceeds the 1:1 slope ratio including the west face of Waikele Gulch which defines the eastern boundary of the project.

The Homeowner's Association would not be maintaining Waikele Gulch but that gulch within the project. The eastern boundary of the gulch is defined by Phases 3 & 16, Hoaeae School and a 10 acre park. The western boundary is defined by Phases 14 & 15. (see Plate C).

There are no current plans to improve the gulch; therefore, maintenance will only be on an "as needed basis."

Safety facilities will be required on HUD projects to comply with HUD Minimum Property Standards. The extent of these improvements cannot be determined until a grading plan is prepared for the areas abutting the gulch.

The concern for residences located near the ammunition depot is covered in the reply to a similar inquiry raised by Life of the Land. Please refer to that response.

The gulch was not surveyed by an archaeologist since it was understood that the gulch would not be disturbed. Should future plans call for major grading or improvement in the gulch, an archaeological survey will be performed.

The Bishop Museum was not contacted nor consulted on this project.

COMMENT: (Water Supply II-44 - II-48)

The EIS refers to 1975 water consumption figures. Why not use 1977 or 1978 figures? They are available from the Board of Water Supply.

The EIS recognizes that the "water demand of the project is 1.01 mgd, or 20% of the 5.04 mgd total pumping capacity of the two Kunia wells". This is a significant demand and should be discussed in relation to other projects, especially those that may be drawing from the same source. Is that much water available during drought conditions?

The EIS identified three groups of wells as supplying the water needed in the area. It states that, by expansion, the sustainable yield of these well groups has been increased. This confuses the total capacity of the well groups with the sustainable yield, which cannot be calculated for individual wells or well groups but only for the groundwater aquifer as a whole. The State Water Commission is considering an analysis by its Water Supply Committee that indicates that the Pearl Harbor aquifer as a whole may already be overdrawn and recommends that development in the region be controlled, that a moratorium be placed on any additional exports from the region, and that the additional demand in the region be met by water development elsewhere.

We are pleased to see consideration of re-use of water for sugarcane irrigation. What is necessary to make that a reality? Was Oahu Sugar Company consulted on this?

RESPONSE:

The water consumption figures were updated using the Board of Water Supply's Annual Report and Statistical Summary (July 1, 1976 - June 30, 1977).

The water demand of the project is 1.01 mgd, or 40% of the 2.5 mgd total pumping capacity of Kunia Wells II. Please note the correction to the well pumping capacity. Although this is a significant demand of Kunia Wells II, the demand is justified since the water source storage facility and distribution system was constructed with private money, specifically for the Harbor View and Village Park projects. With regard to other projects that may want to draw from the same source, they must request water service from the Board of Water Supply (BWS) since the water system has been dedicated to BWS. The availability of water during drought conditions is dependent upon the duration, localization and other characteristics of the particular drought, consequently a definitive statement is not available.

We agree with you that the total capacity of the well groups is confused with the sustainable yield, therefore, this discrepancy is corrected in the Final EIS. We acknowledge the State Water Commission's consideration of a committee recommendation that additional demand in the region be met by water development elsewhere.

The re-use of water for sugarcane irrigation is dependent upon several factors. The two most important factors are 1) will the treated effluent contaminate potable groundwater sources and 2) the future economic stability of sugar production. Oahu Sugar Company has been a consulted party from the beginning.

COMMENT: (Groundwater II-6)

Certainly water management is of great importance, hence it would seem highly appropriate to consider alternative collection and diversion of storm water to promote recharge rather than prevent it. What is the rationale for the prevention system proposed? Will such procedures increase runoff into Pearl Harbor and erosion in the existing gulches? What specific measures will be adopted to comply with the mitigative measures cited?

RESPONSE:

The rationale for the storm drainage system is that the system must be designed in accordance with the Drainage Standards of the City and County of Honolulu.

The project will increase runoff into West Loch Pearl Harbor by one percent and increase erosion in the existing gulches to a lesser degree.

Conservation methods for both urban and irrigation uses will encompass recycling of treated sewage effluent for irrigation and the expansion of drip irrigation to achieve a better irrigation efficiency.

COMMENT: (Storm Drainage/Flooding II-20 - II-22)

What are the C and I values used in the rational method to determine peak runoff from the watershed? 100-year storm peak runoff I = ____ 5,000 cfs? 50-year storm?

Please indicate how the 5,000 cfs design peak flow will be routed through the culverts at the Farrington Highway junction with reported capacities of only 2,270 cfs. If this location is expected to be a potential flood hazard area, what are the mitigative measures for this problem?

With respect to mitigative measures, Item 1: Will the earth reservoir be flood control measures or flood additive hazards?

RESPONSE:

The C and I values (100-year storm) used in the rational method to determine peak runoff from the watershed are as follows:

C	I	Landuse
0.35	3.3	Bare Ground (cane and pineapple fields)
0.75	2.5	Full Growth (cane and pienapple fields)
0.70	3.0	Residential
0.80	2.9	Industrial

The 5,000 cfs were determined from Plate 6, "Storm Drainage Standards", Department of Public Works, City and County of Honolulu.

The central drainageway from H-1 freeway to West Loch, Pearl Harbor, was improved based on a 50-year storm frequency. Its design was based on design standards that are no longer in effect.

Flows exceeding the capacity of the culverts will top Farrington Highway and reenter the channel on the downstream side of the highway. Field inspections (September 1975 and June 1978) indicate an empty lot and a parking area for a drive-in adjacent to the upstream side and an empty lot and a parking area for an automobile agency abutting the channel downstream of the highway. Damages to these areas due to over-topping the culverts for the adjusted estimated 100-year flow will be localized.

The earth reservoir is considered neither a flood control measure or flood additive hazards. They are recognized only as irrigation reservoirs for the sugarcane fields. However, as a safety precaution, the on-site drainage system has been designed to accomodate a reservoir overflow.

COMMENT: (Soils II-3)

It appears that potential soil erosion problems will be one of the most serious physical environmental impacts of this project. Due to the nature of the soils involved, the previous agricultural use of the land and its slopes, possible serious sediment transport into Pearl Harbor is of major concern. The mitigative measures cited should be specific, for example: how much land will be exposed at any one time during construction? When will grading and site improvements be conducted? (The EIS mentions that grading of the development site started in September 1978. Is this, indeed, true?)

RESPONSE:

Fifteen acres is the maximum land area that may be exposed at any one time during construction. The grading began in December of 1978 and construction is scheduled to start in March 1979.

COMMENT: (Liquid Waste II-54 - II-57)

As the DEIS notes (page II-56) the first 450 - 500 units of the project would exhaust the remaining sewerage capacity in the Waipahu sewage plant. This negative impact, it is argued, would be mitigated by the eventual construction of the Honouliuli plant. There is no discussion of how the 25 mgd of that proposed plant is projected to be allocated among competing users in that area, but it would seem that the eventual amount of sewerage projected for the project (2.7 mgd) represents a significant proportion of the capacity of that plant. Moreover, the argument (page II-56) that "this long term negative impact would be mitigated by the additional tax revenues generated from the 1,745 new property owners in the project" is simply not substantiated.

RESPONSE:

The 25 mgd first phase capacity of the Honouliuli Wastewater Treatment Plant will be allocated to competing users on a first-come-first-serve basis once the existing systems are connected. The projected amount of 2.7 mgd represents the ultimate amount of sewage projected for the project.

COMMENT: (Solid Waste Disposal II-49, II-53)

Mention is made of a 1975 study indicating the feasibility of generating power from solid wastes on Oahu. What is the relationship of this study to the proposed project?

The term "scavenging" (page II-49) is misleading. Does it, in fact, refer to private "collection"?

A definite impact which should be discussed is the increased cost to the condominium owners. As we understand it, they will have to pay for the collection service, as opposed to having the City and County pay for it through general funds.

RESPONSE:

It is difficult to establish a direct relationship between the 1975 study of the feasibility of generating power from solid wastes. It does demonstrate, however, that the City administration is concerned over the future solid waste disposal program for Oahu. Since the subject project will generate solid wastes for a long time period, it was felt important to disclose the various options being considered by the City and County

The text was amended to reflect collection in lieu of scavenger.

It is agreed the condominium owners will pay for the collection system. This point is noted on page IV-4.

COMMENT: (Air Pollutants II-26)

We note a reference to the expected issuance of a final airborne lead standard in June 1978. Since this document is dated September 1978 it would appear appropriate to clarify whether such a standard was issued in June or to revise the expected date of issuance. A similar update is needed with regard to the Kapaa landfill (page II-50).

RESPONSE:

A lead emission factor was proposed by EPA on December 14, 1977 and adopted on October 5, 1978. The standard permits up to 1.5 micrograms per cubic meter averaged out over a calendar quarter.

An update on the Kapaa landfill was noted in the text.

COMMENT: (Noise II-36, II-41, II-13)

The discussion of noise problems seems quite inclusive. We find it alarming, however, that essentially all houses adjacent to the freeway and cane haul road will be in the normally unacceptable noise category by 1998 and in fact most, if not all, homes will be in this

category immediately. In many cases, the anticipated noise levels are in the "hearing impairment" range.

The mitigation measures cited on page II-41 are all directed toward architectural design or engineering solutions to the problems. Other mitigative measures could include the creation of a wider heavily landscaped border area adjacent to the road to serve as a park and noise attenuation area. The Hawaiian climate and outdoor lifestyle does not encourage noise problem solutions that require extra structural insulation. The national and state energy policies certainly do not encourage the use of air conditioners or forced ventilating system in order to tolerate excessive noise levels.

Aircraft noise levels should also be included in the EIS. Are HUD Noise Assessment guidelines based on mainland samples? We encourage the use of local guidelines as Hawaii's environment is much more open than the mainland's and can tolerate less noise.

It was mentioned that during the harvest, cane trucks may be operating 24 hours per day. What are the noise levels of the cane hauling trucks?

RESPONSE:

HUD agrees that the Hawaiian climate is far more sensitive to noise emissions due to the island lifestyle. HUD is, however, limited to enforcing its own standards on HUD projects. Mitigative measures were not limited to architectural solutions as suggested by your comment. Please refer to mitigative measures listed under Site Planning, Page II-40.

Aircraft noise levels were discussed on page II-38.

The HUD Noise Assessment Guidelines were developed as a screening device to evaluate residential sites subjected to various noise sources to determine if a project site warrants further in depth study by an acoustical consultant.

In reply to the comment - "We encourage the use of local guidelines as Hawaii's environment is much more open than the mainland's and can tolerate less noise" - refer to the response to the State Health Department.

The noise levels of the cane hauling trucks at 50' range between 70 and 90+ dBA as noted in the text on page II-40. There are a number of variables that affect the noise level (i.e. road gradient, elevation of receptor in relationship to the cane haul road, speed of the vehicle and weather conditions).

COMMENT: (Traffic I-2, II-23, II-34, II-67)

The discussion on traffic impacts should be expanded to include Village Park in relation to other major traffic-producing projects in the area and their attendant impacts on H-1. We seriously question the estimated 20-minute drive from downtown Honolulu as the H-1 freeway is already congested, especially in the Red Hill area. We suggest an update on the traffic statistics as the situation has probably worsened since 1975.

We are also concerned with possible traffic congestion and hazards in the immediate vicinity on the project. Kunia Road, the only road into and out of the development and through a commercial area, is bound to create traffic problems as well as air quality problems.

On page II-23, the report states that "Kunia Road provides the only vehicular access to the site". "Current peak hour traffic is approximately 1,200 vehicles per hour (both directions), while the capacity of Kunia Road is estimated at 2,400 vph."

On page II-24, the report states that "the project will increase the peak hour traffic volume on Kunia Road from 1,473 vph to 2,480 vph (a.m. peak) and 1,615 vph to 2,622 vph (p.m. peak)". "This represents traffic increases of 68 percent and 63 percent, respectively. Is there any explanation for these inconsistencies?

Our second concern is with the overloading of Kunia Road at the junction with the project road. The situation is further complicated by the exit road from H-1 to Kunia Road and the exit of the cane haul road into Kunia Road -- all in the same general area. What is the current Level of Service (LOS) for Kunia Road and what are the LOS projections for 1980-1990?

In addition, the discussion of road "capacity" in terms of vehicles per hour does not take into consideration the significant left turn time that town bound residents of the project will experience in the a.m. peak traffic. While this is a potentially significant impact for residents of the project (and other users of Kunia Road) all the "mitigative measures" call for government action of some sort (e.g., widening of Kunia Road in front of the project). Are there firm plans by the relevant government agencies to mitigate the potential traffic hazards? And, if so, shouldn't those costs be reflected in the fiscal impact analysis on page II-63?

We suggest expansion of the discussion of traffic impacts with current statistics.

RESPONSE:

We agree that 20 minutes travel time between Village Park and Honolulu may be optimistic. Thirty (30) minutes may be more realistic.

Congestion in the Red Hill area is a result of the narrow section of H-1 at Moanalua. Studies on freeway operations show that freeway bottlenecks operate similarly to an hourglass. Congestion of freeways occurs upstream of bottleneck conditions. The widening, which is presently occuring at the Moanalua section, will help to alleviate existing congestion.

While the amount of traffic on Kunia Road is being increased, improvements such as exclusive left turn lanes, auxiliary right turn lanes and eventually signalization of the intersections at Village Park and the Kunia Interchange ramps KI and KA will provide orderly routing and control of traffic

The commercial area is expected to be a neighborhood shopping area whose patrons predominately will be Village Park residents. The presence of commercial facilities in nearby Waipahu and the relatively isolated location of the shopping area from existing residences will tend to keep the shopping complex a neighborhood shopping area.

While Village Park will increase air pollutant levels, air pollutant concentrations, as shown in the EIS, are expected to be well below State or Federal air quality standards.

The statement that the "capacity of Kunia Road is estimated at 2,400 vph" is incorrect. The maximum on a two-lane road (uninterrupted) is 2,000 vph. However, for the improved road the capacity is greater than the peak hour traffic (by intersection analysis). Intersections A and B will operate at Level of Service "C".

The presence of the cane haul road should not materially affect traffic on Kunia Road. Rather conversely, the increased traffic on Kunia Road will have a greater impact on the traffic on the cane haul road. An unsignalized intersection on a through route is seldom critical from a capacity standpoint.

South of Intersection A on Kunia Road, three lanes will be provided in place of the existing lane. A right turn lane for Intersection A, an auxiliary right turn lane for Intersection B and a through lane will be provided for northbound traffic. For southbound traffic, an exclusive left turn lane and a through lane will be provided.

The Level of Service of existing Kunia Road (uninterrupted) is Level of Service "C". The projected Level of Service (1990) of the

widened and improved Kunia Road is also Level of Service "C" (by intersection analysis).

The effect of left turn vehicles is taken into account in the intersection analysis.

Improvements to Kunia Road such as providing left turn lanes, right turn lanes and installation of traffic signals are included in the development cost. Therefore, these costs are not included in the fiscal impact analysis.

Current traffic data from the State Land Transportation Division are compatible with projected traffic. The traffic impacts are essentially unchanged.

COMMENT: (Public Transportation Service II-67)

The extension of bus service to this new development seems critical in view of the energy needs of the state and nation. Has such bus service been requested? What is the expected time frame and cost for implementation of bus service to the area? Was the City and County Department of Transportation Services consulted?

RESPONSE:

The MTL, Department of Transportation Services, City & County of Honolulu, was contacted about bus service to the area. HUD was advised that no additional buses would be available for this area until after 1980.

The MTL noted that they would either modify existing bus routes to service the area or provide a shuttle system that would connect to other major bus routes. The level of service provided would depend upon the demand for public transportation service and operating costs and maintenance.

COMMENT: (Open Space II-13)

Approximately 35 acres of the site are to be retained for public parks or natural open space. Does this acreage include any land in the gulch area and, if so, how much?

RESPONSE:

Table I-1 lists the various land uses and the types of open space. Actually there will be approximately 50.2 acres in parks, open space and easements. The 50.2 acres includes 15.2 acres in parks, 9.0 acres in easements and 26 acres in the gulch. Plate C notes that 7.5 acres of the 9.0 acres in easements will be used for the cane haul road along the south boundary.

COMMENT: (Hazards: Natural and Man-Made II-72)

A slope of "2':1' (horizontal to vertical)" is the same as "slopes that drop 50' to 100'."

RESPONSE:

The text was corrected to reflect the intent of noting that the slope is nearly vertical along the eastern boundary of the project in Waikele Gulch.

COMMENT: (Man-Made Hazards II-73, II-74)

We assume the "safety quantity distance (ESQD arc...)" cited with regard to the blast zone is a minimum area of an explosion depot within which damage or injury is likely should an explosion occur. We do not quite understand what is meant by the elimination of the ESQD arcs in 198?. Does this mean that the stored ammunition will be removed, or does it simply mean that the boundaries will be redefined? This should be clarified as there are a number of units proposed within the ESQD zone.

RESPONSE:

The ESQD was generated by a transfer shed which has since been demolished. See letter from the Fourteenth Naval District, page

COMMENT: (General)

The DEIS (page II-59) notes that "there could be 1200 units built (in the Ewa HMA) in 1978, 1600 in 1979, 1800 in 1980, 2000 each year thereafter." When this project is viewed in the context of these regional growth projections it is apparent that the project is very likely to contribute to cumulative impacts that are not discussed in the report. In particular, this and other projects will have major impacts on traffic, sewerage capacity and water supply that remain unanalyzed.

RESPONSE:

HUD agrees that the cumulative impacts of all proposed actions within the region were not fully addressed. The proposed action was, however, evaluated as it impacts municipal services and facilities. Physical impacts were also discussed along mitigative measures.

The cumulative impacts of all major developments would be more appropriately addressed through an environmental assessment of the pending Development Plans for the Ewa area.

COMMENT: (Acknowledgements)

We note that some, but not all, individuals and organizations that

contributed to the preparation of this EIS are listed. Unfortunately, neither their contributions nor responses to them are included in the EIS as is required by Section 1:42. We find this to be a serious omission of the EIS. An adequate review and evaluation of many of the aspects of this project depend on the recognition of input from the agencies and individuals most directly concerned. Were the following consulted: Department of Agriculture and Health? Oahu Sugar Company, U.S. Navy, Bishop Museum, City and County Department of Transportation Services?

RESPONSE:

The EIS was prepared in accordance with CEQ and HUD guidelines and was not subject to Section 1:42.

The following sources were consulted in preparing the EIS: Oahu Sugar Company, U.S. Navy and the City and County Department of Transportation Services.

UNIVERSITY OF HAWAII AT MANOA WATER RESOURCES CENTER
(Yu-Si Fok, Faculty EIS Review Coordinator, November 1, 1978)

COMMENT: **(Storm Drainage/Flooding Pages II-20 - II-22)**

What are the C and I values used in the rational method to determine peak runoff from the watershed? 100-year storm peak runoff I = _____ 5,000 cfs? 50-year storm?

RESPONSE:

The C and I values (100-year storm) used in the rational method to determine peak runoff from the watershed are as follows:

C	I	Landuse
0.35	3.3	Bare Ground (cane and pineapple fields)
0.75	2.5	Full Growth (cane and pineapple fields)
0.70	3.0	Residential
0.80	2.9	Industrial

The 5,000 cfs was determined from Plate 6, "Storm Drainage Standards", Department of Public Works, City and County of Honolulu.

The central drainageway from H-1 freeway to West Loch, Pearl Harbor, was improved based on a 50-year storm frequency. The drainage calculations were based on standards in effect at that time.

COMMENT: (Page II-21)

Please indicate how the 5,000 cfs design peak flow will be routed through the culverts at the Farrington Highway junction with reported capacities of only 2,270 cfs. If this location is expected to be a potential flood hazard area, what are the mitigative measures for this problem?

RESPONSE:

Flows exceeding the capacity of the culverts will top Farrington Highway and reenter the channel on the downstream side of the highway. Field inspections (September 1975 and June 1978) indicate an empty lot and a parking area for a drive-in adjacent to the upstream side and an empty lot and a parking area for an automobile agency abutting the channel downstream of the highway. Damages to these areas due to overtopping the culverts for the adjusted estimated 100-year flow will be localized.

COMMENT: (Page II-22)

With respect to mitigative measures, Item 1: Will the earth reservoir be flood control measures or flood additive hazards?

RESPONSE:

The earth reservoir are considered neither flood control measures nor flood additive hazards. They are recognized only as irrigation reservoirs for the sugarcane.

COMMENT: (Page II-45)

Correct 43/25 mgd to read 43.25 mgd.

RESPONSE:

The amount 43/25 mgd was corrected and updated to read 72 mgd.

UNIVERSITY OF HAWAII AT MANOA, WATER RESOURCES CENTER

COMMENT:

Pumpage in the Pearl Harbor District has been reported as approaching its limit in recent BWS announcements and many wells in this district have been listed to be at critical levels. Will the Kunia Wells not be involved in the future?

RESPONSE:

Kunia Wells II will probably not be involved in the future because of its inland location above the other coastal wells.

COMMENT: (Page II-47 Paragraph 7)

Quantify the positive impact of the net reduction of water use with the removal of sugarcane fields from irrigation by the construction of Village Park.

RESPONSE:

The average daily water demand of the proposed project can also be expressed on the basis of per acre demand. Based on an average daily demand of 1.01 mgd and an approximate urbanized area of 255 acres, the urban demand for the proposed project can be expressed as 3,960 gpad which must be satisfied by the region's basal water.

Considering a crop with a high water demand, such as sugarcane, the average daily demand would be 7,440 gpad based on an average annual crop water requirement of 100 inches per year. If rainfall is assumed to satisfy a portion of this annual demand, then an average daily demand of 5,580 gpad results (assuming an average annual rainfall in the project area of 25 inches). The regional basal water would be expected to satisfy the water demand of the sugarcane, which, when referenced to 255 acres results in total demand of 1.42 mgd.

From the above, the impact of sugarcane cultivation on the region's basal water resource would be greater than that due to urbanization. It is recognized that sugarcane is a high water demanding crop, and other crops might exert lower demands.

COMMENT: (Solid Waste Page II-49)

The term "scavenging" is misleading. I assume that this in fact will be private "collection"

RESPONSE:

The text was amended to reflect collection in lieu of scavenger.

RESPONSE:

The soil problems will be addressed by HUD. Soils investigation reports prepared by a professional soils engineer will be done to meet the requirements of HUD Minimum Property Standards for each increment of the development.

COMMENT: (3)

Since the project will only provide minimal commercial services to the residents, it is assumed that they are expected to use the commercial centers in Waipahu. What impact would this have on the Kunia and Farrington intersection?

RESPONSE:

The commercial area in the project can be considered more of a convenience shopping center since greater variety of goods and services are available in Waipahu, Pearl Ridge and other areas.

The additional traffic generated by the project related to shopping was not measured since most shopping trips occur outside of the peak traffic hours.

COMMENT: (4)

The information evaluating the ptential (actually potential) of a reservoir overflow is limited. A further discussion as to the type of reservoir, safety precautions, and perhaps a map of the area that would be affected if a overflow occurred would be needed to make an evaluation.

RESPONSE:

See reply to similar questions raised by the City and County of Honolulu, Department of Public Works, Comment II, Reservoir Overflow.

COMMENT: (5)

Much of Leeward Oahu's traffic problems are of a regional nature, and not confined to neighborhood congestion. What will be the impact of this housing project on traffic congestion on Red Hill during peak hour driving? How many more cars will be added to the Moanalua Highway traffic?

RESPONSE:

HUD agrees that traffic generated by the project will impact not only local highway facilities but major arterials within the region as well.

The Village Park project will contribute approximately 757 vehicles per hour or approximately 14% of the traffic during peak hour

traffic on the H-1 Freeway at Kunia Road. The impact of those vehicles at Moanalua Road was not determined since other routes to Honolulu are or will be available for use upon completion of the project. See Figure 9.

COMMENT: (6)

Some mention needs to be made regarding the proposed general aviation airport that was at one time planned for the Kunia area. While the site selection has not been concluded, a project of this type should not be ignored.

RESPONSE:

HUD was advised by the State Department of Transportation that the Kunia sites for the General Aviation Airport are no longer being pursued as viable sites. Therefore, it is not considered nor mentioned as a major action within the region.

COMMENT: (7)

Is there a limit to the size of an area that can be mass graded at one time? (p. II-2, sentence 1)

RESPONSE:

The City and County Grading Ordinance limits mass grading to a maximum of 15 acres at one time.

COMMENT: (8)

One of the major cultural facilities in Leeward Oahu that deserves individual mention is the Leeward Community College Theater.

RESPONSE:

The text was corrected to include the Leeward Community College Theater.

UNIVERSITY OF HAWAII AT MANOA, WATER RESOURCES CENTER

COMMENT: (Page II-53)

A definite impact which is glossed over under "mitigative measures" is the increase cost to the condominium owners. As I understand it, they will have to pay for this service, as opposed to having the City and County pay for it through general funds.

RESPONSE:

On page II-52 the text notes "The impact on the private collection system and disposal is considered a minor, long-term negative impact."

COMMENT: (Liquid Waste Page II-55)

How were the participants to the "reserved capacity" selected?

RESPONSE:

The participants to the "reserved capacity" were selected on a first-come-first-serve basis with a stipulation that construction must begin by an assigned date or their reservation would be cancelled.

UNIVERSITY OF HAWAII, LEEWARD COMMUNITY COLLEGE
(John Moriyama, Office of Special Programs and Community Services, November 14, 1978)

COMMENT: (1)

What will be the type and length of impacts on Kunia Road during the development of the project?

RESPONSE:

Construction activities within the project area will not materially affect Kunia Road. However, the widening of Kunia Road and improvement to Kunia Interchange will require traffic control from the interchange to Intersection B of Village Park. All lanes, however, will be open to traffic during the peak hours.

Construction of Kunia Road improvements is expected to extend for a period of 9 to 12 months.

COMMENT: (2)

The soil characteristics indicate that it may cause a potential erosion hazard and could affect the structural stability of housing units. Will the soil characteristics lead to a slide problem?

BOARD OF WATER SUPPLY
(Kazu Hayashida, Manager and Chief Engineer, November 1, 1978)

COMMENT:
All construction plans must be submitted to us for review of fire protection requirements.

RESPONSE:
All construction plans will be submitted to the Board of Water Supply (BWS) for review of fire protection requirements.

COMMENT:
The consultant should revise his estimates on water demand, reservoir sizing and pumping facilities using our departmental design standards.

RESPONSE:
Estimates on water demand, reservoir sizing and pumping facilities in accordance with BWS design standards have been revised in the text (See P. II-45 to II-47).

COMMENT:
On page II-45, the section on "Existing Water Distribution System" should be corrected to indicate that the minimum diameter of the new mains will be 8-inches.

RESPONSE:
The section on "Existing Water Distribution System", on page II-45, was corrected to indicate that the minimum diameters of the new mains will be 8-inches.

COMMENT:
On page II-45, the section on "Existing Water Supply Facilities" should be corrected to indicate:

a. *The sustainable capacity of Kunia Wells II is 2.50 mgd.*
b. *Eight service areas were reconfigured into six water use districts.*
c. *The average 12-month draft and long term allowable draft for the department's water sources in the Pearl Harbor District are 68 mgd and 72 mgd respectively. These figures should not be confused with the allowable draft from all sources within the District.*
d. *The department has 17 well sources and 2 shaft sources in the Pearl Harbor District.*
e. *The consultant should use the current data in our Annual Report and Statistical Summary (July 1, 1976 - June 30, 1977). The latest figures will require revisions to the consultant's estimated assumptions on underdraft/overdraft conditions.*

BOARD OF WATER SUPPLY

RESPONSE:

The section on "Existing Water Supply Facilities", on page II-45 was corrected as follows:

a. *The sustainable capacity of Kunia Wells II was changed from 6.0 mgd to 2.50 mgd.*
b. *The service areas was changed from nine to eight and the Water Use Districts was changed from five to six.*
c. *The average 12-month draft was changed from 12.35 mgd to 68 mgd and the long term allowable draft 43/25 to 72 mgd.*
d. *The 12-well systems was changed to 17-well sources and the Pearl City shaft water supply to two shaft sources.*
e. *The BWS Annual Report and Statistical Summary (July 1, 1976 - June 30, 1977) was used to re-evaluate the underdraft/over-draft conditions.*

COMMENT:

On page II-46, the section on "Water Well Supplies and Storage" should be revised using the department's design standards.

RESPONSE:

The section on "Water Well Supplies and Storage", on page II-46, was revised using the BWS design standards.

COMMENT:

On page II-47, the item on the project's estimated water demand should be corrected to indicate that the demand will be 40% of Kunia Wells II sustainable capacity and not 16.7% as stated in the document.

RESPONSE:

The project's estimated water demand was corrected to indicate that the demand will be 40% of Kunia Wells II sustainable capacity and not 16.7%.

DEPARTMENT OF GENERAL PLANNING
(George S. Moriguchi, Chief Planning Officer, November 8, 1978)

COMMENT: (Relationship of the Project to Local Policies)

The EIS indicates that the "proposed action is consistent with all applicable state and local land use regulations and standards" (p. I-2) and that the "revised development concept (was) approved by the City and County of Honolulu" in May, 1977 (p. I-11).

While development of the area was approved, the present development concept differs considerably from what was approved under Ordinance 4084. The question of whether City Council approval is required or not is still to be resolved.

Appropriate maps showing the Detailed Land Use Map designations, zoning, and the initially approved design concept should be included in the EIS for comparison with the presently proposed design concept. The differences should be discussed. The chronology (p. I-11) should be updated to include the developer's request to City Council to modify the provisions of Ordinance 4084.

RESPONSE:

The initial design concept was briefly discussed under Chronology of Events (Page I-11). Changes in the housing market caused the sponsor to reevaluate the initial site plan subsequent to its approval. Several intermediate site planning concepts were then considered. The current plan recognizes the current high demand for single family detached housing units.

The Chronology of Events was updated to January 1, 1979.

COMMENT: (Drainage)

Under topography, it is indicated that:

a. *"Two (2) drainage ways traverse the middle section of the site with side slopes over 40 percent and depths to 50 feet" (p. II-1).*

b. *"Since the runoff increase due to the development is small (one or two percent for adjusted condition), the effect on the capacities of the channel improvements downstream should be minimal"(p. II-21).*

c. *"The project site has favorable terrain features which will minimize flood hazards, provided improvements are kept outside of the flow line of the two (2) drainage ways traversing the site"(p. II-21), underscoring added).*

d. "Increase in runoff will further contribute to the existing potential flooding condition to the area surrounding the two 12'4" X 7'9" culverts crossing Farrington Highway" (p. II-22, underscoring added).

The Village Park Development Plan (Plate C) shows elimination of the easterly gully traversing the site. This will alter present drainage patterns considerably. The EIS should discuss the impact of this. The EIS should also indicate what areas near Farrington Highway are subject to flooding with the increase in runoff, and how many households or non-residential establishments might be affected.

Additionally, the direct impact of filling the gully is not discussed (i.e., how much fill will this require; from where).

RESPONSE:

The elimination of the easterly gully traversing the project site will not alter the overall drainage pattern. The runoff from the gully presently discharges into the central gulch and the underground drainage system of the area will also discharge into the central gulch.

The areas near Farrington Highway subject to flooding were identified by field inspections conducted in September of 1975 and June of 1978. The inspections indicated that an empty lot and a parking area for a drive-in adjacent to the upstream side and an empty lot and a parking area for an automobile agency abutting the channel downstream of the highway will be affected.

The additional areas that might be subject to flooding will be negligible since the total runoff will increase by only one percent. The affected areas will be confined to those mentioned previously.

The filling of the gully will require approximately 400,000 cubic yards of earth of which will be derived from onsite excavation. The gully had been under sugarcane cultivation, subsequently no major adverse impacts are anticipated due to the filling of the gully.

COMMENT: (Easements)

The Village Park Development Plan calls for relocation of the cane haul road (Easement C) along the south and eastern boundary of the project. It is indicated that "Mixed vehicular traffic generated by sugar cane production and the U.S. Navy for maintenance and servicing their facilities in Waikele Gulch may draw conflicts" (p. II-17).

The EIS should indicate whether Oahu Sugar Company has agreed to the relocation of the easement (they previously indicated their concerns) and whether the Navy has agreed to permit civilian use of

the Naval Access Road as well as a connection from the access road to the cane fields above as shown in the Village Park Development Plan. Statements from Oahu Sugar Company and the Navy on this should be included in the Appendix to the EIS.

RESPONSE:

The statement noting "mixed vehicular traffic" is in error and is now deleted from the text. The cane haul road along the eastern boundary will closely parallel the navy access road as now shown on Plate C (Revised).

In view of this revision a statement from Oahu Sugar Company and the U.S. Navy was not solicited.

COMMENT: (Schools)

The City's Detailed Land Use Map for the area shows two school/park sites in the project area. With fewer units now proposed, it is indicated that only one school may be required (pp. II-19 and II-68 to 70).

The need for a DLUM amendment should be addressed in the EIS.

RESPONSE:

Due to the decrease in the number of units the second grade school is no longer needed. The need for the Hoaeae Grade School will be monitored by the State Department of Education. See letter in Chapter VII from the Department of Education.

The need for a DLUM amendment was not required as determined by the Department of Land Utilization. A letter dated March 2, 1978 to the sponsor, subject Village Park PD-H Revisions, Ordinance 4084, is quoted as follows:

> "Ordinance condition, Section III, 3.c. Flexibility, states the project may be subdivided as authorized and approved by the Planning Director (now Director of Land Utilization).
>
> The proposed revisions are approved subject to the following conditions:
>
> 1. Greater use of cul-de-sac streets to break the monotony of the grid of long through-streets, which encourages through traffic.
>
> 2. Provisions of street tree planting throughout the development and landscaping of the front yard by the developer.

3. Relocating the 5.4 acre park in the northeast corner of the site to front along the perimeter collector street for more direct community access and visibility.

4. All streets to conform to the standards of the Subdivision Rules and Regulations of the City and County of Honolulu.

5. Development of the site shall be in accordance with the site plan titled Proposed Development Plan, dated August 2, 1977, Revised Exhibit C. Maximum number of dwelling units shall not exceed 1,952.

6. The applicant should address ordinance condition, Section III, 1.b. Low-Income Housing, which requires a minimum of 15 percent of the units to be marketed for low/moderate income families, prior to issuance of building permits."

COMMENT: (Water)

The EIS provides a lengthy discussion of water resources and the water system (pp. II-44 to 48).

It would be appropriate to include in the EIS (the appendix) some official correspondence from the Board of Water Supply stating that the available water resources and the water system are adequate for the project.

RESPONSE:

Official correspondence from the Board of Water Supply is reproduced on page

COMMENT: (Sewage Disposal)

It is indicated that "...EPA will provide grant funds for 75% of construction costs with 12% state matched funds (p. II-55).

The EPA share is correct; the City and State now share the balance on a 60-40 basis. Accordingly, the State share is 10 percent, rather that 12 percent as indicated.

RESPONSE:

The State's share of matching funds was corrected from 12 percent to 10 percent.

DEPARTMENT OF GENERAL PLANNING

COMMENT: (Transportation/Circulation)

This section of the EIS (pp. II-22 to 24) indicates that the project will increase Kunia Road traffic beyond its present capacity, which is adequate for today's traffic.

Several measures are proposed to mitigate this: widening of Kunia Road to four lanes; increasing the capacity of the Kunia Intersection; signalizing Intersections A and B; and signalizing intersections of Ramps KA and KI with Kunia Road (p. II-24). The EIS fails to indicate who is expected to pay for these improvements. Estimated costs should be provided in the EIS, and these costs should be included in Table II-14 FORECAST OF COSTS TO LOCAL GOVERNMENT TO PROVIDE SERVICES AND FACILITIES FOR RESIDENTS OF VILLAGE PARK (p. II-63). If the developer proposes to pay for these improvements, that should be indicated, as in the case of dedication of park lands.

RESPONSE:

The cost of mitigation measures (i.e. widening of Kunia Road, signalization and improving Kunia Interchange) are part of the development costs and is indicated in the final EIS. A letter dated December 5, 1978 from Waitec Development, Inc. to Mr. Harano, State Department of Transportation, is quoted in part as follows:

> *"Waitec Development, Inc., developers for Village Park, agrees to widen Kunia Road, which fronts our project, improve portions of Kunia Interchange and install traffic signals, as outlined in the recommendations and within the timetable stated on the revised traffic study report dated December 1976."*

COMMENT: (Fire Protection)

Capital costs for fire protection are estimated from 0 to $169,000 (p. II-63), including land, building and equipment. If a fire station is required, the cost will probably exceed $169,000.

RESPONSE:

The cost noted on page II-63 for Fire Protection represents Village Park's pro rata share of costs based on population in the Waipahu-Crestview area to develop and maintain a fire station. The estimated cost of a new fire station including land, structure, engine company and equipment runs approximately $1,000,000 (1977 costs).

COMMENT: (Economic and Housing Market)

It is indicated that

> *"HUD staff determined that only 18% or the 310 condominium units will be affordable by the moderate income families*

whose incomes are in the $15,000 to $23,000 range. The remaining 82 percent would be affordable only by higher income families. The qualifying income to purchase the project's various housing types was compared with income characteristics of families residing at Crestview/Seaview, Mililani, the Ewa District, and the Honolulu SMSA. The profile reflected a higher median income that was found at Mililani Town, where the highest median family income was found among those areas compared. This comparison was based on the assumption that housing prices would be equivalent to two and one-half times the annual family income" (p. II-60).

The location of the condominium units is not indicated. Also, the findings of HUD staff should be related to the conditions of Ordinance 4084, under which the land was rezoned, both with respect to the commitment to provide low/moderate income units as well as to the distribution of these units throughout Units 2 through 15 of the project.

RESPONSE:

The condominium units, Phases 14, 15 and 16, were noted on page I-9 while Plate C showed the location of all phases, 1-16.

A letter dated December 29, 1978 from the Department of Land Utilization to the sponsor, subject Village Park PD-H Revisions, Ordinance 4084, Response to letter dated November 30, 1978, responds to this comment as follows:

"We have reviewed your request to delete paragraphs 1.b. and 1.c., Section III, of the PDH Ordinance. On the basis of information given us, we find that you are in compliance with the conditions and they need not be deleted from the ordinace.

Condition 1.b. requires a minimum of 15% of the units be priced so they are available to families of low/ moderate income. The Department of Housing and Urban Development defines as "Low/Moderate Income" a family of four with an annual income of $22,950. We have been advised by your office, a family with an income of $20,000 can qualify for 40-50% of your units. Therefore, you are in compliance with the condition.

Condition 1.c. specifies a unit sales price schedule to be considered as "Guidelines." As economic conditions have changed since the original approval

and the price schedule is relative to the prices for other new homes on Oahu, we find the intent is met.

We shall consider the above information and facts as accurate unless so advised by your office."

COMMENT: (Agriculture)
The EIS indicates

"Oahu Sugar Company's sugarcane fields are located to the north, west and southwest of the project site. The future of these surrounding areas for agriculture may be in question since the Oahu General Plan designates this area as Urban Fringe. It may only become a question of time before these fields also succumb to urbanization" (p. III-3).

This is a misinterpretation of the General Plan, particularly Objective C under Population. The policies here are simply stated.

Policy 1 Facilitate the full development of the primary urban center.

Policy 2 Encourage the gradual development of Ewa to relieve developmental pressures in the urban-fringe and rural areas.

Policy 3 Reduce, or at most maintain, the 1975 proportions of the Island's rural and urban-fringe populations.

(General Plan - Objectives and policies, January 18, 1977, p. 20)

Additionally, Objective C under Economic Activity contains

Policy 3 Preserve sufficient agricultural land in Ewa, in Central Oahu, and along the North Shore to ensure the continuation of sugar and pineapple as viable industries.

(General Plan, p. 26)

While there will be considerable pressures for urbanization of lands to the north and west of the Village Park site, this would be inconsistent with present State and County policies. The EIS should be revised to provide the correct interpretation of the General Plan objectives and policies.

DEPARTMENT OF GENERAL PLANNING

RESPONSE:

Text on page III-3 modified as recommended.

DEPARTMENT OF LAND UTILIZATION
(George S. Moriguchi, Director of Land Utilization, October 19, 1978)

COMMENT: (1. Reference: Water Supply, pages II-44 through II-47)

According to reprinted material, an underdraft of 30.9 mgd exists in the Pearl Harbor District, as defined by the Board of Water Supply. What is the Pearl Harbor District? What is the relationship between the Pearl Harbor District and the Pearl Harbor Lens? Would the 1.01 mgd needed for the Village Park Development come from the Pearl Harbor Lens? If so, what are the implications of withdrawal from the Pearl Harbor Lens for Village Park. This section of the EIS needs significant re-evaluation.

RESPONSE:

The overdraft/underdraft figures was updated using the Board of Water Supply's Annual Report and Statistical Summary (July 1, 1976 - June 30, 1977). See pages II-44 - II-47.

The Pearl Harbor District, as defined by the Board of Water Supply, is located in the south-central portion of Oahu, extending from the crest of the Koolau Range and Red Hill at its easterly boundary to Kunia Road on the west. Its southerly boundary is the shoreline area of the estuary and its northerly boundary generally follows the Waiahole Ditch and Tunnel system. See Plate E.

The relationship between the Pearl Harbor District and the Pearl Harbor Lens is that all water sources located within the District, drafts from the Pearl Harbor Lens.

The 1.01 mgd needed for the Village Park Development will be drafted from the Pearl Harbor Lens.

The implications of withdrawing water from the Pearl Harbor Lens for Village Park is as follows:

a. *The additional draft of 1.01 mgd may contribute to the steady decline of the water table of the Lens.*

DEPARTMENT OF LAND UTILIZATION

b. *The additional draft may also contribute to the increase of the chloride concentration in the Lens.*

c. *The additional draft may have some effect on adjacent well fields, but the degree of impact is not known.*

COMMENT: (2. Reference: Population Projection, Appendix I.)
Several assumptions concerning future population for the Ewa area and subsequent housing demands in the Ewa sub-market are based on Series E-2 projections prepared by the Hawaii State Department of Planning and Economic Development. These projections have been revised downward as of March, 1978. These revisions should be incorporated into the final EIS.

RESPONSE:
Tables 2 and 3, Appendix I, were revised along with references to data used in the discussion in Appendix I to reflect the Series II-F population projections.

DEPARTMENT OF PUBLIC WORKS
(Wallace Miyahira, Director and Chief Engineer, November 2, 1978)

COMMENT: (1)
Honouliuli wastewater treatment plant (page I-4) - The major portion of the construction cost of the Honouliuli plant will be financed with Federal funds (75%); however, we should not overlook the 25 percent that is contributed by the State and the City and County governments. Also, the so called surplus Navy land had to be purchased in fee by the City.

RESPONSE:
The text was revised to show that funds were contributed by both State and the City and County.

The purchase of land from the Navy was also noted on Pages I-4 and I-5.

COMMENT: (2)
Mass Grading (page II-2) - The grading ordinance limits grading or grubbing operations to 15 acres on single parcel at one time.

Although more that one area is permitted for non-contiguous increments, we cannot overstress the need to control soil erosion. More stringent requirements for erosion control may be adopted under the proposed City and County 208 Plan.

RESPONSE:

The Soil Erosion Standards and Guidelines of the Department of Public Works, City and County of Honolulu will be followed to ensure minimum soil loss during mass grading operations.

COMMENT: (3)

Storm Drainage/Flooding (page II-22) - The existing potential flooding conditions at the culverts crossing Farrington Highway are mentioned. Are there any mitigative measures planned?

RESPONSE:

No mitigative measures are planned. Flows exceeding the capacity of the culverts will top Farrington Highway and reenter the channel on the downstream side of the highway. Damages to the adjacent vacant lots and parking areas due to overtopping of the culverts for the estimated 100-year flow will be localized.

COMMENT: (4)

Solid waste disposal (page II-49, II-51) - Several permits are mentioned with respect to the operation of the Palailai sanitary landfill. The permit issued by the City is the Conditional Use Permit. The permit issued by the Department of Health is the solid waste disposal facility permit. The discussion in the EIS should be clarified.

RESPONSE:

The text on pages II-49 - II-51 were revised to reflect this comment.

COMMENT: (5)

The term private scavenger is used throughout the EIS. The term "scavenging" as defined in PHR Chapter 46, means "the unauthorized removal of material from a solid waste disposal facility." To avoid confusion, we prefer the term private hauler or private collector.

RESPONSE:

The text (pages II-49 - II-53) was modified as recommended.

COMMENT: (6)

The following terminologies and statement should be clarified

(page II-51): State Board of Water Supply; State Department of Public Works; and monitored by the City and County of Honolulu. The DPW does not approve nor monitor any private landfill operation.

RESPONSE:

The text was amended to recognize those State and City and County agencies responsible for monitoring sites used for disposal of solid wastes.

COMMENT: (7)

Disposal by City and County Refuse Division (page II-52) - A sanitary landfill in Leeward Oahu is more likely to be available in 1981 than 1979.

RESPONSE:

Correction noted in text.

COMMENT: (8)

Capacity of Waipahu City Sewage Treatment Plant (page II-52) - The Waipahu stabilization pond serves the Waipahu sewerage subdistrict. Portions of the excess capacity of the pond were previously reserved for the first four phases of Village Park, numbering 716 units. Now that the density of the first four phases has been reduced, the allowable connections have been reduced correspondently. The allowable connections will be restricted to 450-500 units as stated in the EIS. Additional connections will be available upon completion of the treatment plant and the interceptor sewer and force mains from the treatment plant to the Waipahu pump station probably in 1982.

RESPONSE:

No response required.

COMMENT: (9)

Expansion of WWTP capacity (page II-55) - The normal State matching share of the construction cost is 10 percent not 12 percent. According to the DPED IIF population projection, the resident population that will be served by the Honouliuli plant will be 226,800 people in the year 2000.

RESPONSE:

The correction of the State's 10% share of costs noted in text on pages I-4 and II-55.

The revised population to be serviced by the Honouliuli WWTP was revised as noted.

DEPARTMENT OF PUBLIC WORKS

COMMENT: (10)

Impacts (page II-56) - Water pollution projects of the City are funded by the Oahu tax base. They are not restricted to the areas which the project will serve.

RESPONSE:

The text (paragraph 6, page II-56) was amended as noted.

COMMENT: (11)

Reservoir Overflow (pages II-73, II-74) - No allowance in flow reduction was credited in the design of the downstream drainage system to the plantation irrigation reservoirs located mauka of the development. A rupture of any of the reservoirs, however, could result in considerable property damages to the downstream areas. (Page II-74) The mitigative measures that are available will be undertaken by whom?

RESPONSE:

The irrigation reservoir is used only for irrigation and is not considered a flood control facility. As a safety precaution, the on site drainage system was designed to accommodate a reservoir overflow, consequently, no damage to downstream areas are anticipated.

Mitigative measures were reflected in the design of the on site drainage system.

DEPARTMENT OF TRANSPORTATION SERVICES
(Kazu Hayashida, Director, October 20, 1978)

COMMENT: (1)

There is no mention of available bus service in the section on transportation/circulation.

RESPONSE:

The discussion on bus service was covered on page II-67, Public Transportation.

COMMENT: (2)

The development will create additional demand for bus service that will require additional equipment (page II-23).

DEPARTMENT OF TRANSPORTATION SERVICES

RESPONSE:

See discussion on page II-67.

Upon contact with the Department of Transportation Services, HUD was advised that the purchase of additional equipment is committed to existing routes through 1980. The MTL, however, will monitor the need for bus service as the project developes.

COMMENT:

The proposed roadway improvements to Kunia Road should be programmed to meet developmental demands.

RESPONSE:

Proposed improvements to Kunia Road and the Kunia Interchange with the H-1 Freeway are discussed on page II-24 to accomodate the development schedule shown on page I-9.

POLICE DEPARTMENT
(Francis Keala, Chief of Police, October 24, 1978)

COMMENT:

This Department has reviewed the draft. We would like to clarify the number of automobiles generated from the area. Using a current ratio of 2.0 vehicles per household, an increase of 3,600 vehicles can be expected, assuming that the 1,500 single family homes and 300 low-rise condominiums are rated one and the same. If not, the figure of 2,800 vehicles is adequate.

RESPONSE:

Based on 1976 population data, the average passenger cars per household in Village Park would generate approximately 3,000 cars.

PRIVATE

AMERICAN LUNG ASSOCIATION
(James W. Morrow, Director of Environmental Health, November 10, 1978)

COMMENT: (1)

Page II-23: The first paragraph states that "Current peak hour traffic is approximately 1,200 vehicles per hour (both directions), while the capacity of Kunia Road is estimated at 2,400 vph". The Highway Capacity Manual (reference 25 in the EIS) indicates that the capacity of a 2-lane highway under ideal conditions is 2,000 vph, thus suggesting that the capacity has been overestimated.

RESPONSE:

The capacity of Kunia Road, as stated, is incorrect for a two lane (uninterrupted) road. However, the proposed widening of Kunia Road will increase the capacity of the two lane road. Intersections A and B will operate at Level of Service "C".

COMMENT: (2)

Page II-24: The section entitled "IMPACTS" indicates that current peak traffic volumes on Kunia Road are 1,473 (a.m.) and 1,615 (p.m.) vph. These figures are significantly higher than the 1,200 vph mentioned on page II-23.

RESPONSE:

The 1,200 vph is approximately the present traffic volume on Kunia Road; 1,473 vph is the 1990 a.m. through traffic on Kunia Road and 1,615 vph is the 1990 p.m. through traffic. Through traffic is defined as traffic on Kunia Road if Village Park were not constructed. See Figure 9.

COMMENT: (3)

Page II-32: The text indicates that lane capacities of 1200 vph were assumed for Kunia Road and subdivision roadways. This again appears to be an overestimation of capacity when compared to Highway Capacity Manual methods. An overestimation of capacity not only affects evaluation and conclusions regarding traffic impact but also results in underestimation of air quality impact using the EPA screening method (Reference 30 in EIS).

RESPONSE:

The Highway Capacity Manual refers to highway capacities at various levels of service. Under ideal conditions all cars move at a design speed with adequate interspacing for safe stopping. At level of service E we are basically talking about the physical capacity of

the roadway, not the design capacity. Assuming an average vehicle length of 16 feet with an average separation of 4 feet between vehicles, a single lane of roadway can physically accomodate over 1300 vehicles per hour at an average speed of just 4 mph. This would be bumper to bumper traffic traveling under brief stop and go conditions, i.e. conditions not inconsistent with level of service E. Thus the selected capacity figure of 1200 vph may be slightly conservative rather than an overestimate.

COMMENT: (4)

Page II-33: Pages I-4 through I-7 describe a number of other major impending actions in the Ewa region. Did the traffic projections used in the air quality screening analysis include the peak hour contributions of Makakilo City expansion, Barbers Point Deep Draft Harbor, Campbell Industrial Park expansion, Caneland Theme Park, Kahe Theme Park, Ewa Village, and the West Beach development? All of these are going to generate large amounts of traffic which could have a significant impact on air quality at the Receptor C location (Plate C in the EIS) as well as on the makai side of the H-1.

RESPONSE:

The traffic projections to the year 1995 was provided by the State Department of Transportation, Highways Division, in a letter dated January 27, 1977. It is not known whether each of the above projects are included in the projections. It is not all that important in terms of increased traffic impacting CO concentrations at Receptor Site C.

Current estimates of CO concentrations for the year 1990 is 1.9 mg/m^3 (Table II-7). Table II-3 shows 88,170 potential vehicular trips generated by proposed land developments in the Ewa area by 1990. The State projects 51,500 ADT at Kunia Road. If the CO concentrations at Receptor Site C would be increased at the same proportion of increased traffic, the CO concentrations would be 2.6 mg/m^3, well below both State and Federal standards.

The CO concentrations on the makai side of the freeway would be less than that of Receptor Site C since the heavier p.m. traffic flow is located closer to the Village Park project. This of course assumes that the distance is the same and calculated under the worst case condition.

COMMENT: (5)

Page II-24: In light of all the proposed actions in the Ewa region (pp. I-4 - I-7), why was there no mention of the cumulative impact on the H-1 Freeway and its capability to accomodate much

AMERICAN LUNG ASSOCIATION

greater peak-hour volumes?

RESPONSE:

Table II-3 was added to the text to show the potential for additional vehicular traffic on the H-1 Freeway.

The capacity of the H-1 Freeway at Kunia Road was added to the text on page II-23.

COMMENT: (6)

Pages II-33 and II-35: The text states, "Since these sites were selected because they could have the highest peak hour carbon monoxide concentrations in the project area, there could be Village Park sites where these one-hour standards will not be met, even under worse case meteorological conditions." The sentence seems to contradict the analysis results and discussion. Is there a typographical error or some other explanation?

RESPONSE:

Comment noted. The transmogrification of this key sentence was unfortunate. Text corrected.

HAWAIIAN ELECTRIC COMPANY, INC.
(John C. McCain, Manager, Environmental Department, October 20, 1978)

COMMENT:

Chapter II, page 43 (actually p. 42), paragraph 2 under Energy Sources (actually Power Sources) - If the project is built, the location of the substation will be along Kunia Road adjacent to and north of the project. The word "tentative" should, therefore, be deleted from the last sentence.

RESPONSE:

The word tentative was deleted in the text.

COMMENT:

Chapter II, page 43, paragraph 2 under IMPACTS - The following phrase should be added to the end of the first sentence "...and along

Kunia Road on the western boundary of the project." Please note that we also have a 46 kv circuit on Kunia Road as well.

RESPONSE:
Comments are acknowledged and text amended accordingly.

LIFE OF THE LAND
(Frank Miller, Staff Attorney, November 6, 1978)

COMMENT: (1)
At page II-47, the EIS states that the 1.01 mgd demanded by this project "could be considered a significant long-term negative impact on reservoir capacity (and) a significant long-term negative impact on (the two existing Kunia II) wells". All possible means for avoiding these impacts should be considered, including the no project alternative.

Our main concern, however, is that the EIS says it "constitutes a minor long-term negative impact on the draft for the Pearl Harbor District where the project is located". (Emphasis supplied.)

In a study done for the Board of Water Supply in 1974, John Mink, consulting hydrologist, concluded that the groundwaters of the Honolulu and Pearl Harbor areas had been overpumped by about 10% for about 10 years. The study noted that "a negative balance has become established in both the Honolulu and Pearl Harbor regions, in recent years, which if allowed to continue will in the long run cause deterioration in the quality of water withdrawn from the groundwater aquifers ... Unless draft is controlled, heads will continue to fall, spring flow will decrease and worsen in quality and general disequilibrium will prevail".

In letters to the United States Environmental Protection Agency in July, 1973, both Oahu Sugar Company and the Honolulu Board of Water Supply presented conclusions similar to those of the Mink study.

a. Oahu Sugar Company: "Hydrologists who have studied the Pearl Harbor water basin are in accord that it has reached, or nearly so the safe yield point. In view of the salinity problems we are experiencing, we conclude that it has

exceeded the safe yield point, at least in certain portions of the basin."

b. Board of Water Supply: "The information indicates that the natural input is already in a precarious balance with present groundwater withdrawals."

These statements find further support in the initial findings of the Residence Times of Basal Groundwater, a study being conducted last summer by the WRRC.

The specific figures for the Pearl Basin, compiled by Mink in 1974, were as follows:

Input	Natural flow recharge	200 mgd
	Pumped (sugar) infiltration	30
	Waiahole infiltration	15
	Total recharge	245 mgd
Use	BWS	60 mgd
	Military	20
	Springs	44
	Plantations	140
	Total Use	264 mgd
Debit	Approximately 20 mgd (10% of natural recharge)	

For the years 1975-1977, average pumpage from Pearl Basin basal groundwaters was up to 285.6 mgd. This is well above Mink's estimate of maximum safe withdrawal (230 mgd at 85%) and that of Bowles (215 mgd at 85%). It is also well above that of the Board of Water Supply's "in-house" hydrologist Chester Lao who estimates maximum safe withdrawal at a seemingly high 270 mgd.

In evaluating the impact of water development for the Waipio-Gentry project (2.2 mgd) on Pearl Basin groundwaters, the official position of the Honolulu Board of Water Supply was that such additional water development would result in an "addition 1% overdraft" of Pearl Basin groundwaters.

The water supply analysis in the draft EIS is almost entirely unacceptable in as much as estimates of water availabity are based on long-range public relations planning documents of the Board of Water Supply and pumping capacities of specific wells rather than actual data and reports concerning safe yield in the Pearl Basin. The draft EIS mentions agriculture water availability from the Honouliuli Sewage

Treatment Plant which is not presently available for at least three reasons. The Honouliuli Sewage Treatment Plant isn't yet operational. Costs of treated sewage effluent are uncertain especially in view of legal ambiguities which must first be resolved regarding use or ownership rights of groundwater in Hawaii. And treated sewage effluent is not suitable for sugarcane irrigation for its entire growth cycle.

Aside from exacerbating negative impacts as regards increasing competition between agriculture and urbanization which already exists, commitment of water resources of the Pearl Basin for Village Park also places Village Park in competition with other approved but not yet constructed urban developments which will also be dependent on Pearl Basin groundwaters. These other developments will require an additional minimum of 17 mgd -- and all of this demand is scheduled for an area dependent on groundwaters where overdraft already exists according to every available analysis.

With complete development of alternative sources of water -- maximum exchange for sewage effluent (50 mgd), 20 mgd resulting from blending high quality with low quality waters, and 20 mgd of brackish water that might be reclaimed through reverse osmosis at great expense -- water resources in the area would be barely sufficient to make up for current overdrafts and approved developments. But these alternatives are presently highly speculative and at least a decade away.

RESPONSE:

The Board of Water Supply (BWS) acknowledges the fact that the Pearl Harbor groundwater basin is just reaching or has just reached its sustainable yield. Therefore, BWS has initiated a policy requiring a conversion of irrigation water to domestic use when land use changes from agriculture to urban.

In a letter dated December 6, 1978, HUD sought from the BWS a confirmation of available water resources for the Village Park project and the Board's policy on converting agricultural land to urban use. The letter is quoted as follows:

> "We would like to reconfirm the availability of water resources and the adequacy of the water system for the Village Park project, especially since the Board of Water Supply's initial confirmation was made back in 1967.
>
> We would also like to confirm the Board's policy requiring the conversion of irrigation water to domestic use when there is a landuse converstion of agriculture to urban." Page

On December 11, 1978, the Board of Water Supply responded as follows:

> "Water is available for the proposed Village Park. Kunia Wells II, reservoir and transmission main installed by the developer will be adequate to serve the development.
>
> We also confirm our policy of requiring the conversion of sugar cane irrigation water to domestic use whenever sugar cane lands are urbanized. This can be done by requiring the sugar industry to reduce their pumpage by the amount formerly used for irrigating the urbanized land."

COMMENT: (2) ESQD Arc

On page I-12 of the EIS, it is stated that concerns dealing with the explosive safety quantity distance (ESQD) from the Waikele weapons storage facility would be discussed in greater detail in Chapter II, Site Hazards, but no detail is actually provided. What problems are involved in delaying a portion of the development until the blast zones are eliminated? Why is the arc going to be eliminated in 1982? Are the weapons going to be moved elsewhere before then? If so, what is the weapons storage facility going to be used for after the weapons are moved or the ESQD arc eliminated? Does HUD know that ESQD arcs are of similar radii when the weapons being stored are nuclear? What are the dangers of nuclear accidents? What are the dangers of radiation exposure?

This is an area of importance that the EIS has failed to adequately address. The final draft should have that detailed discussion that was promised on page I-12.

RESPONSE:

The above comments were referred to the Headquarters, Fourteenth Naval District. The reply, dated January 16, 1979, follows:

> "In response to your letter of 4 January 1979, please be advised that the ESQD arcs from Waikele no longer encumber Village Park property. Page
>
> The ESQD in question was generated by a transfer shed which has since been demolished."

Since the ESQD is no longer a Man made hazard, the discussion relating to this concern was removed from the text.

LIFE OF THE LAND

COMMENT: (3) Oahu General Plan

The building of this project along with other proposed projects in the Waipio-Mililani region will exceed the population as stated in the City General Plan for the year 2000. This impact has not been addressed in the Draft EIS and should be addressed in the Final EIS.

RESPONSE:

The Village Park project is actually located in the Urban Fringe, area 7., Waipahu-Crestview, not the Waipio-Mililani area.

The Waipahu-Crestview area had an estimated population of 15,169 in 1975. According to the series II-F projections, the Waipahu-Crestview area would be permitted to increase from 15,169 to 42,000 by the year 2000. 47/ Village Park's population of approximately 6,540 would represent 24.4% of that increase.

It should also be pointed out, however, that the revised population projections (series II-F) has not been adopted as a City policy as of January 1979.

WEST OAHU SOIL AND WATER CONSERVATION DISTRICT
(F. C. Gross, November 2, 1978)

COMMENT:

The West Oahu Soil and Water Conservation District reviewed a copy of the Draft Environmental Impact Statement for Village Park. We understand the role of the HUD is to provide mortgage insurance to home owners under favorable financial terms so that the purchase of a home may be feasible to some persons, who under other conditions than HUD insurance could not.

We believe, however, that the role of the HUD in assisting such a development as Village Park has negative aspects, although being constructed under proper zoning in an area designated for urban development, is nevertheless on prime agricultural land. The act of the State Land Use Commission in designating the site for urban use in 1969 was in our judgement an error. As indicated on Page I-12, this district expressed concern at an earlier date for urbanizing prime farm land.

WEST OAHU SOIL AND WATER CONSERVATION DISTRICT

We wish to point out that with the current concern for recharge of basal water, rainfall that falls on this 316-acre site in the future will largely run off because of the urban development. This may not be a factor for 316 acres but the increasing trend in urbanizing agricultural land certainly is a factor in limiting ground water recharge.

RESPONSE:

The BWS is equally concerned with the recharge of the groundwater in the area. A policy was therefore adopted that requires the sugar industry to reduce its pumpage by the amount formerly used for irrigating the urbanized land. See response to similar question raised by Life of the Land.

COMMENT:

We note that there are easements for the canehaul road serving the Oahu Sugar Company and in one instance a relocation of an existing road to have it along the perimeter of the development. There is discussion of possible dust from this road and noise from the units travelling on it. This road, serving the Oahu Sugar Company, was constructed when the land was agricultural with full expectation it would be kept in this use. To thrust upon the sugar company an urban development in such close proximity to one of its supply arterials and to be hopeful that dust and noise and other impact from agricultural operations surrounding this development will not have an impact on an enterprise that has intruded into an agricultural area is wishful thinking.

RESPONSE:

HUD agrees that there will be adverse impacts resulting from the adjoining agricultural operations.

The noise generated by both the freeway and cane haul road traffic was discussed at some length on pages II-36 to II-41. Mitigative measures were also noted.

Dust from the cane haul trucks is included under Man-made hazards on page II-73.

COMMENT:

We note on Page II-19 that the statement is made, "However, the assessment of the merits to urbanize the site is not the role nor responsibility of HUD." The true impact of HUD's role here is that if it supports developments of this nature, it is in essence encouraging developers to continue and to increase the agricultural areas being withdrawn from urban use. This is contrary to the General Plan of the State of Hawaii and we regret seeing a Federal agency lend support in the manner in which HUD is considering.

WEST OAHU SOIL AND WATER CONSERVATION DISTRICT

RESPONSE:

It is difficult to determine the extent of HUD's influence on the urbanization of agricultural land since HUD did not participate in the decision to urbanize the agricultural land. However, if the EIS was prepared to assess the conversion of agricultural land to an urban use, the Department would be guided by the U.S. Department of Agriculture, Secretary's Memorandum No. 1827, Revised (October 30, 1978).

COMMENT:

We believe that the Department of Health should be interested in reviewing this Draft EIS with particular concern to the impacts of traffic cited on Page II-39 and II-40 because we anticipate complaints from future residents. To not take a position at this time, prior to construction, will be negligent on the part of the DOH.

RESPONSE:

No comment.

COMMENT:

With a copy of this letter addressed to Dr. James Kumagai, Deputy Director of Health of the State Department of Health, we urge that a careful review of this Draft Environmental Impact Statement be made so that at this time there is an awareness of a possible future problem for which Oahu Sugar Company may well be held unfairly responsible.

RESPONSE:

See review comments submitted by the State Health Department and HUD response.

F E D E R A L

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE
Hawaii Division
Box 50206
Honolulu, Hawaii 96850

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA

October 13, 1978
IN REPLY REFER TO
HEC-HI

Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P.O. Box 50007
Honolulu, Hawaii 96850

Dear Mr. Johnson:

Subject: Draft Environmental Impact Statement, Village Park, Waipahu, HUD-R09-EIS-78-6D

The subject Draft EIS for the proposed Village Park, Waipahu, Hawaii, was submitted for our review and comment by your letter of September 28, 1978.

We offer the following comments concerning the project impact on existing Federal-aid highway facilities.

1. Page II-23 - Kunia Road - The capacity of Kunia Road under ideal conditions, for uninterrupted flow capacity, is 2000 vph as indicated in the Highway Capacity Manual (Your reference 25).

2. Mitigation Measures - General

   Measures proposed to accommodate the increased traffic volumes on Kunia Road and through the Kunia Interchange should be scheduled for timely completion to avoid unsafe traffic congestion within the Kunia Interchange.

3. A general plan layout illustrating the proposed improvements of Kunia Road and the Kunia Interchange should be included in the Final EIS.

4. Existing and projected traffic volumes and distribution through the Kunia Interchange should be included in the Final EIS.

For your information, Kunia Road is designated Federal-aid Secondary Route 750. Interstate Route H-1 is also a part of the Hawaii Federal-Aid Highway System.

-more-

We appreciate the opportunity of reviewing the draft Environmental Impact Statement.

Sincerely yours,

Ralph T. Segawa
Division Administrator

By
H. Kusumoto
Assistant Division Administrator

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. Box 50004, Honolulu, HI 96850

November 16, 1978

Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P. O. Box 50007
Honolulu, HI 96850

Dear Mr. Johnson:

Subject: Draft Environmental Impact Statement for Village Park, Waipahu, Oahu, Hawaii - HUD RO9-EIS-78-6D

This is to inform you that in our letter of comments, dated November 15, 1978, on the subject draft EIS, the 23.1 acres of this project classified as prime farmland should be corrected to read 274 acres of prime farmland.

All of our other comments remain the same.

Sincerely,

Jack P. Kanalz
State Conservationist

cc: Director, Office of Federal Activities
Environmental Protection Agency
Room 537, West Tower
401 M Street, S.W.
Washington, D. C. 20460

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. Box 50004, Honolulu, HI 96850

November 15, 1978

Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P. O. Box 50007
Honolulu, HI 96850

Dear Mr. Johnson:

Subject: Draft Environmental Impact Statement for Village Park
Waipahu, Oahu, Hawaii - HUD RO9-EIS-78-60

As requested in your letter of September 28, 1978, we have reviewed the subject impact statement.

As stated in our previous letters of January 4, 1977 and September 28, 1977 (copies attached), the entire 23.1 acres of this project is classified as prime farmland and should be preserved.

The long-term commitment of prime farmland to urban use should be reflected in your table "Probable Environmental Impacts Which Cannot Be Avoided Should the Proposal Be Implemented" (pages IV-2, 3, and 4).

Thank you for the opportunity to review this document.

Sincerely,

Jack P. Kanalz
State Conservationist

cc: Director, Office of Federal Activities
Environmental Protection Agency
Room 537, West Tower
401 M Street, S.W.
Washington, D.C. 20460

Attachments

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. Box 50004, Honolulu, HI 96850

September 28, 1977

Mr. Alvin K. H. Pang, Director
Department of Housing and Urban Development
P. O. Box 50007
Honolulu, HI 96850

-C O P Y-

Dear Mr. Pang:

Subject: "Early Start" procedures for development of the first phase of Village Park Subdivision, Kunia, Oahu, Hawaii

As requested in your letter of September 20, 1977, we have reviewed the segment in question for the first phase development of the Village Park subdivision. The entire 23.1 acres is prime farmland and should be preserved even though it is zoned urban.

The island of Oahu contains about 48,800 acres of prime farmland and, of this amount, approximately 90 percent is located in Central Oahu, between the Ewa Plains and Waialua. We want to reiterate our previous concern that the proposed urbanization mauka of the freeway may very well be the beginning of further urban encroachment of prime farmland in Central Oahu.

A mitigating measure that should be considered is land exchange. This would involve exchanging the prime farmland for nonagricultural or less desirable agricultural land. Some areas in the Ewa Plain fit this category.

Sincerely,

Jack P. Kanalz
State Conservationist

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. Box 50004, Honolulu, HI 96850

January 4, 1977

Mr. Alvin K. H. Pang, Director
Department of Housing and Urban Development
P. O. Box 3377
Honolulu, Hawaii 96813

-COPY-

Dear Mr. Pang:

Subject: Notification of Intent to File an Environmental Impact Statement for Village Park, Kunia, Oahu, Hawaii

We have reviewed the subject notification and are concerned about the amount of prime farmland that will be lost to urbanization. Of the 316.4 acres, about 274 acres are considered prime farmland.

Although the present zoning permits urbanization of the area, some type of mitigation should be proposed to reduce the impact of the loss of this prime farmland acreage.

At the present time, the H-1 freeway separates the urban and agricultural lands. The proposed urbanization mauka of the freeway may very well be the beginning of further urban encroachment on prime farmland in Central Oahu.

Thank you for the opportunity to review this notification.

Sincerely,

Jack P. Kanalz
State Conservationist

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

PODED-PV

19 October 1978

Mr. Frank Johnson
Environmental Clearance Officer
Honolulu Area Office
Department of Housing and Urban
Development
P.O. Box 50007
Honolulu, Hawaii 96850

Dear Mr. Johnson:

We have reviewed the Draft Environmental Statement, which you forwarded to us on 28 September 1978, for the Housing and Urban Development (HUD) program for the Village Park Development at Waipahu, Oahu. The HUD program and development does not conflict with any U.S. Army Corps of Engineers projects or programs.

We note that the present City and County of Honolulu Flood Insurance Study designates the Village Park project site as an area of undertermined, but possible, flood hazard.

We thank you for the opportunity of participating in the environmental review process.

Sincerely yours,

for KISUK CHEUNG
Chief, Engineering Division

HEADQUARTERS
FOURTEENTH NAVAL DISTRICT
BOX 110
FPO SAN FRANCISCO 96610

IN REPLY REFER TO:
48:09F:SH:amn
Ser 133

27 JAN 1977

RECEIVED-

Mr. Alvin K. H. Pang
Director
Department of Housing and
Urban Development
Area Office
1000 Bishop Street
P. O. Box 3377
Honolulu, Hawaii 96813

Dear Mr. Pang:

Notification of Intent to File
An Environmental Impact Statement (EIS)
for Village Park, Kunia, Oahu, Hawaii

The Notification, which was forwarded by your letter of 17 December 1976, has been reviewed and the following comments are submitted as subject matter for the forthcoming EIS:

a. The U.S. Navy has a concern with siltation in Pearl Harbor and the water tributaries that empty into Pearl Harbor. A major source of silt has been soil erosion and runoff from construction sites adjacent to streams, such as Waikele Stream. The proposed Village Park development is to be located adjacent to Waikele Stream. The EIS should address the siltation problem and the steps to be taken to prevent the deposition of silt into Pearl Harbor

b. Review has been made of the location map provided with your letter, and it has been found that approximately two to three acres of the proposed Village Park Development will be encumbered by the explosive safety quantity distance (ESQD) arc as shown in enclosure (1). It is suggested that development plans be phased insofar as possible to leave the area covered by the ESQD arc until the latter stages of the overall project development. This will minimize the exposure of personnel to any possible hazards. Should any change in the ESQD arcs occur, and it is now anticipated that the arcs will be eliminated in

48:09F:SH:amn
Ser 133

about the 1982 time frame, you will be notified of the change. It is requested that this Command be advised when construction of any buildings within the ESQD arc is imminent.

Thank you for the opportunity to comment upon this Notification and for further review upon both the Draft and Final EIS at a future date.

Sincerely,

R. P. NYSTEDT
CAPTAIN, CEC
DISTRICT C[illegible]
BY DIRECT[illegible]

Encl:
(1) GDM, FEC Dwg. No. 975058
NAVMAG Lualualei (Waikele Branch)

HEADQUARTERS
FOURTEENTH NAVAL DISTRICT
BOX 110
PEARL HARBOR, HAWAII 96860

IN REPLY REFER TO:
002A:JWC:amn
Ser 2129

12 OCT 1978

Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P. O. Box 50007
Honolulu, Hawaii 96850

Dear Mr. Johnson:

Draft Environmental Impact Statement
Village Park, Waipahu, Hawaii HUD R09-EIS-78-6D

The draft Environmental Impact Statement for Village Park forwarded by your letter 9.7SC (Johnson/546-5554) of 28 September 1978 has been reviewed. The Navy has no comments to offer at this time. However, the comments previously provided in our letter 48:09F:SH:amn ser 133 of 27 January 1977 concerning the intent to file an EIS for Village Park still apply.

Sincerely,

L. H. RUFF
CAPTAIN, CEC, USN
DISTRICT CIVIL ENGINEER
BY DIRECTION OF THE COMMANDANT

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

Project #D-HUD-K85020-HI

Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P.O. Box 50007
Honolulu HI 96850

Dear Mr. Johnson:

The Environmental Protection Agency has received and reviewed the draft environmental statement for the VILLAGE PARK, WAIPAU, HAWAII.

EPA's comments on the draft environmental statement have been classified as Category LO-1. Definitions of the categories are provided on the enclosure. The classification and the date of EPA's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act. Our procedure is to categorize our comments on both the environmental consequences of the proposed action and the adequacy of the environmental statement.

EPA appreciates the opportunity to comment on this draft environmental statement and requests three copies of the final environmental statement when available.

If you have any questions regarding our comments, please contact Betty Jankus, EIS Coordinator, at (415)556-6695.

Sincerely,

Paul De Falco, Jr.

Paul De Falco, Jr.
Regional Administrator

Enclosure

1. The Draft EIS does not discuss the Sewer Use Charge community residents will be required to pay, such that the operation and maintenance costs of sewage collection treatment and disposal may be met. This is a significant issue since it is expected that this will be a new charge to many potential residents who have formerly utilized septic tanks or cesspools, as a means of sewage disposal.

2. (DEIS Page II-55)

   The Draft EIS states that the sewage treatment plant "...will be upgraded in quality to primary treatment after 1981. If EPA requires upgrading to secondary treatment, EPA will provide grant funds for 75% of construction costs with 12% State matching funds." The Final EIS should note that State matching funds will be 15% while the City and County of Honolulu will provide matching funds of 10%.

EIS CATEGORY CODES

Environmental Impact of the Action

LO--Lack of Objections

EPA has no objection to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER--Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these aspects.

EU--Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1--Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2--Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3--Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230
(202) 377-3111

November 17, 1978

Mr. Frank Johnson
Environmental Clearance Officer
Department of Housing and Urban
Development
Honolulu Area Office
Post Office Box 50007
Honolulu, Hawaii 96850

Dear Mr. Johnson:

This is in reference to your draft environmental impact statement entitled, "Village Park Waipahu, Oahu, Hawaii." The enclosed comments from the National Oceanic and Atmospheric Administration are forwarded for your consideration.

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving eight (8) copies of the final statement.

Sincerely,

Sidney R. Galler

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

Enclosure Memo from Mr. Gordon Lill
Deputy Director
National Ocean Survey

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Rockville, Md. 20852

Date: November 7, 1978

Reply to Attn of: Dr. William Aron
Director, Office of Ecology and Conservation

Subject: DEIS 7811.03 - Village Park, HI

To: Director, Office of Ecology and
Environmental Conservation, NOAA

The National Geodetic Survey does not have any comments on subject draft environmental impact statement, other than the possible impact on monuments of the National Geodetic Control Networks.

Bench marks, triangulation stations, and traverse stations have been established by the National Geodetic Survey in the vicinity of the proposed project. Construction required for the project could result in destruction or damage to some of these monuments.

The National Geodetic Survey requires sufficient advance notification of impending disturbance or destruction of monuments so that plans can be made for their relocation The National Geodetic Survey recommends that provision be made in the project funding to cover costs of monument relocation.

Gordon Lill
Deputy Director
National Ocean Survey

S T A T E

GEORGE R. ARIYOSHI
GOVERNOR

RICHARD L. O'CONNELL
DIRECTOR

TELEPHONE NO.
548-6915

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
OFFICE OF THE GOVERNOR
550 HALEKAUWILA ST
ROOM 301
HONOLULU, HAWAII 96813

November 3, 1978

Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P.O. Box 50007
Honolulu, HI 96850

Dear Mr. Johnson:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT FOR VILLAGE PARK, WAIPAHU, OAHU, HAWAII

We have reviewed the subject document and offer the following comments for your consideration:

1. Information regarding the various construction phases and timetables should be included in the project description to allow the reviewer a better concept of the proposed action.

2. Page I-12

As one of the agencies who received the notice of intent, it should not be assumed that we had no objections to the project. At the time the notice of intent was presented, there was not enough information to state a ppsition. Therefore, no objections to the project is not a correct assumption.

3. Page II-22 Drainage

The draft EIS states, "The environment will have minimal negative impact on the project." We assume this statement is reversed from what was intended. If our assumption is correct, the statement is premature. It is important to recognize that surface runoff from city streets may create a water quality problem. Street surface contaminants such as pavement material, motor vehicles residue, air pollutant fallout, vegetation, and litter in runoff can become a serious problem. The impact of such pollutants on Pearl Harbor and Waikele Stream should be discussed in the EIS.

4. Page II-23 Transportation

The conclusion, "Current peak hour traffic levels of 2788 vph (westbound) compared to its capacity of 4000 vph shows that the H-1 Freeway has adequate capacity for accommodating additional traffic," needs to be reconsidered. Traffic projections for the H-1 Freeway in the vicinity of Honouliuli Bridge for the year 1990-1995 have been estimated by James Morrow of the American Lung Association of Hawaii to be 88,011 vehicles per day. This figure is derived from proposed developments including Barbers Point Deep-Draft Harbor, Kahe Point Theme Park, West Beach Plan, Makakilo Subdivision, and the State Department of Transportation traffic counts. These projections do not reflect other major developments such as Caneland Theme Park, Fort Barrette Theme Park, Ewa Village, Palehua Planned Development Housing and Gentry-Waipio. This overall development including Village Park will place a considerable stress on H-1 Freeway. Therefore, it is vital to analyze the traffic from a broader perspective to realistically estimate impacts on H-1.

5. Page II-24 Transportation

The EIS states that Kunia Road ". . .has adequate capacity for today's traffic." However, with an increase of 68% in the A.M. traffic and 63% increase in the P.M. traffic, improvements and perhaps expansion will be needed to accommodate Village Park.

6. Water

Although the draft EIS describes water requirements and current supply, there should be discussion of the effect of drought conditions. Also, because the Ewa area has many proposed developments, it is important to discuss the water supply and demand in terms of other proposed projects in order to fully analyze the situation.

7. Page II-55 Sewage

The draft EIS states, "After Phase 4, no further building permits will be issued in Village Park without the approval of the State Health Department until the proposed Honouliuli sewage treatment plant is completed in 1981." According to the environmental impact statement for Honouliuli Wastewater Treatment Plant and Barbers Point Ocean Outfall System, Village Park is not included as part of the service area. This inconsistency should be explained.

8. State Plan

The EIS refers only to the City and County of Honolulu's General Plan. It is important to discuss the proposed action in terms of the newly adopted State Plan.

9. Page IV-2 Transportation

The table indicates that increased traffic will have a minor impact. Our previous comments indicate that traffic will be a major problem.

10. Page IV-4 Sewerage

The table indicates that sewage treatment and disposal facilities are available. As noted previously, we question whether Phase 4 of the proposed action is authorized to use the Honouliuli sewage treatment plant.

12. Page V-1 Short-Term Uses Vs. Long-Term Productivity

The discussion should be expanded. It is necessary to recognize that the proposed action will stimulate growth in the Ewa area resulting in significant secondary impacts such as deterioration of rural life, increased traffic, increased stress on public facilities and utilities, and the quality of life.

13. Appendix-Population

The EIS refers to the State's population projections Series E-2. Earlier this year, the State has revised its population downwards to Series II-F. The document should reflect these currently valid projections.

We trust that these comments will be useful to you in preparing the final EIS. We thank you for the opportunity to review this statement.

We would like to receive 22 copies of the final EIS when it becomes available.

Sincerely,

Richard L. O'Connell
Director

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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

November 1, 1978

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

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

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

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

In reply, please refer to:
File: EPHS - 88

MEMORANDUM

To: Mr. Frank L. Johnson, U. S. Department of Housing & Urban Development

From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement (EIS) for Village Park by HUD Honolulu Area Office

Thank you for allowing us to review and comment on the subject EIS.

We submit the following comments for your consideration:

Noise

1. Please be informed that we have reservations in regard to the proposed project due to the non-compatible use of land. Noise from agricultural activities will have an adverse effect to the residential units near the agricultural fields and Cane Haul Road. In addition, noise from school, recreational and commercial activities can have an adverse effect to the residential units in the neighborhood.

2. The proposed project must be planned, designed and constructed to meet the noise level requirements of Public Health Regulations, Chapter 44B, Community Noise Control for Oahu.

3. Barrier walls designed to attenuate traffic noise from the Cane Haul Road must be constructed.

4. Construction activities must comply with the provisions of Public Health Regulations, Chapter 44B, Community Noise Control for Oahu:

   a. Must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the regulations.

   b. Construction equipment and on-site vehicle or devices requiring an exhaust of gas or air must have a muffler.

   c. Must comply with the conditional use of permit as specified in the regulations and the conditions issued with the permit.

5. All heavy vehicles traveling on trafficways to and from the construction site must comply to the limits stated in Public Health Regulations, Chapter 44A, Vehicular Noise Control for Oahu.

Sewage Disposal

The City and County of Honolulu was notified, via a letter dated December 24, 1974, to Mr. Kazu Hayashida from Mr. George Yuen that an increase in the flow rate would be allowed at the Waipahu Stabilization Ponds provided that the effluent limits of the permit were not violated.

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

for JAMES S. KUMAGAI, Ph.D.

cc: Office of Environmental Quality Control

University of Hawaii at Manoa

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

Office of the Director

November 6, 1978

RE:0263

Mr. Frank L. Johnson
U.S. Department of Housing and
Urban Development
Honolulu Area Office
300 Ala Moana Boulevard, Room 3318
Honolulu, Hawaii 96850

Dear Mr. Johnson:

Draft Environmental Impact Statement
Village Park Housing
Waipahu, Oahu

The above cited EIS has been reviewed with the assistance of Harold Baker, Agriculture and Resource Economics; Kem Lowry and Robin Foster, Department of Urban and Regional Planning; Yu-Si Fok, Water Resources Research Center; Doak Cox, Margaret Kimmerer, Jacquelin Miller, Barbara Vogt, and Caryn Woodhouse, Environmental Center.

The EIS has identified a wide variety of impacts that will result from this project. Our reviewers, however, have raised a number of concerns which require further explanation.

Other Major Actions in the Region (I-4)

The listing of the proposed, approved and on-going projects provided at the beginning of the text, presents an interesting summary of activity in the Leeward area. It would be helpful in evaluating the impacts of this project with respect to the multitude of other developments if a table similar to I-2 were presented for all the "major actions in the region." The table should include for example, the number of units, expected population and date of occupancy.

When reviewing an EIS it is important to assess the project not only for its direct environmental effects, but also for its cumulative and regional effects. This is one of the weaknesses in this statement--it does not discuss the Village Park project in relation to any of the other projects listed. This is especially critical when assessing water, sewage and traffic impacts, which will be discussed further.

General Plan Population Distribution Policy (I-8)

The EIS refers to Village Park as being in the Ewa Census District, then refers to a statement allegedly made by the Department of General Planning that 3,300 to 4,300 new housing units per year are required between 1970 and 1985. Here it footnotes the General Plan. The GP, however, places the proposed development in the "urban fringe" area of Waipahu-Crestview (see EIS Plate D) where the GP originally projected a population increase of 21,000, 1975 to 2000. This has since been revised downward, as have all population area projections. In sum, the EIS fails to indicate the relation of its projected population to the total increase projected for its population area in the General Plan.

Land Use Implications (II-19)

The discussion on the conversion of prime agricultural land to urban use should be expanded, especially in relation to the State's commitment to maintain agricultural activity and preserve prime agricultural land. The intrusion of urbanization into this prime agricultural area not only decreases the amount of some of our most productive soils, but it adds additional cost burdens on the sugar industry through restraints on burning and new safety precautions on cane hauling. Was Oahu Sugar Company consulted during the preparation stage of this EIS? Who will bear the cost of fencing of cane haul roads and more frequent oiling which will be necessary?

Housing Costs (II-60, V-2)

The stated objectives of the housing project are to provide low- to moderate-priced housing. The average per unit price, $68,200, can only be afforded by 29% of the population. Based on this information, the housing development seems primarily aimed at moderate, and even high income families ($25,000 or more).

Page II-60 very clearly cites that "18% of the 310 condominium units will be affordable by the moderate income families...the remaining 82% would be affordable only by higher income families." The statement on page I-2 stating that this project will provide housing for low- and moderate-income families is misleading. Perhaps the statement should be reworded to state specifically that the project is primarily designed for high income families with only 18% of the units affordable by moderate income families.

If the condominiums are the lower priced units, and the objectives of the project are to provide low- to moderate-priced housing, why are these units being constructed last? Should the lower cost units be built in the first increments before the prices of construction materials and labor increase and force the prices up even further? What is the rationale for the order of construction?

Gulch (I-10, II-1, II-14, II-18)

As stated in the EIS, the Navy will continue to use the Waikele Gulch to store ammunition and the Homeowner's Association of the condominium units will commonly own and maintain the gulch area. From the description provided, accessibility to the gulch appears limited, especially with the steepness of its slopes. (page II-1: can a slope be more than 100%, as stated?) How can a Homeowner's Association maintain an inaccessible piece of land? What kind of maintenance will be required? What kind of safety facilities, if any, will be provided to discourage young children from entering the area? Are there any dangers involved in locating residences so close to an ammunition depot? Will prospective buyers be warned of this potential hazard? Has the gulch ever been surveyed by a qualified archaeologist? Has the Bishop Museum been consulted about this project?

Water Supply (II-44 - II-48)

The EIS refers to 1975 water consumption figures. Why not use 1977 or 1978 figures? They are available from the Board of Water Supply.

The EIS recognizes that the "water demand of the project is 1.01 mgd, or 20% of the 5.04 mgd total pumping capacity of the two Kunia wells." This is a significant demand and should be discussed in relation to other projects, especially those that may be drawing from the same source. Is that much water available during drought conditions?

The EIS identified three groups of wells as supplying the water needed in the area. It states that, by expansion, the sustainable yield of these well groups has been increased. This confuses the total capacity of the well groups with the sustainable yield, which cannot be calculated for individual wells or well groups but only for the groundwater aquifer as a whole. The State Water Commission is considering an analysis by its Water Supply Committee that indicates that the Pearl Harbor aquifer as a whole may already be overdrawn and recommends that development in the region be controlled, that a moratorium be placed on any additional exports from the region, and that the additional demand in the region be met by water development elsewhere.

We are pleased to see consideration of re-use of water for sugar cane irrigation. What is necessary to made that a reality? Was Oahu Sugar Company consulted on this?

Groundwater (II-6)

Certainly water management is of great importance, hence it would seem highly appropriate to consider alternative collection and diversion of storm waters to promote recharge rather than prevent it. What is the rationale for the prevention system proposed? Will such procedures increase runoff into Pearl Harbor and erosion in the existing gulches? What specific measures will be adopted to comply with the mitigative measures cited?

Storm Drainage/Flooding (II-20 - II-22)

What are the C and I values used in the rational method to determine peak runoff from the watershed?

100-year storm peak runoff I = ___?___ 5000 cfs?
50-year storm?

Please indicate how the 500-cfs design peak flow will be routed through the culverts at the Farrington Highway junction with reported capacities of only 2270-cfs. If this location is expected to be a potential flood hazard area, what are the mitigative measures for this problem?

With respect to the "Mitigative Measures," item 1, will the earth reservoirs be flood control measures or flood additive hazards?

Soils (II-3)

It appears that potential soil erosion problems will be one of the most serious physical environmental impacts of this project. Due to the nature of the soils involved, the previous agricultural use of the land and its slopes, possible serious sediment transport into Pearl Harbor is of major concern. The mitigative measures cited should be specific, for example: how much land will be exposed at any one time during construction? When will grading and site improvements be conducted? (The EIS mentions that grading of the development site started in September 1978. Is this, indeed, true?)

Liquid Waste (II-54 - II-57)

As the DEIS notes (page II-56) the first 450-500 units of the project would exhaust the remaining sewerage capacity in the Waipahu sewage plant. This negative impact, it is argued, would be mitigated by the eventual construction of the Honouliuli plant. There is no discussion of how the 25 mgd of that proposed plant is projected to be allocated among competing users in that area, but it would seem that the eventual amount of sewerage projected for the project (2.7 mgd) represents a significant proportion of the capacity of that plant. Moreover, the argument (page II-56) that "this long term negative impact would be mitigated by the additional tax revenues generated from the 1745 new property owners in the project" is simply not substantiated.

Solid Waste Disposal (II-49 - II-53)

Mention is made of a 1975 study indicating the feasibility of generating power from solid wastes on Oahu. What is the relationship of this study to the proposed project?

The term "scavenging" (page II-49) is misleading. Does it, in fact, refer to private "collection"?

A definite impact which should be discussed is the increased cost to the condominium owners. As we understand it, they will have to pay for the collection service, as opposed to having the City and County pay for it through general funds.

Air Pollutants (II-26)

We note a reference to the expected issuance of a final airborne lead standard in June 1978. Since this document is dated September 1978 it would appear appropriate to clarify whether such standard was issued in June or to revise the expected date of issuance. A similar update is needed with regard to the Kapaa landfill (page II-50).

Noise (II-36 - II-41, II-73)

The discussion of noise problems seems quite inclusive. We find it alarming, however, that essentially all houses adjacent to the freeway and cane haul road will be in the normally unacceptable noise category by 1998 and in fact most, if not all, homes will be in this category immediatly. In many cases, the anticipated noise levels are in the "hearing impairment" range.

The mitigation measures cited on page II-41 are all directed toward architectural design or engineering solutions to the problems. Other mitigative measures could include the creation of a wider heavily landscaped border area adjacent to the road to serve as a park and noise attenuation area. The Hawaiian climate and outdoor lifestyle does not encourage noise problem solutions that require extra structural insulation. The national and state energy policies certainly do not encourage the use of air conditioners or forced ventilating systems in order to tolerate excessive noise levels.

Aircraft noise levels should also be included in the EIS. Are HUD Noise Assessment guidelines based on mainland samples? We encourage the use of local guidelines as Hawaii's environment is much more open than the mainland's and can tolerate less noise.

It was mentioned that during the harvest cane trucks may be operating 24 hours per day. What are the noise levels of the cane hauling trucks?

Traffic (I-2, II-23, II-39, II-67)

The discussion on traffic impacts should be expanded to include Village Park in relation to other major traffic-producing projects in the area and their attendant impacts on H-1. We seriously question the estimated 20-minute drive from downtown Honolulu as the H-1 freeway is already congested, especially in the Red Hill area. We suggest an update on the traffic statistics as the situation has probably worsened since 1975.

We are also concerned with possible traffic congestion and hazards in the immediate vicinity on the project. Kunia Road, the only road into and out of the development and through a commercial area, is bound to create traffic problems as well as air quality problems.

On page II-23, the report states that "Kunia Road provides the only vehicular access to the site." "Current peak hour traffic is approximately 1200 vehicles per hour (both directions), while the capacity of Kunia Road is estimated at 2400 vph."

On page II-24 the report states that "the project will increase the peak hour traffic volume on Kunia Road from 1473 vph to 2480 vph (a.m. peak) and 1615 vph to 2622 vph (p.m. peak). This represents traffic increases of 68 percent and 63 percent respectively." Is there any explanation for these inconsistencies?

Our second concern is with the overloading of Kunia Road at the junction with the project road. The situation is further complicated by the exit road from H-1 to Kunia Road and the exit of the cane haul road into Kunia Road--all in the same general area. What is the currect Level of Service (LOS) for Kunia Road and what are the LOS projections for 1980-1990?

In addition, the discussion of road "capacity" in terms of vehicles per hour does not take into consideration the significant left-turn time that town-bound residents of the project will experience in the a.m. peak traffic. While this is a potentially significant impact for residents of the project (and other users of Kunia Road) all the "mitigative measures" call for government action of some sort (e.g., widening of Kunia Road in front of the project). Are there firm plans by the relevant government agencies to mitigate the potential traffic hazards? And, if so, shouldn't those costs be reflected in the fiscal impact analysis on page II-63?

We suggest expansion of the discussion of traffic impacts with current statistics.

Public Transportation Service (II-67)

The extension of bus service to this new development seems critical in view of the energy needs of the state and nation. Has such bus service been requested? What is the expected time frame and cost for implementation of bus service to the area? Was the City and County Department of Transportation Services consulted?

Open Space (II-13)

Approximately 35 acres of the site are to be retained for public parks or natural open space. Does this acreage include any land in the gulch area and, if so, how much?

Hazards: Natural and Man-Made (II-72)

A slope of "2':1' (horizontal to vertical)" is the same as "slopes that drop 50' in 100'."

Man-Made Hazards (II-73 - II-74)

We assume the "safety quantity distance (ESQD arc...)" cited with regard to the blast zone is a minimum area of an explosion depot within which damage or injury is likely should an explosion occur. We do not quite understand what is meant by the elimination of the ESQD arcs in 1982. Does this mean that the stored ammunition will be removed, or does it simply mean that the boundaries will be redefined? This should be clarified as there are a number of units proposed within the ESQD zone.

General

The DEIS (page II-59) notes that "there could be 1200 units built (in the Ewa HMA) in 1978, 1600 in 1979, 1800 in 1980, 2000 in 1981, and 2000 each year thereafter." When this project is viewed in the context of these regional growth projections it is apparent that the project is very likely to contribute to cumulative impacts that are not discussed in the report. In particular, this and other projects will have major impacts on traffic, sewerage capacity and water supply that remain unanalyzed.

Acknowledgements

We note that some, but not all, individuals and organizations that contributed to the preparation of this EIS are listed. Unfortunately, neither their contributions nor responses to them are included in the EIS as is required by Section 1:42. We find this to be a serious omission of the EIS. An adequate review and evaluation of many of the aspects of this project depend on the recognition of input from the agencies and individuals most directly concerned. Were the following consulted: Department of Agriculture and Health? Oahu Sugar Company, U.S. Navy, Bishop Museum, City and County Department of Transportation Services?

Yours very truly,

Doak C. Cox
Director

DCC:lmk

cc: Office of Environmental Quality Control
Harold Baker
Kem Lowry
Robin Foster
Yu-Si Fok
Margaret Kimmerer
Jacquelin Miller
Barbara Vogt
Caryn Woodhouse

UNIVERSITY OF HAWAII

Water Resources Research Center

November 1, 1978

Mr. Richard L. O'Connell
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. O'Connell:

SUBJECT: Review Draft EIS for Village Park, Waipahu, Oahu

Thank you for sending the subject EIS for our review. The following comments are listed for your consideration:

p. II-20 What are the C and I values used in the rational method to determine peak runoff from the watershed?

100-yr storm peak runoff I = ___?___ 5000 cfs?
50-yr storm?

p. II-21 Please indicate how the 5000-cfs design peak flow will be routed through the culverts at the Farrington Highway junction with reported capacities of only 2270 cfs. If this location is expected to be a potential flood hazard area, what are the mitigative measures for this problem?

p. II-22 Mitigative Measures, item 1. Will the earth reservoirs be flood control measures or flood additive hazards?

p. II-45 last line Correct 43/25 mgd to read 43.25 mgd.

Pumpage in the Pearl Harbor District has been reported as approaching its limit in recent BWS announcements and many wells in this district have been listed to be at critical levels. Will the Kunia Wells not be involved in the future?

p. II-47 para. 7 Quantify the positive impact of the net reduction of water use with the removal of sugarcane fields from irrigation by the construction of Village Park.

Solid Waste

p. II-49 The term "scavenging" is misleading. I assume that this in fact will be private "collection".

2540 Dole Street · Honolulu, Hawaii 96822

p. II-53 A definite impact which is glossed over under "mitigative measures" is the increased cost to the condominium owners. As I understand it, they will have to pay for this service, as opposed to having the City and County pay for it through general funds.

Liquid Waste

p. II-55 How were the participants to the "reserved capacity" selected?

Sincerely,

Yu-Si Fok
Faculty EIS Review Coordinator

YF:jm

cc: M. Chun
G. Dugan
R. Young
H. Gee
E. Murabayashi
J. Miller

UNIVERSITY OF HAWAII

LEEWARD COMMUNITY COLLEGE

Office of Special Programs and Community Services

November 14, 1978

Mr. Frank L. Johnson
U.S. Dept. of Housing and Urban Development
Honolulu Area Office
300 Ala Moana Blvd. Room 3318
Honolulu, HI 96850

Dear Mr. Johnson,

The following comments on the Village Park Draft Environmental Impact Statement were contributed by Jack Zimmermann (lecturer, Social Science) and John Moriyama (Community Services) from Leeward Community College.

1. What will be the type and length of impacts on Kunia Road during the development of the project?

2. The soil characteristic indicate that it may cause potential erosion hazard and could affect the structural stability of housing units. Will the soil characteristics lead to a slide problem?

3. Since the project will only provide minimal commercial services to the residents, it is assumed that they are expected to use the commercial centers in Waipahu. What impact would this have on the Kunia and Farrington intersection?

4. The information evaluating the ptential of a reservoir overflow is limited. A further discussion as to the type of reservoir, safety precautions, and perhaps a map of the area that would be affected if a overflow occurred would be needed to make an evaluation.

5. Much of Leeward Oahu's traffic problems are of a regional nature, and not confined to neighborhood congestion. What will be the impact of this housing project on traffic congestion on Red Hill during peak hour driving? How many more cars will be added to the Moanalua Highway traffic?

96-045 Ala Ike · Pearl City, Hawaii 96782 / Cable Address: UNIHAW

6. Some mention needs to be made regarding the proposed general aviation airport that was at one time planned for the Kunia area. While the site selection has not been concluded, a project of this type should not be ignored.

7. Is there a limit to the size of an area that can be mass graded at one time? (p. II-2, sentence 1)

8. One of the major cultural facilities in Leeward Oahu that deserves individual mention is the Leeward Community College Theater.

Thank you for the opportunity to comment on this environmental impact statement.

Sincerely yours,

John Moriyama
Office of Special Programs and
Community Services

dms

CITY & COUNTY

of

HONOLULU

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA
HONOLULU, HAWAII 96843

FRANK F. FASI, Mayor
YOSHIE H. FUJINAKA, Chairman
KAZU HAYASHIDA
Manager and Chief Engineer

November 1, 1978

Mr. Richard L. O'Connell, Director
Office of Environmental Quality Control
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Mr. O'Connell:

Your Memorandum of September 29, 1978 Relating to Draft Environmental Impact Statement for Village Park, Waipahu, Oahu, Hawaii

We have the following comments on the environmental document:

1. All construction plans must be submitted to us for review of fire protection requirements.

2. The consultant should revise his estimates on water demand, reservoir sizing and pumping facilities using our departmental design standards.

3. On page II-45, the section on "Existing Water Distribution System" should be corrected to indicate that the minimum diameter of the new mains will be 8-inches.

4. On page II-45, the section on "Existing Water Supply Facilities" should be corrected to indicate:

   a. The sustainable capacity of Kunia Wells II is 2.50 mgd.

   b. Eight service areas were reconfigured into six Water Use Districts.

   c. The average 12-month draft and long term allowable draft for the department's water sources in the Pearl Harbor District are 68 mgd and 72 mgd respectively. These figures should not be confused with the allowable draft from all sources within the District.

d. The department has 17 well sources and 2 shaft sources in the Pearl Harbor District.

e. The consultant should use the current data in our Annual Report and Statistical Summary (July 1, 1976 - June 30, 1977). The latest figures will require revisions to the consultant's estimated assumptions on underdraft/overdraft conditions.

5. On page II-46, the section on "Water Well Supplies and Storage" should be revised using the department's design standards.

6. On page II-47, the item on the project's estimated water demand should be corrected to indicate that the demand will be 40% of Kunia Wells II sustainable capacity and not 16.7% as stated in the document.

If you have any questions on this matter, please call Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

GEORGE S. MORIGUCHI
CHIEF PLANNING OFFICER

DGP10/78-3718(CT)

November 8, 1978

Mr. Richard L. O'Connell, Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii

Dear Mr. O'Connell:

Draft Environmental Impact Statement for Village Park Development, Waipahu, Oahu, Hawaii, by Honolulu Area Office, Department of Housing and Urban Development, September, 1978--HUD-R09-EIS-78-6D
Comments Requested September 29, 1978

We offer the following comments:

Relationship of the Project to Local Policies

The EIS indicates that the "proposed action is consistent with all applicable state and local land use regulations and standards" (p. I-2) and that the "revised development concept (was) approved by the City and County of Honolulu" in May, 1977 (p. I-11).

While development of the area was approved, the present development concept differs considerably from what was approved under Ordinance 4084. The question of whether City Council approval is required or not is still to be resolved.

Appropriate maps showing the Detailed Land Use Map designations, zoning, and the initially approved design concept should be included in the EIS for comparison with the presently proposed design concept. The differences should be discussed. The chronology (p. I-11) should be updated to include the developer's request to City Council to modify the provisions of Ordinance 4084.

Drainage

Under topography, it is indicated that

> "Two (2) drainage ways traverse the middle section of the site with side slopes over 40 percent and depths to 50 feet" (p. II-1).
>
> "Since the runoff increase due to the development is small (one or two percent for adjusted condition), the effect on the capacities of the channel improvements downstream should be minimal" (p. II-21).
>
> "The project site has favorable terrain features which will minimize flood hazards, provided improvements are kept outside of the flow line of the two (2) drainage ways traversing the site" (p. II-21, underscoring added).
>
> "Increase in runoff will further contribute to the existing potential flooding condition to the area surrounding the two 12'4" x 7'9" culverts crossing Farrington Highway" (p. II-22, underscoring added).

The Village Park Development Plan (Plate C) shows elimination of the easterly gully traversing the site. This will alter present drainage patterns considerably. The EIS should discuss the impact of this. The EIS should also indicate what areas near Farrington Highway are subject to flooding presently, and what additional areas might be subject to flooding with the increase in runoff, and how many households or non-residential establishments might be affected.

Additionally, the direct impact of filling the gully is not discussed, i.e., how much fill will this require; from where.

Easements

The Village Park Development Plan calls for relocation of the cane haul road (Easement C) along the south and eastern boundary of the project. It is indicated that "Mixed vehicular traffic generated by sugar cane production and the U.S. Navy for maintenance and servicing their facilities in Waikele Gulch may draw conflicts" (p. II-17).

The EIS should indicate whether Oahu Sugar Company has agreed to the relocation of the easement (they previously indicated their concerns) and whether the Navy has agreed to permit civilian use of the Naval Access Road as well as a connection from the access road to the cane fields above as shown in the

Village Park Development Plan. Statements from Oahu Sugar Company and the Navy on this should be included in the Appendix to the EIS.

Schools

The City's Detailed Land Use Map for the area shows two school/park sites in the project area. With fewer units now proposed, it is indicated that only one school may be required (pp. II-19 and II-68 to 70).

The need for a DLUM amendment should be addressed in the EIS.

Water

The EIS provides a lengthy discussion of water resources and the water system (pp. II-44 to 48).

It would be appropriate to include in the EIS (the appendix) some official correspondence from the Board of Water Supply stating that the available water resources and the water system are adequate for the project.

Sewage Disposal

It is indicated that

> " . . . EPA will provide grant funds for 75% of construction costs with 12% state matching funds" (p. II-55).

The EPA share is correct; the City and the State now share the balance on a 60-40 basis. Accordingly, the State share is 10 percent, rather than 12 percent as indicated.

Transportation/Circulation

This section of the EIS (pp. II-22 to 24) indicates that the project will increase Kunia Road traffic beyond its present capacity, which is adequate for today's traffic.

Several measures are proposed to mitigate this: widening of Kunia Road to four lanes; increasing the capacity of the Kunia Intersection; signalizing Intersections A and B; and signalizing intersections of Ramps KA and KI with Kunia Road (p. II-24). The EIS fails to indicate who is expected to pay for these improvements. Estimated costs should be provided in the EIS, and these costs should be included in Table II-14 FORECAST OF COSTS TO LOCAL GOVERNMENT TO PROVIDE SERVICES AND FACILITIES FOR RESIDENTS OF VILLAGE PARK (p. II-63). If the developer

proposes to pay for these improvements, that should be indicated, as in the case of dedication of park lands.

Fire Protection

Capital costs for fire protection are estimated from 0 to $169,000 (p. II-63), including land, building and equipment. If a fire station is required, the cost will probably exceed $169,000.

Economic and Housing Market

It is indicated that

> "HUD staff determined that only 18% or the 310 condominium units will be affordable by the moderate income families whose incomes are in the $15,000 to $23,000 range. The remaining 82 percent would be affordable only by higher income families. The qualifying income to purchase the project's various housing types was compared with income characteristics of families residing at Crestview/Seavuew, Mililani, the Ewa District, and the Honolulu SMSA. The profile reflected a higher median income that was found at Mililani Town, where the highest median family income than was found at Mililani Town, where the highest median family income was found among those areas compared. This comparison was based on the assumption that housing prices would be equivalent to two and one-half times the annual family income" (p. II-60).

The location of the condominium units is not indicated. Also, the findings of HUD staff should be related to the conditions of Ordinance 4084, under which the land was rezoned, both with respect to the commitment to provide low/moderate income units as well as to the distribution of these units throughout Units 2 through 15 of the project.

Agriculture

The EIS indicates

> "Oahu Sugar Company's sugarcane fields are located to the north, west and southwest of the project site. The future of these surrounding areas for agriculture may be in question since the Oahu General Plan designates this area as Urban Fringe. It may only become a question of time before these fields also succumb to urbanization" (p. III-3).

This is a misinterpretation of the General Plan, particularly Objective C under Population. The policies here are simply stated.

Policy 1 Facilitate the full development of the primary urban center.

Policy 2 Encourage the gradual development of Ewa to relieve developmental pressures in the urban-fringe and rural areas.

Policy 3 Reduce, or at most maintain, the 1975 proportions of the Island's rural and urban-fringe populations.

(General Plan - Objectives and policies, January 18, 1977, p. 20)

Additionally, Objective C under Economic Activity contains

Policy 3 Preserve sufficient agricultural land in Ewa, in Central Oahu, and along the North Shore to ensure the continuation of sugar and pineapple as viable industries.

(General Plan, p. 26)

While there will be considerable pressures for urbanization of lands to the north and west of the Village Park site, this would be inconsistent with present State and County policies. The EIS should be revised to provide the correct interpretation of General Plan objectives and policies.

We hope our comments will help you in determining the adequacy of the EIS. Thank you for affording us this opportunity of reviewing your impact statement.

Sincerely,

GEORGE S. MORIGUCHI
Chief Planning Officer

GSM:fmt

cc: ✓Honolulu Area Office, HUD
Dept. of Land Utilization

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

GEORGE S. MORIGUCHI
DIRECTOR

78/EC-9(SE)

October 19, 1978

Mr. Richard O'Connell, Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. O'Connell:

Draft Environmental Impact Statement
Village Park Development
Waipahu, Oahu, Hawaii

We have reviewed the above and offer the following comments.

1. Reference: Water Supply, pages II-44 through II-47.

   Comment: According to reprinted material, an underdraft of 30.9 mgd exists in the Pearl Harbor District, as defined by the Board of Water Supply. What is the Pearl Harbor District? What is the relationship between the Pearl Harbor District and the Pearl Harbor Lens? Would the 1.01 mgd needed for the Village Park Development come from the Pearl Harbor Lens? If so, what are the implications of withdrawl from the Pearl Harbor Lens for Village Park. This section of the EIS needs significant re-evaluation.

2. Reference: Population Projection, Appendix I.

   Comment: Several assumptions concerning future population for the Ewa area and subsequent housing demands in the Ewa sub-market are based on Series E-2 projections prepared by the Hawaii State Department of Planning and Economic Development. These projections have been revised downward as of March, 1978. These revisions should be incorporated into the final EIS.

Should you have any questions on the above comments, please contact Mr. Scott Ezer of our staff at 523-4077.

Very truly yours,

VII-103

George S. Moriguchi

GEORGE S. MORIGUCHI
Director of Land Utilization

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

WALLACE MIYAHIRA
DIRECTOR AND CHIEF ENGINEER

ENV 78-288

November 2, 1978

U. S. Department of Housing and
Urban Development
Honolulu Area Office
300 Ala Moana Boulevard, Room 3318
Honolulu, Hawaii 96850

Gentlemen:

Subject: Draft EIS for Village Park, Waipahu, Oahu, Hawaii

We have reviewed the subject draft statement and have the following comments.

1. Honouliuli wastewater treatment plant (page I-4). The major portion of the construction cost of the Honouliuli plant will be financed with Federal funds (75%); however, we should not overlook the 25 percent that is contributed by the State and the City and County governments. Also, the so called surplus Navy land had to be purchased in fee by the City.

2. Mass grading (page II-2). The grading ordinance limits grading or grubbing operations to 15 acres on single parcel at one time. Although more than one area is permitted for non-contiguous increments, we cannot overstress the need to control soil erosion. More stringent requirements for erosion control may be adopted under the proposed City and County 208 Plan.

3. Storm drainage/flooding (page II-22). The existing potential flooding conditions at the culverts crossing Farrington Highway are mentioned. Are there any mitigative measures planned?

4. Solid waste disposal (page II-49, II-51). Several permits are mentioned with respect to the operation of the

Palailai sanitary landfill. The permit issued by the City is the Conditional Use Permit. The permit issued by the Department of Health is the solid waste disposal facility permit. The discussion in the EIS should be clarified.

5. The term private scavenger is used throughout the EIS. The term "scavenging" as defined in PHR Chapter 46, means "the unauthorized removal of material from a solid waste disposal facility." To avoid confusion, we prefer the term private hauler or private collector.

6. The following terminologies and statement should be clarified (page II-51): State Board of Water Supply; State Department of Public Works; and monitored by the City and County of Honolulu. The DPW does not approve nor monitor any private landfill operation.

7. Disposal by City and County Refuse Division (page II-52). A sanitary landfill in Leeward Oahu is more likely to be available in 1981 than 1979.

8. Capacity of Waipahu City Sewage Treatment Plant (page II-52). The Waipahu stabilization pond serves the Waipahu sewerage subdistrict. Portions of the excess capacity of the pond were previously reserved for the first four phases of Village Park, numbering 716 units. Now that the density of the first four phases has been reduced, the allowable connections have been reduced correspondently. The allowable connections will be restricted to 450-500 units as stated in the EIS. Additional connections will be available upon completion of the treatment plant and the interceptor sewer and force mains from the treatment plant to the Waipahu pump station probably in 1982.

9. Expansion of WWTP capacity (page II-55). The normal State matching share of the construction cost is 10 percent not 12 percent. According to the DPED IIF population projection, the resident population that will be served by the Honouliuli plant will be 226,800 people in the year 2000.

10. Impacts (page II-56). Water pollution projects of the City are funded by the Oahu tax base. They are not restricted to the areas which the project will serve.

11. Reservoir overflow (page II-73, II-74). No allowance in flow reduction was credited in the design of the downstream drainage system to the plantation irrigation reservoirs located mauka of the development. A rupture of any of the reservoirs, however, could result in considerable property damages to the downstream areas. (Page II-74) The mitigative measures that are available will be undertaken by whom?

Very truly yours,

WALLACE MIYAHIRA
Director and Chief Engineer

cc: Div. of Engineering
Div. of Refuse
Div. of Wastewater Management

CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

KAZU HAYASHIDA
DIRECTOR

TE10/78-40

October 20, 1978

Environmental Quality Commission
550 Halekauwila St., Room 301
Honolulu, Hawaii 96813

Gentlemen:

Draft Environmental Impact Statement for
Village Park

We present the following comments based on our review of the subject draft:

1. There is no mention of available bus service in the section on transportation/circulation.

2. The development will create additional demand for bus service that will require additional equipment.

3. The proposed roadway improvements to Kunia Road should be programmed to meet developmental demands.

Very truly yours,

KAZU HAYASHIDA
Director

cc: OEQC

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII 96814

FRANK F. FASI
MAYOR

RICHARD K. SHARPLESS
MANAGING DIRECTOR

FRANCIS KEALA
CHIEF

EUGENE FLETCHER
DEPUTY CHIEF

OUR REFERENCE NM-JS

YOUR REFERENCE

October 24, 1978

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Village Park: Environmental Impact Statement (Draft)

This Department has reviewed the draft. We would like to clarify the number of automobiles to be generated from the area. Using a current ratio of 2.0 vehicles per household, an increase of 3600 vehicles can be expected, assuming that the 1500 single family homes and 300 low-rise condominiums are rated one in the same. If not, the figure of 2800 vehicles is adequate.

We hope this information will be of assistance to you.

Very truly yours,

FRANCIS KEALA
Chief of Police

By Earl Thompson
EARL THOMPSON
Assistant Chief of Police

PRIVATE

245 North Kukui Street, Honolulu, Hawaii 96817, Telephone (808) 537-5966

AMERICAN LUNG ASSOCIATION *of Hawaii*

November 10, 1978

Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P.O. Box 50007
Honolulu, Hawaii 96850

Dear Mr. Johnson:

Subject: Draft Environmental Impact Statement
Village Park, Waipahu, Hawaii
HUD RO9-EIS-78-6D

We have reviewed the subject EIS with particular attention to those sections pertaining to traffic and air quality impact. Our detailed comments are attached.

Thank you for forwarding a copy of the Draft EIS for our review, and we would appreciate receiving a copy of the final document.

Sincerely yours,

James W. Morrow

James W. Morrow
Director
Environmental Health

JWM;slm
Att.

cc: OEQC

AMERICAN LUNG ASSOCIATION OF HAWAII

ENVIRONMENTAL IMPACT STATEMENT REVIEW

. . . an air quality assurance program

Project: Village Park, Waipahu, Hawaii **Date:** November 10, 1978

1. Page II-23: The first paragraph states that "Current peak hour traffic is approximately 1200 vehicles per hour (both directions), while the capacity of Kunia Road is estimated at 2400 vph." The Highway Capacity Manual (Reference 25 in the EIS) indicates that the capacity of a 2-lane highway under ideal conditions is 2000 vph, thus suggesting that the capacity has been overestimated.

2. Page II-24: The section entitled "IMPACTS" indicates that current peak traffic volumes on Kunia Road are 1473 (a.m.) and 1615 (p.m.) vph. These figures are significantly higher than the 1200 vph mentioned on Page II-23.

3. Page II-32: The text indicates that lane capacities of 1200 vph were assumed for Kunia Road and subdivision roadways. This again appears to be an overestimation of capacity when compared to Highway Capacity Manual methods. An overestimation of capacity not only affects evaluation and conclusions regarding traffic imapact but also results in underestimation of air quality impact using the EPA screening method (Reference 30 in EIS).

4. Page II-33: Pages I-4 through I-7 describe a number of other major impending actions in the Ewa region. Did the traffic projections used in the air quality screening analysis include the peak hour contributions of Makakilo City expansion, Parbers Point Deep Draft Harbor, Campbell Industrial Park expansion, Caneland Theme Park, Kahe Theme Park, Ewa Village, and the West Beach development ? All of these are going to generate large amounts of traffic which could have a significant impact on air quality at the Receptor C location (Plate C in the EIS) as well as on the makai side of the H-1.

5. Page II-24: In light of all the proposed actions in the Ewa region (pp. I-4 - I-7), why was there no mention of the cumulative impact on the H-1 Freeway and its capability to accomodate much greater peak-hour volumes ?

6. Pages II-33 and II-35: The text states, "Since these sites were selected because they could have the highest peak hour carbon monoxide concentrations in the project area, there could be Village Park sites where these one-hour standards will not be met, even under worst case meteorological conditions." The sentence seems to contradict the analysis results and discussion. Is there a typographical error or some other explanation ?

STATE OFFICE
245 N. Kukui St.
Hono., Hawaii 96817
Telephone 537-5966

HAWAII COUNTY
Post Office Box 925
Hilo, Hawaii 96720
Telephone 935-1206

KAUAI COUNTY
Post Office Box 991
Lihue, Hawaii 96766
Telephone 245-4142

MAUI COUNTY
Cameron Center
Wailuku, Hawaii 96793
Telephone 244-5110

HAWAIIAN ELECTRIC COMPANY, INC.
Box 2750 / Honolulu, Hawaii / 96840

October 20, 1978

JOHN C. McCAIN, Ph.D.
MANAGER, ENVIRONMENTAL DEPARTMENT

ENV 2-1
General
NV/G/NV

Mr. Frank L. Johnson
U. S. Department of Housing and Urban Development
Honolulu Area Office
300 Ala Moana Blvd., Room 3318
Honolulu, Hawaii 96813

Dear Mr. Johnson:

Subject: Draft Environmental Impact Statement - Village Park, Waipahu, Hawaii (HUD-R09,EIS-78-6D)

Members of several departments of Hawaiian Electric Co. have reviewed the aboved mentioned EIS and have the following comments:

Chapter II, page 43, paragraph 2 under Energy Sources - If the project is built, the location of the substation will be along Kunia Road adjacent to and north of the project. The word "tentative" should, therefore, be deleted from the last sentence.

Chapter II, page 43, paragraph 2 under IMPACTS - The following phase should be added to the end of the first sentence "... and along Kunia Road on the western boundary of the project." Please note that we also have a 46 kv circuit on Kunia Road as well.

I hope that these comments will be considered in the preparation of the final EIS for the project.

Yours truly,

John C. McCain

JCMc:cm

LIFE OF THE LAND
A GROUP FOR ENVIRONMENTAL RESEARCH AND ACTION

November 6, 1978

OEQC
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Re: Village Park Draft EIS

The following comments address three subjects which Life of the Land believes have been inadequately discussed in the Draft EIS for Village Park (1) Water Supply;(2) the encumbrance of the project by the Navy's Explosive Safety Quantity Distance (ESQD) arc; and (3) conflicts with the Oahu General Plan.

(1) WATER SUPPLY

At page II-47, the EIS states that the 1.01 mgd demanded by this project "could be considered a significant long-term negative impact on Reservoir capacity (and) a significant long-term negative impact on (the two existing Kunia II) wells." All possible means for avoiding these impacts should be considered, including the no project alternative.

Our main concern, however, is that the EIS says it "constitutes a minor long-term negative impact on the draft for the Pearl Harbor District where the project is located." (Emphasis supplied.)

In a study done for the Board of Water Supply in 1974, John Mink, consulting hydrologist, concluded that the groundwaters of the Honolulu and Pearl Harbor areas had been overpumped by about 10% for about 10 years. The study noted that "a negative balance has become established in both the Honolulu and Pearl Harbor regions, in recent years, which if allowed to continue will in the long run cause deterioration in the quality of water withdrawn from the groundwater aquifers.... Unless draft is controlled, heads will continue to fall, spring flow will decrease and worsen in quality and general disequilibrium will prevail."

In letters to the United States Environmental Protection Agency in July, 1973, both Oahu Sugar Company and the Honolulu Board of Water Supply presented conclusions similar to those of the Mink study.

Oahu Sugar Company:

> "Hydrologists who have studied the Pearl Harbor water basin are in accord that it has reached, or nearly so, the safe yield point. In view of the salinity problems

404 PIIKOI STREET HONOLULU HAWAII 96814 TELEPHONE 521-1300

we are experiencing, we conclude that it has exceeded the safe yield point, at least in certain portions of the basin."

Board of Water Supply:

" The information indicates that the natural input is already in a precarious balance with present groundwater withdrawals."

These statements find further support in the initial findings of the Residence Times of Basal Groundwater, a study being conducted last summer by the WRRC.

The specific figures for the Pearl Basin, compiled by Mink in 1974, were as follows:

Input	Natural flow recharge	200 mgd
	Pumped (sugar) infiltration	30
	Waiahole infiltration	15
	Total recharge	245 mgd
Use	BWS	60 mgd
	Military	20
	Springs	44
	Plantations	140
	Total Use	264 mgd
Debit	Approximately 20 mgd (10% of natural recharge)	

For the years 1975-1977, average pumpage from Pearl Basin basal groundwaters was up to 285.6 mgd. This is well above Mink's estimate of maximum safe withdrawal (230 mgd at 85%) and that of Bowles (215 mgd at 85%). It is also well above that of the Board of Water Supply's "in-house" hydrologist Chester Lao who estimates maximum safe withdrawal at a seemingly high 270 mgd.

In evaluating the impact of water development for the Waipio-Gentry project (2.2 mgd) on Pearl Basin ground waters, the official position of the Honolulu Board of Water Supply was that such additional water development would result in an "addition 1% overdraft" of Pearl Basin groundwaters.

The water supply analysis in the draft EIS is almost entirely unacceptable in as much as estimates of water availability are based on long-range public relations planning documents of the Board of Water Supply and pumping capacities of specific wells rather than actual data and reports concerning safe yield in the Pearl Basin. The draft EIS mentions agriculture

water availability from the Honouliuli sewage treatment plan which is not presently available for at least three reasons. The Honouliuli sewage treatment plant isn't yet operational. Costs of treated sewage effluent are uncertain especially in view of legal ambiguities which must first be resolved regarding use or ownership rights of groundwater in Hawaii. And treated sewage effluent is not suitable for sugar cane irrigation for its entire growth cycle.

Aside from exaccerbating negative impacts as regards increasing competition between agriculture and urbanization which already exists, commitment of water resources of the Pearl Basin for Village Park also places Village Park in competition with other approved but not yet constructed urban developments which will also be dependent on Pearl Basin groundwaters. These other developments will require an additional minimum of 17 mgd -- and all of this demand is scheduled for an area dependent on groundwaters where overdraft already exists according to every available analysis.

With complete development of alternative sources of water -- maximum exchange for sewage effluent (50 mgd), 20 mgd resulting from blending high quality with low quality waters, and 20 mgd of brackish water that might be reclaimed through reverse osmosis at great expense -- water resources in the area would be barely sufficient to make up for current overdrafts and approved developments. But these alternatives are presently highly speculative and at least a decade away.

(2) ESQD ARC

On page I-12 of the EIS, it is stated that concerns dealing with the explosive safety quantity distance (ESQD) from the Waikele weapons storage facility would be discussed in greater detail in Chapter II, Site Hazards, but no detail is actually provided. What problems are involved in delaying a portion of the development until the blast zones are eliminated? Why is the arc going to be eliminated in 1982? Are the weapons going to be moved elsewhere before then? If so, what is the weapons storage facility going to be used for after the weapons are moved or the ESQD arc eliminated? Does HUD know that ESQD arcs are of smaller radii when the weapons being stored are nuclear? What are the dangers of nuclear accidents? What are the dangers of radiation exposure?

This is an area of importance that the EIS has failed to adequately address. The final draft should have that detailed discussion that was promised on page I-12.

(3) OAHU GENERAL PLAN

The building of this project along with other proposed projects in the Waipio-Mililani region will exceed the population projection as stated in the City General Plan for the year 2000. This impact has not been addressed in the Draft EIS and should be addressed in the Final EIS.

We appreciate this opportunity to make comments on this EIS and are available in the event any clarification is desired.

Sincerely,

Frank Miller
Staff Attorney, Life of the Land

George Hudes
Life of the Land

Chris Meller
Urban Planner, Life of the Land

West Oahu Soil & Water Conservation District

P. O. Box 51
Waialua, Hawaii 96791
November 2, 1978

U. S. Department of Housing and Urban Development
Honolulu Area Office
300 Ala Moana Blvd., Room 3318
Honolulu, Hawaii 96850

Attention: Mr. Frank L. Johnson

Gentlemen:

The West Oahu Soil and Water Conservation District reviewed a copy of the Draft Environmental Impact Statement for Village Park. We understand the role of the HUD is to provide mortgage insurance to home owners under favorable financial terms so that the purchase of a home may be feasible to some persons, who under other conditions than HUD insurance could not.

We believe, however, that the role of the HUD in assisting such a development as Village Park has negative aspects, although being constructed under proper zoning in an area designated for urban development, is nevertheless on prime agricultural land. The act of the State Land Use Commission in designating the site for urban use in 1969 was in our judgment an error. As indicated on Page I-12, this district expressed concern at an earlier date for urbanizing prime farm land.

We wish to point out that with the current concern for recharge of basal water, rainfall that falls on this 316-acre site in the future will largely run off because of the urban development. This may not be a factor for 316 acres but the increasing trend in urbanizing agricultural land certainly is a factor in limiting ground water recharge.

We note that there are easements for the canehaul road serving the Oahu Sugar Company and in one instance a relocation of an existing road to have it along the perimeter of the development. There is discussion of possible dust from this road and noise from the units travelling on it. This road, serving the Oahu Sugar Company was constructed when the land was agricultural with full expectation it would be kept in this use. To thrust upon the sugar company an urban development in such close proximity to one of its supply arterials and to be hopeful that dust and noise and other impact from agricultural operations surrounding this development will not have an impact on an enterprise that has intruded into an agricultural area is wishful thinking.

We note on Page II-19 that the statement is made, "However, the assessment of the merits to urbanize the site is not the role nor responsibility of HUD." The true

impact of HUD's role here is that if it supports developments of this nature, it is in essence encouraging developers to continue and to increase the agricultural areas being withdrawn from urban use. This is contrary to the General Plan of the State of Hawaii and we regret seeing a Federal agency lend support in the manner in which HUD is considering.

We believe that the Department of Health should be interested in reviewing this Draft EIS with particular concern to the impacts of traffic cited on Page II-39 and II-40 because we anticipate ~~that with~~ complaints from future residents. To not take a position at this time, prior to construction, will be negligent on the part of the DOH.

With a copy of this letter addressed to Dr. James Kumagai, Deputy Director of Health of the State Department of Health, we urge that a careful review of this Draft Environmental Impact Statement be made so that at this time there is an awareness of a possible future problem for which Oahu Sugar Company may well be held unfairly responsible.

Yours very truly,

F. C. Gross
WEST OAHU SOIL AND WATER CONSERVATION DISTRICT

cc: Dr. James Kumagai, Department of Health

LETTERS THAT DID NOT REQUIRE A

HUD RESPONSE

SPARK M. MATSUNAGA
HAWAII

WASHINGTON OFFICE:
362 RUSSELL BUILDING
WASHINGTON, D.C. 20510

HONOLULU OFFICE:
3104 FEDERAL BUILDING
HONOLULU, HAWAII 96813

United States Senate

WASHINGTON, D.C. 20510

CHIEF DEPUTY
MAJORITY WHIP

CHAIRMAN, SUBCOMMITTEE ON
TOURISM AND SUGAR
COMMITTEE ON FINANCE

MEMBER:
COMMITTEE ON ENERGY AND
NATURAL RESOURCES
COMMITTEE ON
VETERANS' AFFAIRS

October 3, 1978

Mr. Alvin K. H. Pang, Area Manager
Department of Housing and
Urban Development
P. O. Box 50007
Honolulu, Hawaii 96850

Dear Mr. Pang:

Re: Draft Environmental Impact
Statement Village Park

Receipt of your recent communication addressed to Senator Spark Matsunaga is hereby acknowledged.

Please be assured that it will be brought to the Senator's attention at the earliest possible moment.

Mahalo and Aloha.

Sincerely,

C Matano

(Ms.) C. Matano
Administrative Assistant

RECEIVED-FHA
HONOLULU, HAWAII
OCT 12 1978

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING (PACAF)
HICKAM AIR FORCE BASE, HAWAII 96853

10 OCT 1978

REPLY TO ATTN OF: DEEV (Mr Nakashima, 449-1831)

SUBJECT: Draft Environmental Impact Statement (EIS) Village Park, Waipahu, Hawaii HUD R09-EIS-78-6D

TO: Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P. O. Box 50007
Honolulu, Hawaii 96850

1. This office has reviewed the subject draft EIS and has no comment to render relative to the proposed project.

2. We greatly appreciate your cooperative efforts in keeping the Air Force apprised of your project and thank you for the opportunity to review the document.

BEN [illegible]
Dep [illegible]

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION

Public Buildings Service
Washington, DC 20405

DEC 6 1978

Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P.O. Box 50007
Honolulu, Hawaii 96850

Dear Mr. Johnson:

The General Services Administration has reviewed the draft environmental impact statement for Village Park, Waipahu, Hawaii, and have no substantive comments to make.

Thank you for the opportunity to comment.

Sincerely,

CARL W. PENLAND
Acting Director
Environmental Affairs Division

Date: DEC 20 1978

In Reply Refer to: 262

VETERANS ADMINISTRATION
DEPARTMENT OF VETERANS BENEFITS
WASHINGTON, D.C. 20420

RECEIVED FHA
DEC 20 1978

Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P. O. Box 50007
Honolulu, HI 96850

SUBJECT: Draft Environmental Impact Statement for Village Park, Waipahu, Hawaii

This is in reply to your request to review the Draft Environmental Impact Statement for Village Park, Waipahu, Hawaii.

After study and review of the draft and the site of the proposed development, we find minimal adverse impact on the general area.

We appreciate the opportunity to review and comment on the draft statement.

R. C. COON
Director
Loan Guaranty Service

cy Nui
✓ Johnson

VETERANS ADMINISTRATION
[illegible]
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105

October 31, 1978

343/26

Mr. Alvin K. H. Pang
Area Manager
Department of Housing and
Urban Development
P.O. Box 50007
Honolulu, Hawaii 96850

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HONOLULU, HAWAII
NOV 3 1978

SUBJ: Draft Environmental Impact Statements - Village Park, Waipahu, Hawaii, HUD R09-EIS-78-6D and Gentry-Waipio, Waipio, Hawaii, HUD R09-EIS-78-10D

The subject statements were received. We defer to our Central Office in Washington, D. C. for their response. They also have a copy of the statements.

MILES M. VAUGHN
Loan Guaranty Officer

cc:
Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P.O. Box 50007
Honolulu, HI 96850

GEORGE R. ARIYOSHI
GOVERNOR

CHARLES G. CLARK
SUPERINTENDENT

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

OFFICE OF THE SUPERINTENDENT

October 19, 1978

Dr. Albert Q. Y. Tom, Chairman
Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, HI 96813

Dear Dr. Tom:

Subject: Village Park
Draft Environmental Impact Statement

We have reviewed the above subject Draft EIS and concur with the following comment.

The alternative courses of actions cited in the section on educational facilities are still valid. The Department of Education will continue to monitor enrollment growth and the decision to build Hoaeae Elementary will be dependent upon the enrollment at Honowai Elementary and the number of students generated by Village Park.

Thank you for the opportunity to review and comment on the project.

Sincerely,

CHARLES G. CLARK
Superintendent

CGC.:HL:aw

cc: Koichi H. Tokushige
Leeward Oahu District

GEORGE R. ARIYOSHI
GOVERNOR

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

FRANKLIN Y. K. SUNN
EXECUTIVE DIRECTOR

WILLIAM A. HALL
ASSISTANT EXEC DIRECTOR

October 13, 1978

IN REPLY REFER

TO:

MEMORANDUM

TO: Environmental Quality Commission

FROM: Franklin Y. K. Sunn, Executive Director

SUBJECT: Draft Environmental Impact Statement Review
Title: Village Park
Location: Waipahu, Oahu, Hawaii

The Hawaii Housing Authority has reviewed the draft environmental impact statement for the subject project and can offer no comments relating to the proposed development.

Thank you for allowing us to comment on this matter.

FRANKLIN Y. K. SUNN
Original Signed

Executive Director

cc: HUD-Honolulu Area Office
DSSH

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1455 S. BERETANIA STREET, ROOM 305
HONOLULU, HAWAII 96814

FRANK F. FASI
MAYOR

B. K. AIU
CHIEF

October 23, 1978

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

We have reviewed your Draft Environmental Impact Statement for the Village Park, and have no comments at this time.

Sincerely,

Boniface K. Aiu

BONIFACE K. AIU
Fire Chief

BKA:JAF:eya

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 523-4161

FRANK F. FASI
MAYOR
Edward Hirata
~~RICHARD R. SHARPLESS~~
MANAGING DIRECTOR

Barry Chung
~~THRONE T. KUSAKA~~
DIRECTOR
Myra M. Takase
~~HARRY ENDO~~
DEPUTY DIRECTOR

November 1, 1978

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Village Park
Draft Environmental Impact Statement

We have reviewed the subject environmental impact statement and have no comments.

Thank you for giving us the opportunity of reviewing the EIS.

Very truly yours,

Richard Nagasawa

Richard Nagasawa

APPROVED:

Barry Chung

Barry Chung

HAWAIIAN TELEPHONE
GTE

October 10, 1978

Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P.O. Box 50007
Honolulu, Hawaii 96850

Dear Mr. Johnson:

Draft Environmental Impact Statement
Village Park, Waipahu, Hawaii
HUD R09-EIS-78-6D

We have reviewed the proposed Draft Environmental Impact Statement and do not foresee any adverse environmental effects for the proposed project.

Should you have any questions regarding this proposed development please contact Mr. J. Ayres at 842-9123.

Very truly yours,

G. Kaneko
Oahu Engineering & Construction
Manager

United Brotherhood of Carpenters and Joiners
of America, Local No. 745 AFL-CIO
1311 HOUGHTAILING STREET HONOLULU, HAWAII 96817
TELEPHONE 847-5761

October 30, 1978

Mr. Frank Johnson
Environmental Clearance Officer
DHUD Honolulu Area Office
P.O. Box 60007
Honolulu, Hawaii 96850

Dear Mr. Johnson:

I have read the Environmental Impact Statement for the Gentry-Waipio project and the Village Park project.

I have no comments or objections on the statements, as written.

Thank you.

Sincerely,

UNITED BROTHERHOOD OF CARPENTERS
AND JOINERS OF AMERICA, LOCAL 745,
AFL-CIO

WALTER H. KUPAU
Financial Secretary-Business Representative

WHK:lw
encl (2)

CHAPTER VIII

RECOMMENDED HUD ACTION ON PROPOSAL

The Draft EIS identified a number of potential adverse environmental impacts that would occur if the project was implemented. Various reviewers raised similar questions that caused HUD to review its analysis of some issues, revising the text where necessary.

HUD is well aware of the adverse impacts caused by the project in the urbanization of agricultural land, i.e., withdrawal of ground water, noise generated by the H-1 Freeway and the sugar cane operation. However, the project also provides for the potential homebuyer an expanded opportunity for purchasing a home at a price below the average housing market.

HUD finds that the project can meet all federal, state and local policies and standards. However, HUD will continue to monitor the project as it relates to the regional development of the Waipahu-Crestview area through a feasibility analysis of each phase of development.

HUD, therefore, finds that the project should be implemented.

APPENDIX I

APPENDIX I

AN OVERVIEW OF HONOLULU HOUSING MARKET

THE ECONOMY

The economy of Hawaii (especially Oahu) and its development and growth can, to a large extent, be attributed to its location and climate. Eighty (80) percent of the State's commerce, as well as the population, and nearly all military bases and activities are located in Oahu. The economy is basically service oriented. Manufacturing is modest. Agriculture is declining.

Tourism, defense, sugar, and pineapple, in that order of importance, represent the four major export industries. Sugar and pineapple dominated the economy up to World War II. Beginning in World War II up to 1970, defense activities prevailed. Tourism is now the major "industry" and is made of many services from hotel to scenic and travel services, gift shops, restaurants, and entertainment.

Other industries of non-export category, including the construction industry, provide goods and services to local residents from monies earned through sale of labor, products and other services to the export industry sector. The long-term growth of these industries depends upon the performance of the export industries.

The economy of Hawaii is influenced by the economy on the continental United States, whether directly or as a result thereof, and to a degree by the economic conditions of some of those countries located along the western rim of the Pacific. The world-wide recession which started at the end of 1973 had impacted the growth of both eastbound and westbound visitor arrivals for a period of two years. The Hawaii economy, which generally lags behind that of the mainland by about six months, started a slow recovery in the visitor sector about the beginning of 1976; however, the construction industry continues to decline. It can be expected that the economy of Hawaii will continue to reflect uncertainties in the marketplace, by business and consumers, and recovery may be slower than desired.

The long-term economic outlook for Hawaii will continue to be influenced by the future course of the U.S. economy and by the State's ability to properly utilize its location and climate to effectively plan and execute continued and orderly development and growth of its principal export industry -- tourism.

EMPLOYMENT

Employment on Oahu during the first six months of 1977 averaged 299,400 according to information published by the State Department of Labor and Industrial Relations. Employment opportunities reflect a negligible growth rate of 0.6% between June 1967 and June 1977. Unemployment shows some improvement decreasing from 9.5 in June 1976 to 7.6% in June 1977. Unemployment in the construction industry and related activities continues to be the hardest hit as construction deteriorated in 1975 and 1976. The recovery of the national economy did not help local construction, and the industry continues in a depressed state. A recent uptrend in construction activity and employment may be the turning point in a long awaited rejuvenation.

The sugar industry, the third largest export industry, is faced with a dilemma as a result of America's abandonment in 1974 of its 40-year-old Sugar Act which had insulated the domestic sugar industry from competition of surplus world sugar entering into the American market. The market has been chaotic since. The impact of rapid price fluctuations could be severe in Hawaii. Pineapple, the second largest agricultural industry, continues to contribute to the economic health of the local economy. Sales have declined due to intensive price competition from abroad. The growth prospects for pineapple appear good especially for fresh pineapple. While 1976 canned production levels are below early years, the industry is optimistic about the future. Diversified manufacturing activities, excluding sugar processing and pineapple canning activities, which achieved a record year in 1974, posted a decline in growth in 1975 and 1976.

Employment distribution and trends for the Honolulu SMSA are presented in Table 1. Distribution of employment points out that the economy of Oahu is highly labor intensive with 75% of employment in November 1977 composed of trades, services and government. Change of industry distribution over time is also reflected in Table 1.

Manufacturing, transportation, communication, utilities and agriculture have steadily decreased in relative importance since 1970 as measured by their percent of total non-agriculture wage and salary employment. Trades, however, have increased their importance most notably in retail trade. Services which have been keeping pace with trades have shown a slight decline recently, especially the hotel sector, reflecting the above-mentioned decline in tourism. It is expected that this trend of the increasing relative importance of trades and services will continue as the visitor industry assumes a greater importance in the overall employment picture.

The employment outlook should see a period of slower growth for the remainder of the decade. It is estimated that an average annual increase in employment of 2% - 3% (8,500 to 9,500 jobs per year) will be required to maintain a balance between employment and workforce. At present the State is graduating 5,000 - 6,000 college students per year. New jobs created

TABLE 1

EMPLOYMENT AND UNEMPLOYMENT
HONOLULU SMSA 1970 - NOVEMBER 1977

	1970	%	1971	%	1972	%	1973	%	1974	%	1975	%	1976	%	Nov. 1976	%	Nov. 1977	%
Civilian Labor Force	250,570		261,670		272,840		283,650		290,030		286,460		320,300		319,300		321,300	
Unemployment	11,040		16,370		19,380		18,520		20,920		19,560		30,200		30,200		24,200	
Rate of Employment	4.4%		6.3%		7.1%		6.5%		7.2%		6.8%		9.4%		9.5%		7.5%	
TOTAL EMPLOYMENT	239,530		245,300		253,460		265,130		269,110		266,900		290,000		289,100		297,100	
Nonagricultural Wage & Salary Emp.	249,990		255,500		265,020		278,510		283,080		286,400		287,300		291,200		293,800	
Construction	22,580	9.03	19,990	7.82	20,030	7.56	22,910	8.22	24,040	8.49	24,200	8.4	19,800	6.9	17,000	5.8	13,400	4.6
Manufacturing Dec.	18,620	7.45	18,370	7.19	18,380	6.94	17,990	6.46	17,120	6.05	17,400	6.1	17,500	6.1	15,800	5.4	15,100	5.1
Transp., Comm. & Utilities Dec.	20,400	8.16	20,470	8.01	20,750	7.83	21,170	7.60	21,440	7.57	21,400	7.5	21,700	7.6	22,500	7.7	23,100	7.9
Trades	59,390	23.76	60,660	23.74	63,840	24.09	69,090	24.81	70,690	24.97	72,000	25.1	73,300	25.5	75,500	25.9	76,400	26.0
Wholesale	14,290	5.72	13,970	5.47	13,880	5.24	14,430	5.18	14,330	5.06	14,200	5.0	14,000	4.9	14,200	4.9	14,500	4.9
Retail Inc.	45,100	18.04	46,690	18.27	49,960	18.85	54,660	19.63	56,360	19.91	57,800	20.2	59,300	20.6	61,300	21.1	61,900	21.1
Fin., Ins. & Real Estate Inc.	16,540	6.62	17,200	6.73	18,000	6.79	19,730	7.08	20,990	7.41	21,100	7.4	21,400	7.4	21,800	7.5	22,000	7.5
Services & Misc.	48,110	19.24	50,440	19.74	54,690	20.64	59,570	21.39	60,110	21.24	59,600	20.8	60,900	21.2	65,400	22.5	70,200	23.9
Hotel	9,290	3.72	10,610	4.15	12,140	4.58	12,890	4.63	12,670	4.48	12,300	4.3	12,400	4.3	13,200	4.5	14,400	4.9
Other Serv. & Misc.	38,820	15.52	39,830	15.59	42,550	16.06	46,680	16.76	47,440	16.76	47,300	16.5	48,500	16.9	n/a		n/a	
Government	64,350	25.74	69,380	26.76	69,330	26.16	68,040	24.43	68,700	24.27	70,900	24.7	72,600	25.3	73,200	25.1	73,600	25.1
Agriculture Wage & Salary Emp. Dec.	3,020	1.21	2,900	1.14	2,770	1.05	2,610	.94	2,340	.83	2,800	1.0	2,800	1.0	2,800	1.0	2,800	1.0

Source: Hawaii State Department of Labor and Industrial Relations

annually have fallen below the workforce entering the market. The visitor industry and related activities will be expected to assume an increasing role in Oahu's future economic expansion when compared to sugar, pineapple and defense activities.

POPULATION

Estimating the demand for new housing necessitates a prediction of the expected change in population. Numerous forecasts of Hawaii's population have been made and published by either the State of Hawaii or the C&C of Honolulu. Together these studies are characterized by their wide variance in defining population, the time span covered by the forecasts and the different methodologies used.

The forecast chosen as having the most validity for the purposes of this study is Resident Population (Series II-F), By Counties: 1970 - 2000. This series is consistent with the State input-output model. Oahu's total resident population includes armed forces and their dependents, and residents temporarily absent, and excludes visitors present, increased from 630,528 in April 1970 to 713,500 in July 1976 for an average annual increase of 13,300 persons (2.00% annually compounded).

Oahu's future population growth will be due to the influx of people from the mainland, net natural increase and, to a lesser extent, to immigrants from Asia and the Western Pacific. The presence of the large military population compounds the problem of forecasting population since policy and budgetary considerations at the national level will affect the military population in Oahu. According to latest local estimates there are 126,000 military personnel and their dependents. This represents nearly 18% of Oahu's population. The following Table 2 presents the population estimates and projections that will be used for the remainder of this study.

TABLE 2

RESIDENT POPULATION ESTIMATES - OAHU
APRIL 1970 - JULY 2000

Year	Total Population (Oahu)	(Ewa)	Average Annual Increase Number	(Ewa)	Percent (Oahu)	(Ewa)
1970 - April	630,528	132,299				
1975 - July	705,400	162,800	14,261	5,800	2.16	4.03
1976 - July	713,500		8,100		1.15	
1977 - July	723,400		9,900		1.39	
1980	753,700		10,100		1.38	
1985	803,800		10,020		1.30	
1990	845,000		8,240		1.00	
1995	885,800		8,160		.95	
2000	917,400		6,320		.70	

Source: State of Hawaii Department of Planning and Economic Development, Population Projection Series II-F, Census Tract Committee Report #40 and HUD analyst.

Two additional characteristics of the population affect the level of housing construction. The first is the rate of family formation. The second characteristic is the average number of persons per household. Owing to the youthfulness (median age 24.6 years in 1970) of its population, Oahu can expect a relatively larger rate of family formation in the future. This increase in family formation will, in turn, tend to increase housing demand over what it would have been otherwise.

As for average household size, Honolulu County had an average of 3.6 persons per household in 1970. The trend since 1960 has resulted in a decline in this average to 3.4 persons per household. Such a change suggests a shift in housing needs, for as the average declines a larger number of units are required to meet the needs of a given population. It is estimated that the number of persons per household will continue to decrease during the projection period (1975 - 1990) and the average household size will decline to about 3.0 by 1990.

HOUSING DEMAND

In order to determine gross housing demand from household increase for Oahu, the projected change in population for five-year intervals between 1975 and 1990 was divided by the estimated persons per household for these intervals. A major assumption in this derivation is that military population will remain fairly constant. This assumption was predicated on the historical growth pattern of the military population, military housing projects under construction, and the decreased emphasis for military activities in the Western Pacific area. Therefore, the 15-year population projections will be mainly composed of civilians who will be needing housing. The following Table 3 presents the estimated housing demand for 1975 - 1990:

Table 3

HOUSING DEMAND - OAHU
1975 - 1990

Year	Population Increase	Persons Per Household	Average Annual Household Increase	Household Increase
1975 - 1980	48,300	3.45	2800	14,000
1981 - 1985	50,100	3.23	3100	15,500
1986 - 1990	41,200	3.00	2740	13,700
1991 - 1995	40,800	3.00	2740	13,600
1996 - 2000	31,600	3.00	2100	10,500
TOTAL	212,000	3.15	2700	67,300

From the above table, an annual average of 2,700 units will be required to meet the housing needs of the Oahu population increase. This demand figure ranges from an average of 2,800 per year in 1975 to 1980, 3,100 per year in 1981 to 1985 and 2,100 per year in 1986 to 1990. The additional factor of

demolitions must be added to determine gross demand. Using a factor of 4% for units demolished yields an estimated 850 additional units that will be required bringing the total gross demand figure to approximately 3,550 units per year.

This estimate appears to be conservative when compared to past trends between 1970 and 1974 when approximately 7,700 units were absorbed on an annual basis. The difference between past market and need can be reconciled as follows: First, a substantial number of units built during 1970 - 1974 were purchased by investors either from within or outside the State. The situation of rapidly escalating housing prices and an ample supply of mortgage money combined to produce a highly speculative market. Currently, this type of market has been minimized due to substantial unsold inventory held by developers and investors and reluctance of mortgage lenders to extend further credit to this sector. Second, the military is currently building 2,700 units of military housing which will reduce the demand for units on the private market. Third, population growth in the foreseeable future has tapered down in comparison to the rapid growth rate of 1970 - 1974. Expansion can be anticipated at such time the uncertainties within the national economy are stabilized and a more sound recovery is achieved.

Measured by building permits, the share of the total housing market represented by multifamily units has averaged around 70% since 1970. In 1977 only 53% of the units authorized by permits were in multifamily structures as compared to 71% in 1976, 80% in 1975, and 68% in 1966. This high rate in multifamily construction was due to the attractiveness of this type of development to developers, lenders and investors. This created an excess inventory, primarily multi-story condominiums, which reached a point of saturation. This market was slow to absorb the available inventory of condominium units estimated at between 12,000 - 16,000 units in early 1976. Current inventory is estimated at approximately 6,000.

INCOME

Translating gross houding demand into effective demand depends on the distribution of family income and the relationship of this distribution to the selling prices of homes. Total personal income in Honolulu County has increased by 45.4% from 1970 to 1976. The inflation rate during the same period was 42.6% which resulted in a net gain in personal income of 2.8%. Distribution of estimated income and housing values affordable at those incomes is reflected below on Table 4.

TABLE 4

HONOLULU SMSA ESTIMATED 1976 FAMILY INCOME DISTRIBUTION
AND
QUALIFYING HOUSE PURCHASE PRICE

Family Income Range	Percent of Families	Cumulative Percentage	Qualifying House Purchase Price*
Less than $5,000	7	7	$12,500
$5,000 - $9,999	15	22	$12,500 - $24,999
$10,000 - $12,499	9	31	$25,000 - $31,249
$12,500 - $14,999	9	40	$31,250 - $37,499
$15,000 - $17,499	10	50	$37,500 - $43,749
$17,500 - $19,999	8	58	$43,750 - $49,999
$20,000 - $22,499	7	65	$50,000 - $56,249
$22,500 - $24,999	6	71	$56,250 - $62,499
$25,000 - $29,999	10	81	$62,500 - $74,999
$30,000 - $34,999	8	89	$75,000 - $87,499
$35,000 or more	11	100	$87,500

*Based on 2.5 times income

Source: HUD Analyst

HOUSING PRICES AND INVENTORY

The distribution of sales prices on Oahu in 1976 is shown on Tables 5 and 5a. A comparison of the percentage distribution in Table 5 with the distribution from Table 4 points out the inadequacy of the current housing market to provide housing at prices affordable by a large segment of the population. Nearly 90% of the units completed in 1976 were priced over $50,000, whereas only 42% of the families had incomes to qualify for this housing. Eighty-seven (87) percent of the units priced under $50,000 are in multi-family condominiums which are generally smaller unit types and less desirable for families with children. According to local information sources, the inventory of available condominiums in June 1977 represented about a 9-month's supply based on an absorption rate of 540 units per month. Details of the condominium inventory for 1977 are provided for the information of the reader in Table 6. Available condominium units in the Oahu market area, including units under construction, total 7,071 of which 1,270 or 18% are in the Ewa submarket. Available units on Oahu reflect a decrease from 8,717 as of December 31, 1976.

TABLE 5

NEW HOUSING BY PRICE RANGE FOR OAHU 1976

	NUMBER			PERCENT	
	TOTAL	LEASEHOLD	FEE SIMPLE	LEASEHOLD	FEE SIMPLE
Units Completed	5654	4299	1355	100	100
PRICE RANGE:					
Under $25,000	-	-	-	-	-
$25,000 - $29,999	34	-	34	-	2.5
30,000 - 34,999	-	-	-	-	-
35,000 - 39,999	306	210	96	4.9	7.1
40,000 - 44,999	247	214	33	5.0	2.4
45,000 - 49,999	450	416	34	9.7	2.5
50,000 - 59,999	1473	1382	91	32.1	6.7
60,000 - 69,999	1303	1048	255	24.3	18.9
70,000 - 99,999	1563	837	726	19.5	53.6
100,000 and over	278	192	86	4.5	6.3

Source: U.S. Department of Housing and Urban Development

TABLE 5-A

DISTRIBUTION OF NEW HOUSING UNITS
COMPLETED DURING 1976 INDICATING UNIT TYPES

UNIT PRICE	TOTAL UNITS	SINGLE FAMILY ATTACHED CONDO	SINGLE FAMILY DETACHED	MULTIFAMILY
Less than $50,000		118 fee 0 lease	8 fee 13 lease	79 fee 840 lease
Subtotal	1058	118	21	919
Percent	100%	11%	2%	87%
More than $50,000		130 fee 156 lease	865 fee 128 lease	155 fee 3162 lease
Subtotal	4596	718	993	3317
Percent	100%	6%	22%	72%
TOTAL	5654	404	1014	4236
PERCENT	100%	7%	18%	75%

EXPLANATION OF TERMS

In Table 6 below, the existing column represents the total condominimums completed in each Oahu district. Buildings in this category no longer have an active sales program. The new column contains the total units in projects currently complete, under construction or offered for sale on a presale basis. The first total column represents the potential number of condominiums. The available column combines new and resale availabilities in each district. The month's supply is calculated by dividing the available total by the current month's sale rate for both new and resale units. The under construction column includes projects that are physically under construction but not yet offered for sale. The next total column represents potential availabilities, and the last month's supply column is again based on the current month's sales rate.

TABLE 6

HONOLULU CONDOMINIUM INVENTORY

District	Existing	New	Total	Avail.	Month's Supply	Under Construc.	Total	Month's Supply
Honolulu West Central	3,115	238	3,353	305	-	228	533	-
Honolulu East Central	12,730	4,226	16,956	1,849	-	150	1,949	-
Waikiki	8,166	2,797	10,963	1,239	-	160	1,399	-
Diamond Head to Niu	2,459	36	2,495	84	-	-	84	-
Hawaii Kai	1,917	679	2,596	409	-	-	409	-
Kailua to Waimanalo	805	203	1,008	120	-	-	120	-
Kaneohe to Kahaluu	1,897	761	2,658	382	-	143	525	-
North Shore	680	86	766	108	-	-	108	-
Waialua	163	70	233	38	-	-	38	-
Central Oahu*	2,952	999	3,951	298	-	72	370	-
Waianae	2,035	1,730	3,765	585	-	-	585	-
Leeward Oahu*	3,926	1,606	5,532	901	-	-	901	-
TOTAL	40,845	13,431	54,276	6,318	7.0	753	7,071	7.9

*Ewa Market

Source: Honolulu Condominium Report - July 1977

EWA SUBMARKET

The Ewa submarket is composed of census tracts 73-89.03 and is conterminous with tax key zone 9 and Ewa Judicial District. Comparisons of 1970 census information with Oahu as a whole are shown on Table 7. The Ewa submarket had the highest percentage growth rate of any of the other submarkets on Oahu between 1960 and 1970. The growth rate between 1970 and 1976 decreased. The percentage of persons under 5 years and over 65 years are population indicators which are used to forecast the potential of population growth or loss in an area. Ewa is one area on Oahu which would exhibit natural growth potential based on population age patterns. The higher-than-average number of persons per household and lower-than-average median age reflects the fact that the area has a large percentage of husband-wife families with children. Another indicator of the character of the area is the high percentage of one-unit and owner-occupied housing units; however, multiple unit construction has increased since 1970 with high-rise construction around Salt Lake and Pearl Ridge areas and family-attached units in other areas such as Makakilo and Mililani Town. The area also has a lower percentage of substandard units (8%) compared with Oahu as a whole which as 10%.

There are a number of subdivisions under study for development that would have a potential of placing more than 21,000 residential units into the Ewa submarket during the next 10 years. There could be placed into the housing stream annually 1,200 units in 1978; 1,600 units in 1979; 1,800 units in 1980; and 2,000 units in 1981 and each year thereafter. In addition, military housing under construction at Aliamanu Military reservation (beyond the eastern periphery of the Ewa submarket) will place 2,600 units into the housing stock by the end of 1978 and at Schofield Barracks, located beyond the western periphery of the Ewa submarket, 500 housing units were completed during 1977. Although these military housing units are not within the boundaries delineating the Ewa submarket, these units will nevertheless have a direct impact upon the Ewa submarket. Military personnel currently drawing off-base housing allowance and eligible for housing on base will be required to relocate to available base housing. Military housing currently under lease by the Navy from private owners will be terminated. These actions will free many existing units within the SMSA and particularly in the Ewa submarket. A soft real estate market could be expected over the next year or two until available rental units are absorbed.

The mid-range and long-range future would appear to be more promising and encouraging with respect to need for housing units and population growth trends in the Ewa submarket to absorb a large portion of the 21,000 potential units in the Ewa submarket discussed above, given the limitation of developable lands in other submarket areas and the position taken in the most current General Plan of Honolulu and approved by the City Council to favor and encourage growth in the Ewa submarket. This observation appears to be supported by a report prepared for the State of Hawaii, which includes among other concerns an assessment of Hawaii's housing needs and a suggestion that an estimated 49,800 increase in housing units will be needed for Oahu from mid-1975 to mid-1985.

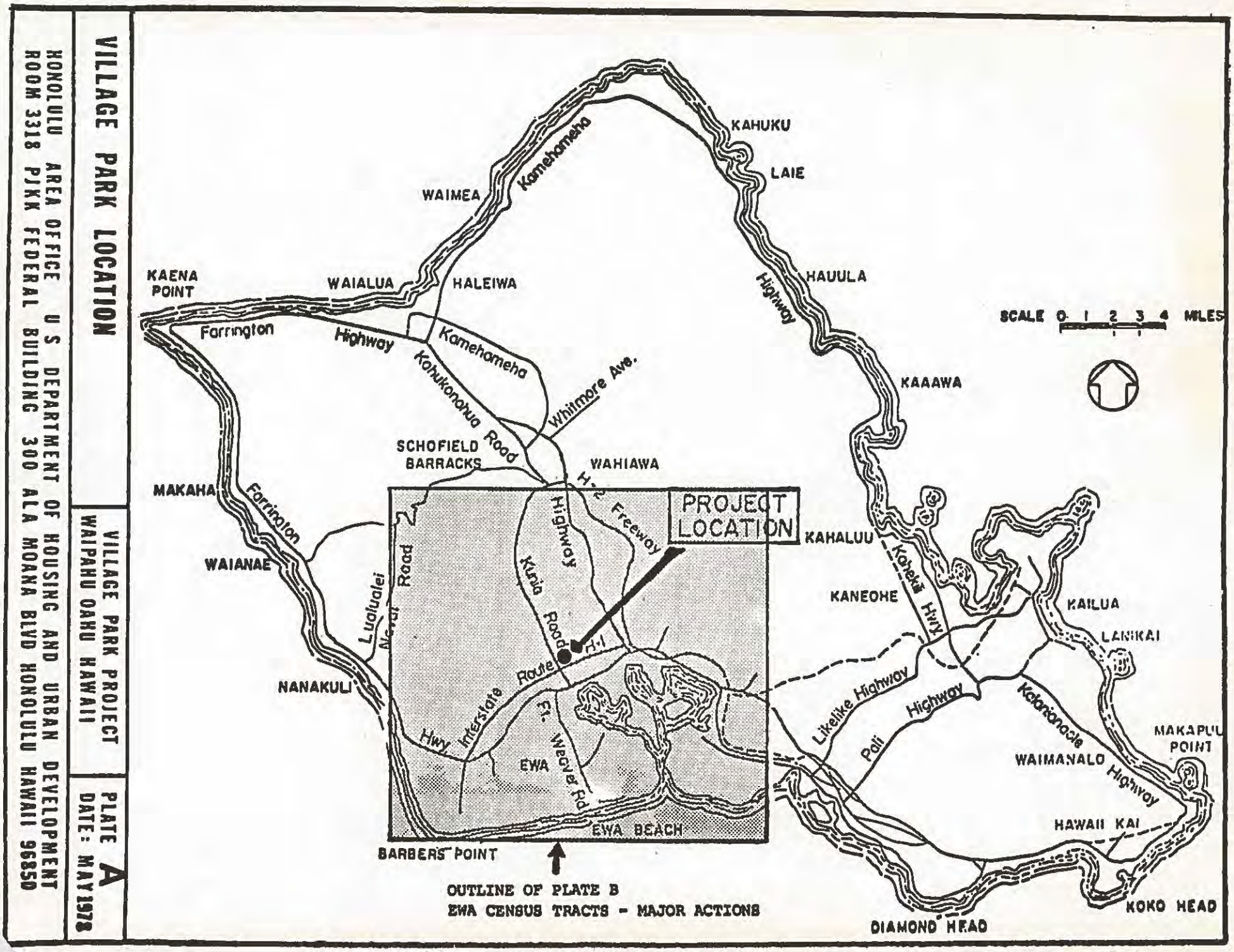
TABLE 7

POPULATION AND HOUSING CHARACTERISTICS
EWA SUBMARKET

ITEM	HONOLULU COUNTY	EWA SUBMARKET
Population 1970	630,528	132,299
Percent Change 1960 - 1970	26.0%	68.2%
Population Under 5 Years	58,701	13,913
Percent Change 1960 - 1970	9.3%	10.6%
Population 65 Years and Over	31,385	3,123
Percent Change 1960 - 1970	5.0%	2.4%
Median Age	24.6	22.6
Number of Households	164,763	27,728
Persons Per Household	3.6	4.17
Population in Group Quarters	36,047	15,021
Percent of Population	5.7%	11.5%
Median School Years	12.4	12.4
Median Income	$12,035	$11,712
Families Below $10,000	53,766	10,656
Percent	38.9%	39.7%
Families Above $25,000	11,745	1,262
Percent	8.5%	4.7%
Housing Units	174,151	29,456
Percent Owner Occupied	45.0%	51.4%
Percent 1-Unit	58.8%	73.0%
Median Value	$38,400	$33,569
Median Rent	130	136
Lacking Some or All Plumbing	5,773	560
Percent	3.3%	1.9%
1.51 or More Persons Per Room	11,361	1,757
Percent	6.9%	6.3%
Population 1976	718,428	167,300
Percent Change 1970 - 1976	14.0%	26.0%
Housing Units 1976	212,615	40,200
Percent Change 1970 - 1976	22.0%	36.0%

Source: State of Hawaii Data Book; 1970 Census

PLATES

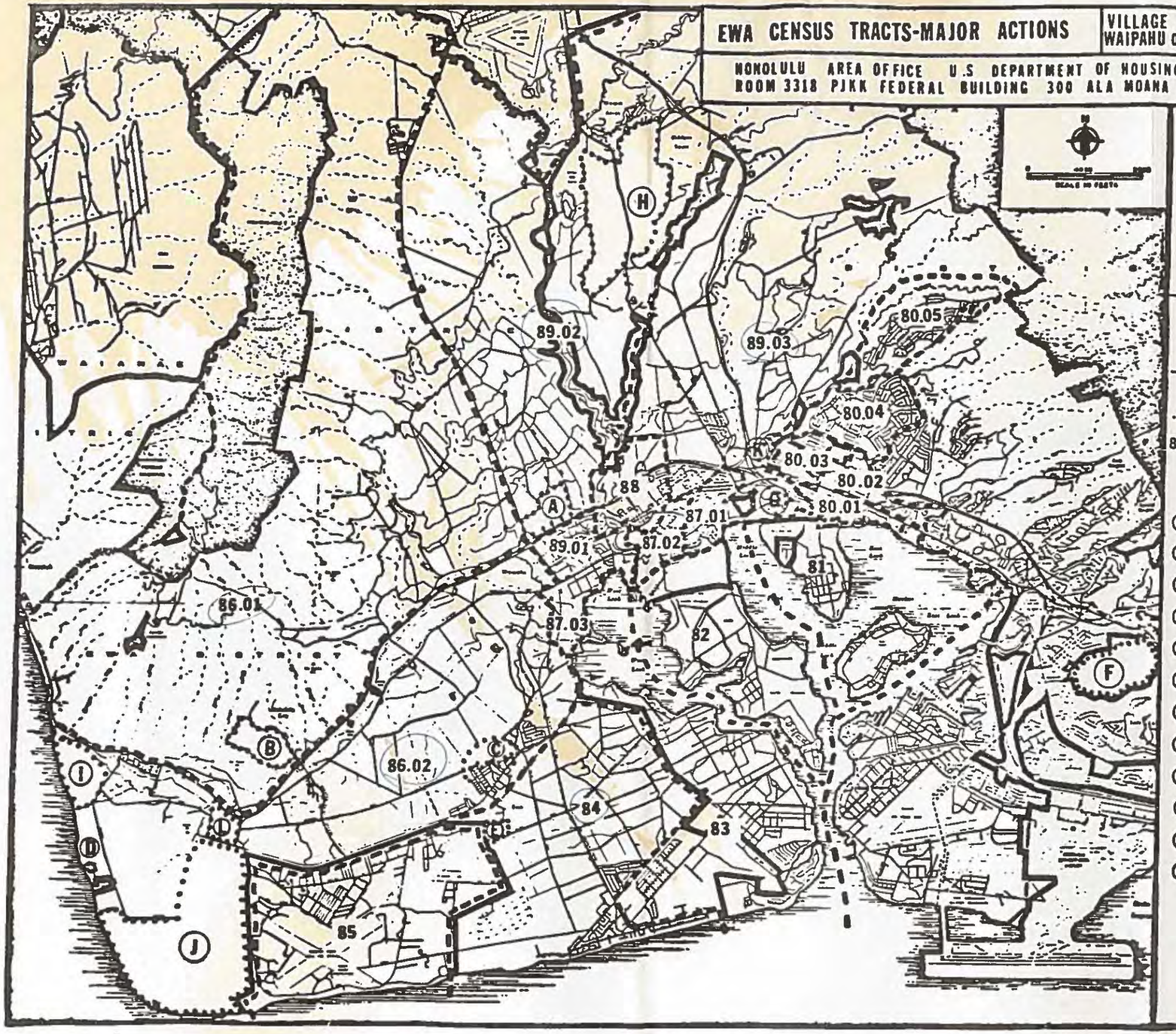

VILLAGE PARK LOCATION
VILLAGE PARK PROJECT
WAIPAHU OAHU HAWAII
PLATE A
DATE: MAY 1978
HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850
KAHUKU
LAIE
WAIMEA
Kamehameha
HAUULA
Highway
KAENA POINT
WAIALUA
HALEIWA
SCALE 0 1 2 3 4 MILES
Farrington
Highway
Kamehameha
Kahukonahua Road
Whitmore Ave.
KAAAWA
SCHOFIELD BARRACKS
WAHIAWA
MAKAHA
Farrington
PROJECT LOCATION
H-2 Freeway
Kunia Highway
KAHALUU
WAIANAE
Lualualei Naval Road
Kahekili Hwy
KANEOHE
KAILUA
LANIKAI
Kunia Road
H-1
Route
NANAKULI
Likelike Highway
Pali Highway
Kalanianaole
MAKAPUU POINT
Hwy
Interstate
EWA
Geiger Rd
WAIMANALO
Highway
HAWAII KAI
EWA BEACH
BARBERS POINT
OUTLINE OF PLATE B
EWA CENSUS TRACTS - MAJOR ACTIONS
KOKO HEAD
DIAMOND HEAD

EWA CENSUS TRACTS-MAJOR ACTIONS

VILLAGE PARK PROJECT
WAIPAHU OAHU HAWAII

PLATE B
DATE: MAY 1978

HONOLULU AREA OFFICE U.S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



LEGEND

MILITARY INSTALLATIONS (BOUNDARIES)

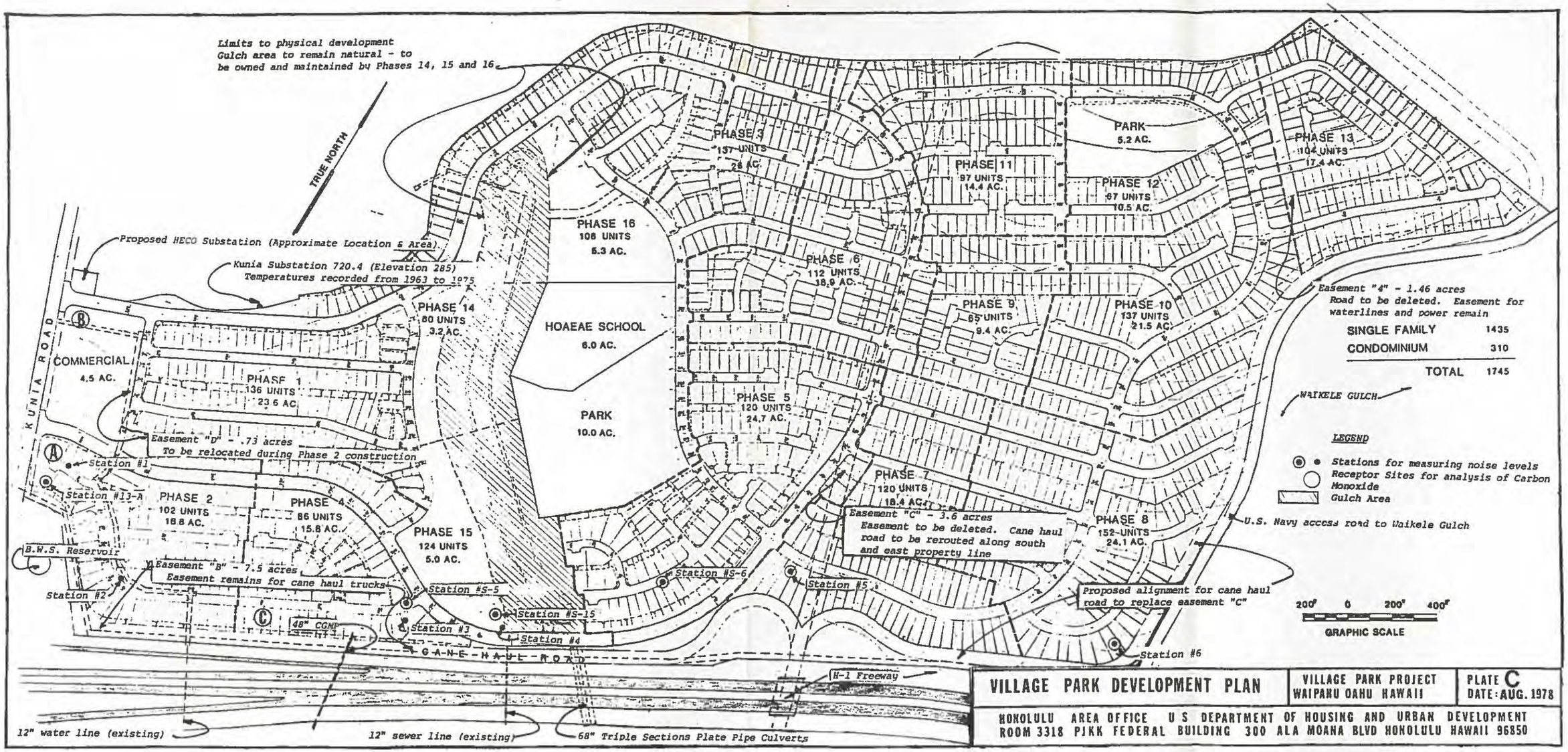
CENSUS TRACT BOUNDARIES

BOUNDARIES OF MAJOR ACTIONS

89.03 CENSUS TRACT NUMBER

MAJOR ACTIONS

- (A) VILLAGE PARK
- (B) MAKAKILO
- (C) EWA-VILLAGE
- (D) BARBERS POINT HARBOR
- (E) HONOULIULI MWTP
- (F) ALIAMANU MILITARY HOUSING
- (G) WEST OAHU COLLEGE
- (H) MILILANI TOWN
- (I) WEST BEACH
- (J) JAMES CAMPBELL INDUSTRIAL PARK
- (K) WAIWA INDUSTRIAL PARK
- (L) "CANELAND" THEME PARK

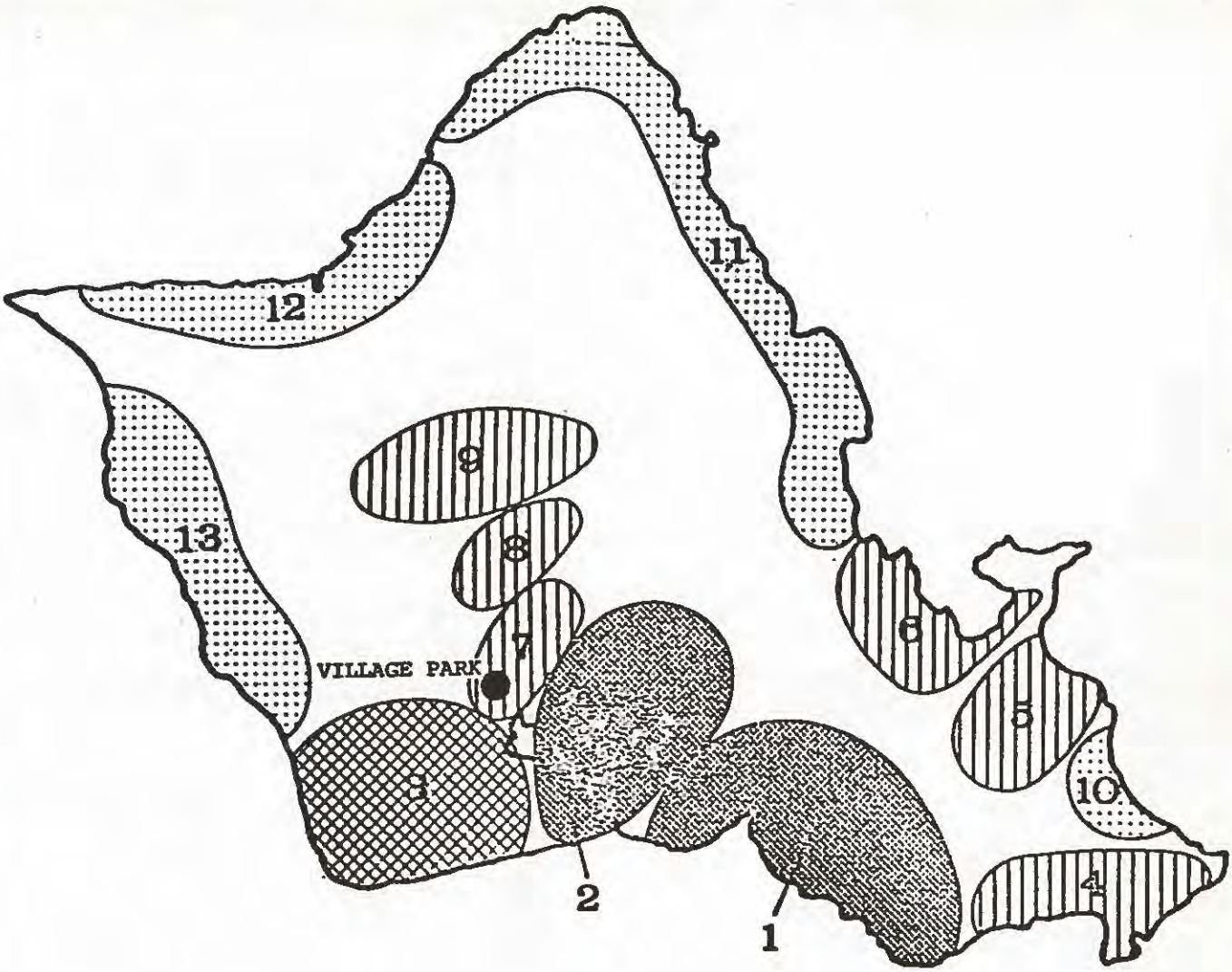


VILLAGE PARK DEVELOPMENT PLAN

VILLAGE PARK PROJECT
WAIPAHU OAHU HAWAII

PLATE C
DATE: AUG. 1978

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



LEGEND

PRIMARY URBAN CENTER
1. Honolulu (Waialae/Kahala-Halawa)
2. Aiea – Pearl City

SECONDARY URBAN CENTER
3. Ewa - Makakilo

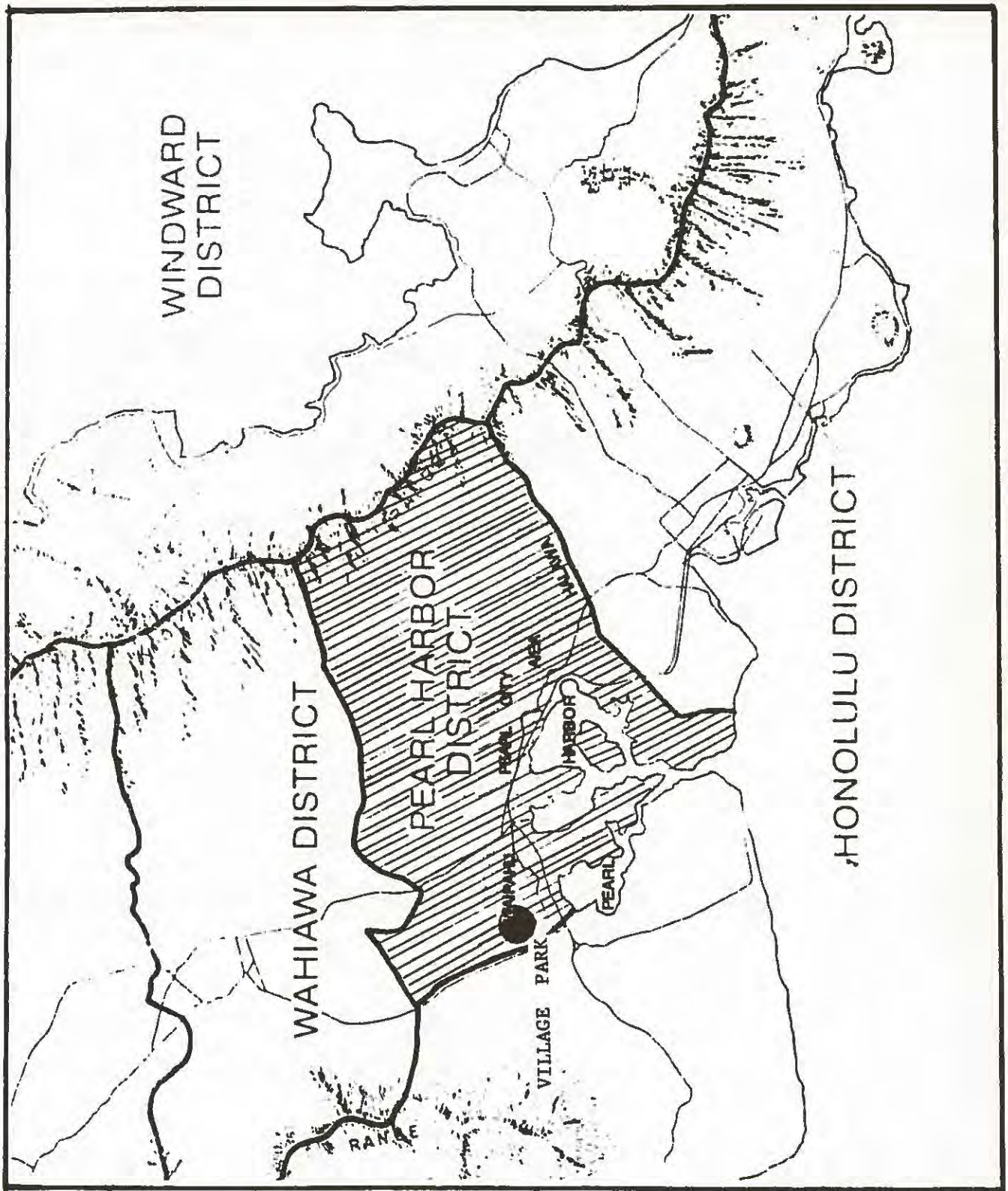
URBAN-FRINGE
4. Aina Koa – Hawaii Kai
5. Kailua
6. Kaneohe - Ahuimanu
7. Waipahu - Crestview
8. Mililani - Waipio
9. Wahiawa

RURAL
10. Waimanalo
11. Kahaluu - Kahuku
12. North Shore
13. Waianae Coast

SOURCE: GENERAL PLAN FOR OAHU
EXHIBIT A; RES. NO. 238
JAN. 18, 1977

POPULATION AREAS - OAHU	VILLAGE PARK PROJECT WAIPAHU OAHU HAWAII	PLATE D DATE: MAY 1978

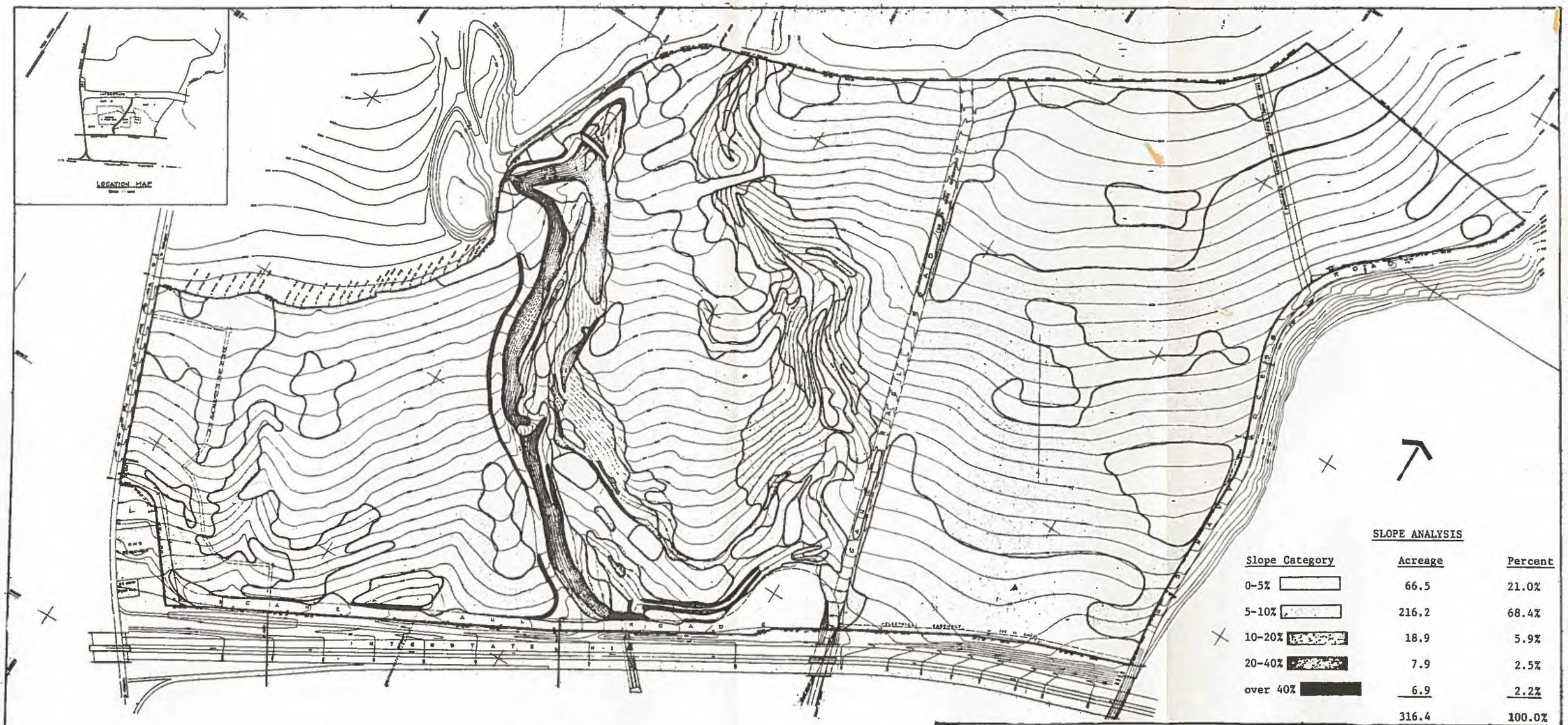
HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



PEARL HARBOR WATER DISTRICT	VILLAGE PARK PROJECT WAIPAHU OAHU HAWAII	PLATE E DATE: JAN 1979

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850

FIGURES



SLOPE ANALYSIS

Slope Category	Acreage	Percent
0-5%	66.5	21.0%
5-10%	216.2	68.4%
10-20%	18.9	5.9%
20-40%	7.9	2.5%
over 40%	6.9	2.2%
	316.4	100.0%

Source: Topographic map in application for "Planned Development Housing" for Village Park prepared by Chapman, Phillips, Brandt & Associates, November 15, 1971. Acreage and Percent data compiled by HUD staff.

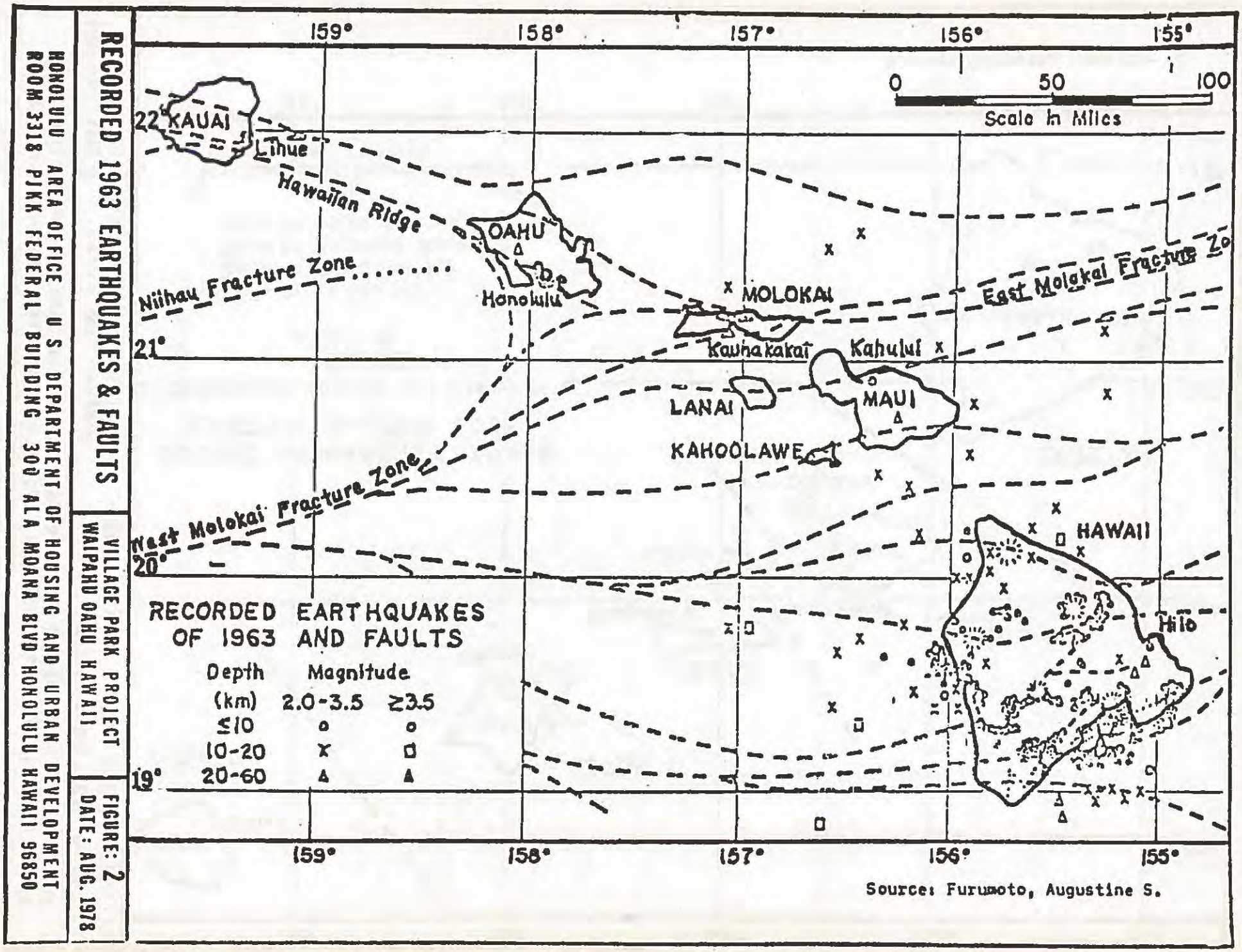
Village Park

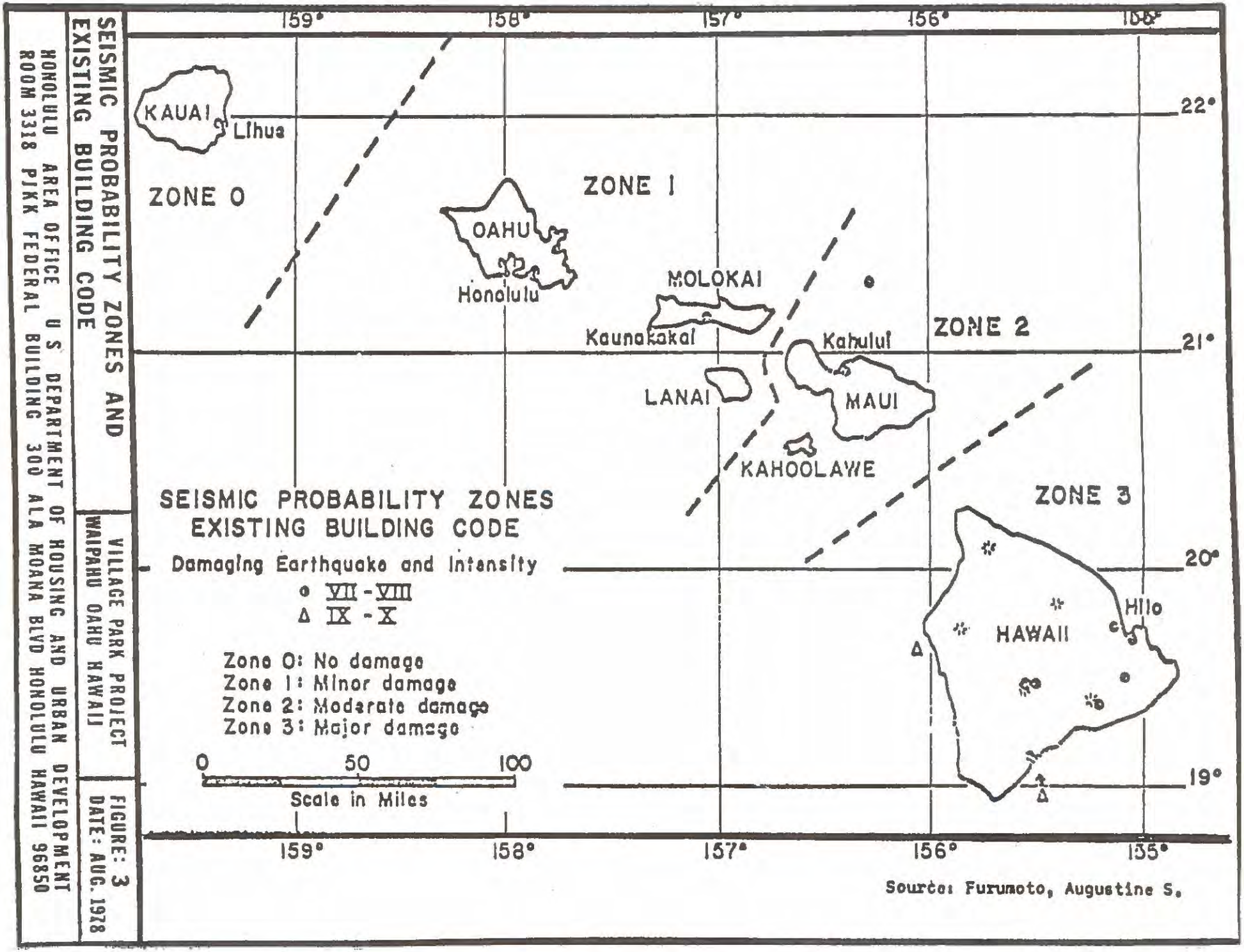
TOPOGRAPHY / SLOPES

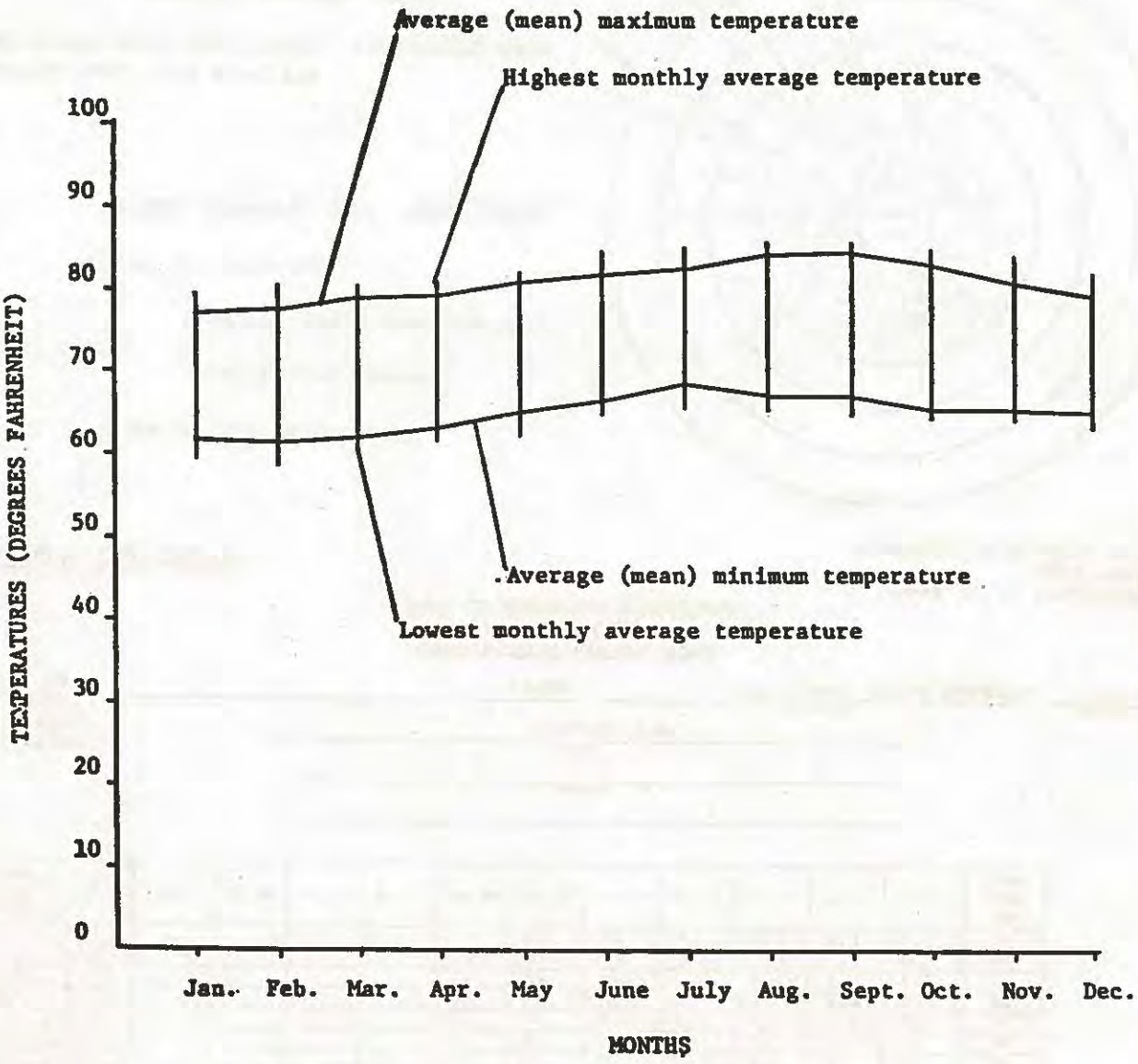
VILLAGE PARK PROJECT
WAIPAHU OAHU HAWAII

FIGURE: 1
DATE: MAY 1978

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850


RECORDED 1963 EARTHQUAKES & FAULTS
VILLAGE PARK PROJECT
WAIPAHU OAHU HAWAII
FIGURE: 2
DATE: AUG. 1978
HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850
159°
158°
157°
156°
155°
22°
21°
20°
19°
0
50
100
Scale in Miles
KAUAI
Lihue
Hawaiian Ridge
OAHU
Honolulu
Niihau Fracture Zone
MOLOKAI
East Molokai Fracture Zo
Kaunakakai
Kahului
LANAI
MAUI
KAHOOLAWE
West Molokai Fracture Zone
HAWAII
Hilo
RECORDED EARTHQUAKES
OF 1963 AND FAULTS
Depth (km)
Magnitude
2.0-3.5
≥3.5
≤10
10-20
20-60
Source: Furumoto, Augustine S.


SEISMIC PROBABILITY ZONES AND EXISTING BUILDING CODE
VILLAGE PARK PROJECT
WAIPAHU OAHU HAWAII
FIGURE: 3
DATE: AUG. 1978
HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850
159°
158°
157°
156°
155°
22°
21°
20°
19°
KAUAI
Lihue
ZONE 0
ZONE 1
OAHU
Honolulu
MOLOKAI
Kaunakakai
Kahului
ZONE 2
LANAI
MAUI
KAHOOLAWE
ZONE 3
HAWAII
Hilo
SEISMIC PROBABILITY ZONES
EXISTING BUILDING CODE
Damaging Earthquake and Intensity
VII - VIII
IX - X
Zone 0: No damage
Zone 1: Minor damage
Zone 2: Moderate damage
Zone 3: Major damage
0
50
100
Scale in Miles
Source: Furumoto, Augustine S.

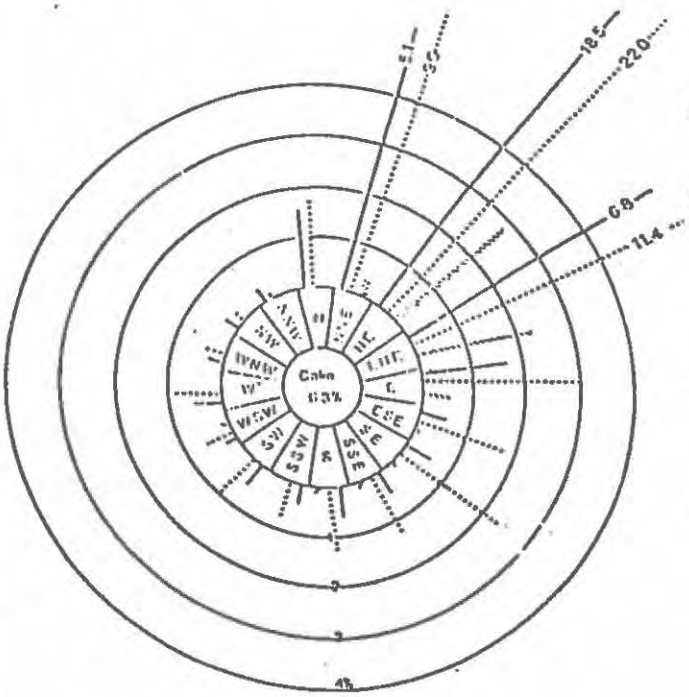


TEMPERATURES AT PROJECT SITE (KUNIA SUBSTATION 740.4, ELEVATION 285 FT.)

Source: Hawaii State Department of Land and Natural Resources, Water and Land Development Division Print Out, statistical summary of minimum and maximum monthly temperatures.

TEMPERATURES AT PROJECT SITE	VILLAGE PARK PROJECT WAIPAHU OAHU HAWAII	FIGURE:4 DATE: AUG. 1978

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PIKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



Source: Chief of Naval Operations
Naval Weather Service

Data Collected: April 1945 thru April 1949
and July 1952 thru March 1959

WIND ROSE, NAS BARBERS POINT

Wind speed in knots

Legend: ——— 1-6 knots

----- 7-16 knots

\\\\\\ more than 16 knots

DATA PROCESSING DIVISION
ETAC, USAF
ASHEVILLE, N. C. 28801

SURFACE WINDS

PERCENTAGE FREQUENCY OF WIND
DIRECTION AND SPEED
(FROM HOURLY OBSERVATIONS)

22514 (STATION) BARBERS POINT HAWAII NAS (STATION NAME) 49-67 (YEARS) ALL (MONTH)

ALL WEATHER (CLASS)

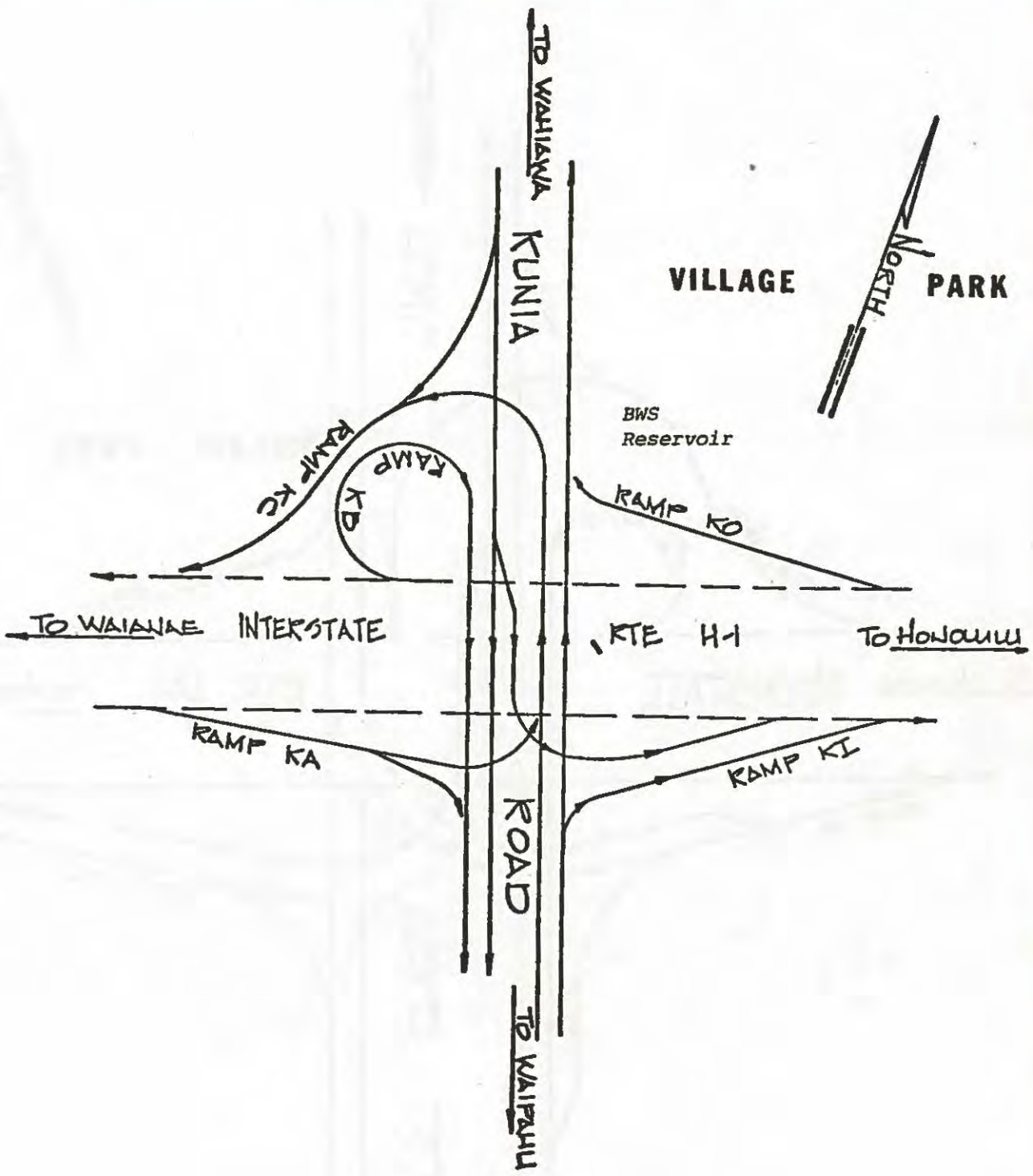
(CONDITION)

ALL (HOURS (L S T))

SPEED (KNTS) / DIR.	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	22 - 27	28 - 33	34 - 40	41 - 47	48 - 55	≥56	%	MEAN WIND SPEED
N	.3	1.3	1.4	.4	.0	.0						3.5	7.3
NNE	.8	4.3	6.7	2.3	.3	.0	.0					14.5	8.2
NE	3.6	9.8	13.6	8.4	2.5	.3	.0					36.1	8.9
ENE	2.4	4.4	5.9	5.5	1.5	.4	.0					20.5	9.6
E	.5	1.2	1.8	1.2	.4	.1	.0		.0			5.1	9.3
ESE	.1	.4	1.0	.8	.1	.0	.0					2.4	9.7
SE	.1	.5	1.3	1.0	.1	.0	.0	.0				3.1	9.8
SSE	.1	.4	.8	.4	.1	.0	.0	.0				1.7	9.2
S	.1	.6	.9	.4	.1	.0	.0	.0				2.2	8.6
SSW	.1	.3	.6	.2	.0	.0	.0	.0				1.3	8.6
SW	.1	.4	.7	.3	.0	.0	.0	.0				1.6	8.7
WSW	.0	.2	.4	.2	.1	.0	.0					1.0	9.5
W	.1	.4	.6	.3	.0	.0	.0					1.4	8.7
WNW	.1	.2	.3	.1	.0	.0						.7	8.5
NW	.1	.2	.1	.1	.0							.5	6.7
NNW	.1	.2	.1	.0	.0	.0						.3	6.0
VARBL													
CALM												2.0	
	8.6	24.9	36.3	21.7	5.7	.9	.1	.0	.0			100.0	8.8

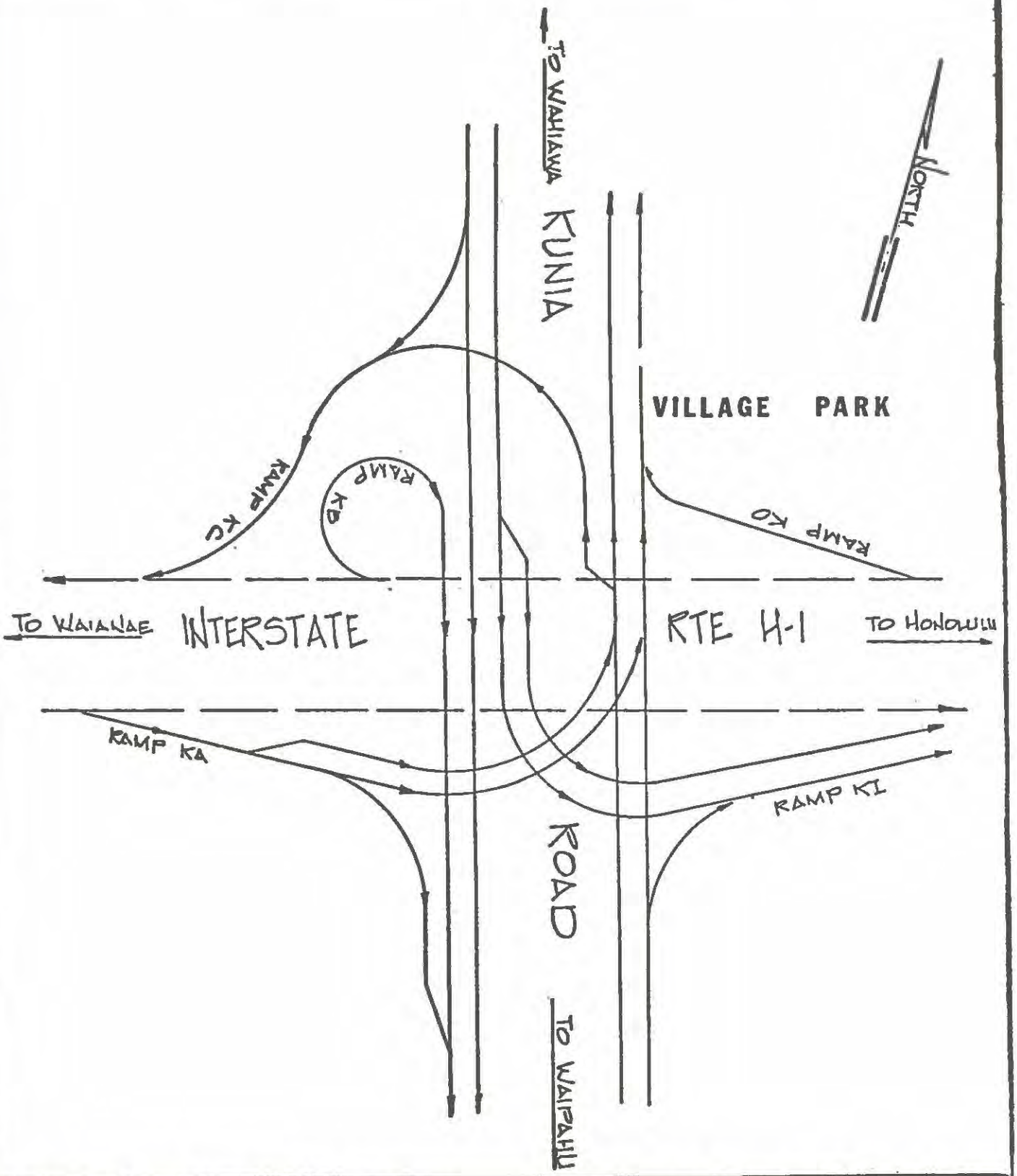
WIND ROSE / WIND VELOCITIES	VILLAGE PARK PROJECT WAIPAHU OAHU HAWAII	FIGURE: 5 DATE: MAY 1978

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



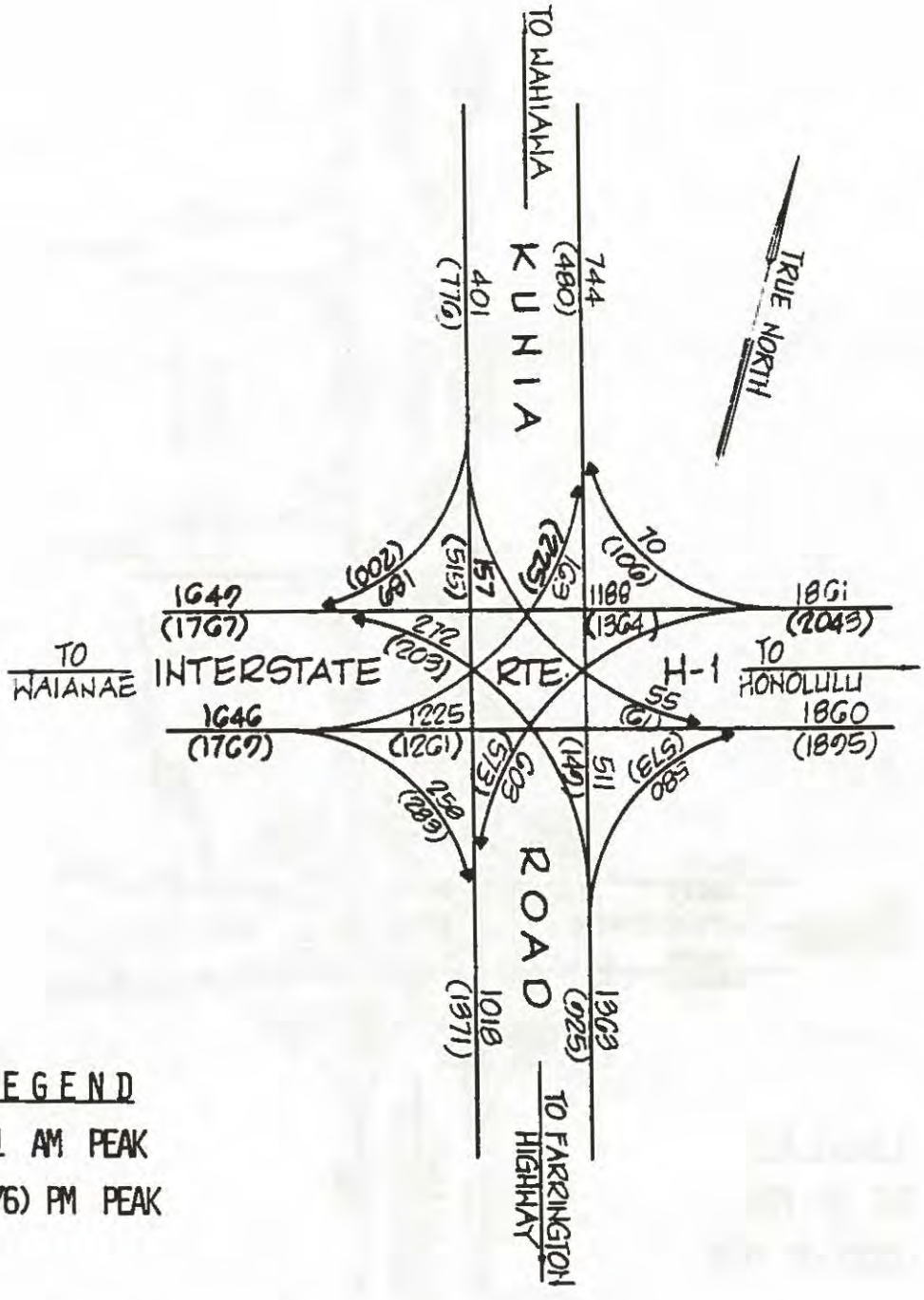
EXISTING KUNIA INTERCHANGE	VILLAGE PARK PROJECT WAIPAHU OAHU HAWAII	FIGURE: 6 DATE: AUG. 1978

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



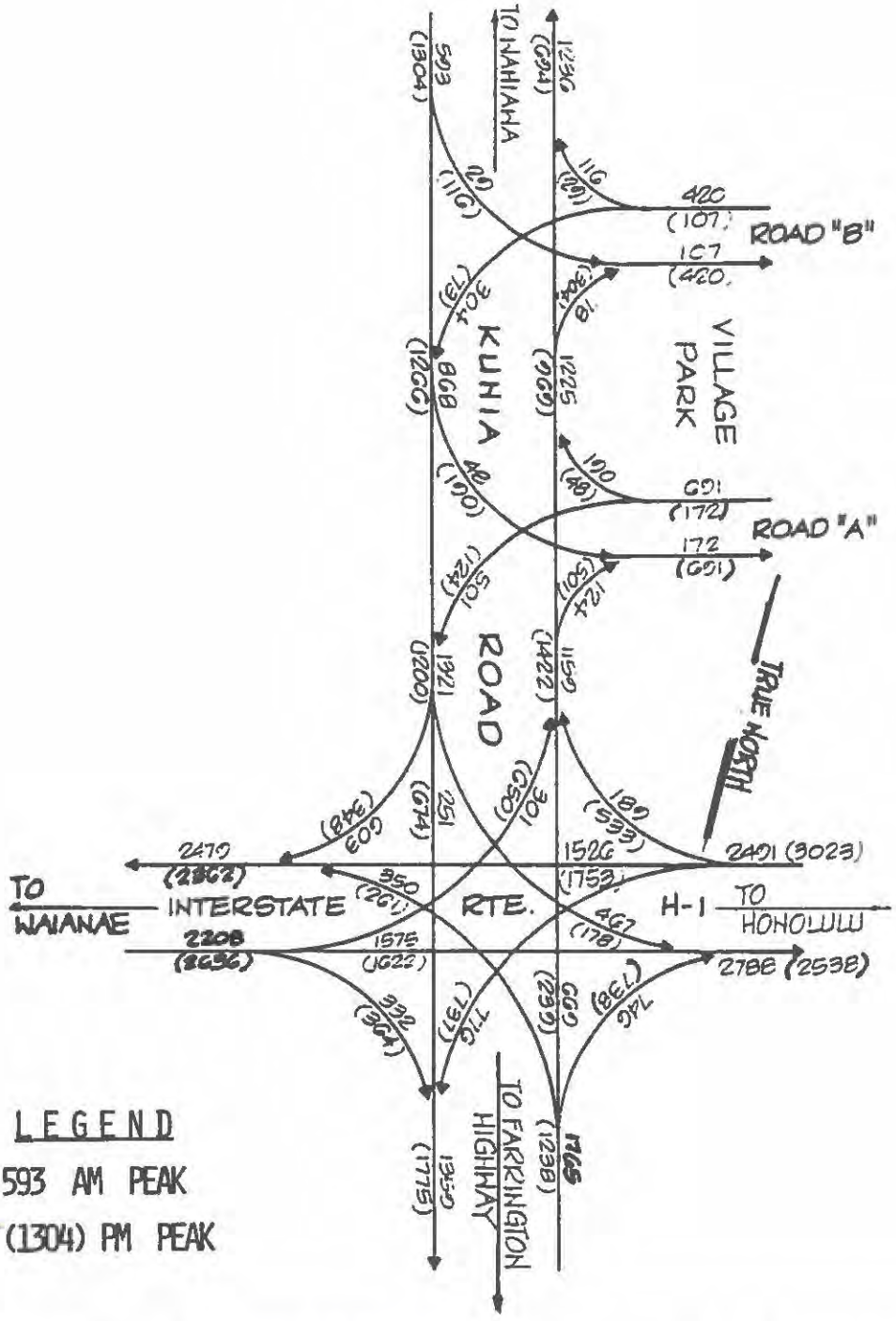
IMPROVED KUNIA INTERCHANGE	VILLAGE PARK PROJECT WAIPAHU OAHU HAWAII	FIGURE: 7 DATE: AUG. 1975

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



EXISTING TRAFFIC VOLUMES H-1 FREEWAY AND KUNIA ROAD	VILLAGE PARK PROJECT WAIPAHU OAHU HAWAII	FIGURE: 8 DATE: JAN 1979

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



PEAK HOUR TRAFFIC - 1990 H-1 FREEWAY AND KUNIA ROAD	VILLAGE PARK PROJECT WAIPAHU OAHU HAWAII	FIGURE: 9 DATE: JAN 1979

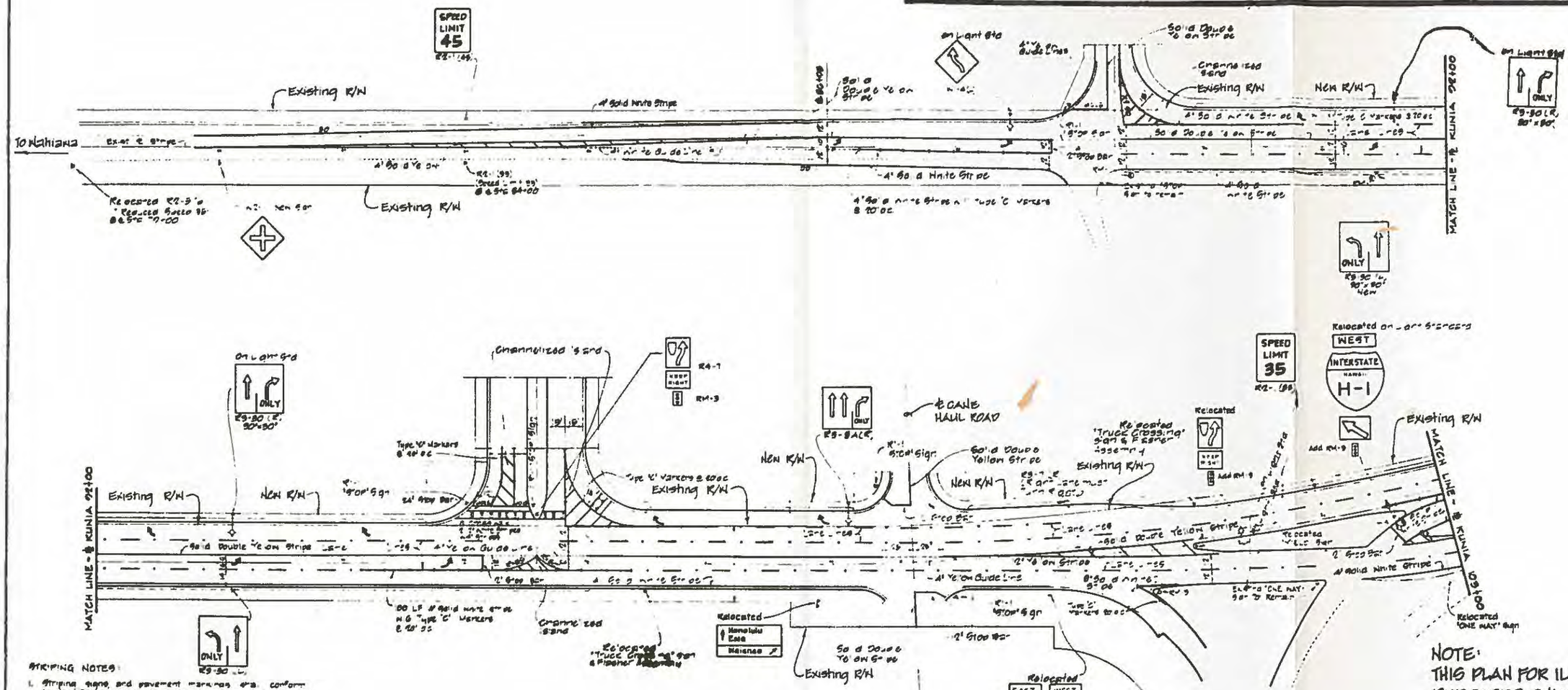
HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850

PRELIMINARY LAYOUT PLAN - KUNIA RD

VILLAGE PARK PROJECT
WAIPAHU OAHU HAWAII

FIGURE: 10
DATE: JAN 1979

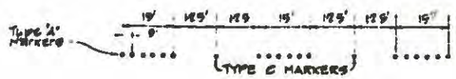
HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



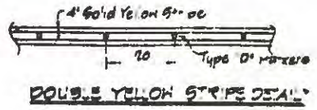
STRIPING NOTES:

1. Striping, signs and pavement markings shall conform to the STATE STANDARD DETAILS and the MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 1971 ed (MUTCD)
2. Striping and signs not incorporated in traffic pattern shall be removed. Methods of removal shall be approved by the Engineer
3. For Pavement Arrow details see MUTCD Fig 3B6
4. Guide markers and post mile markers shall be relocated where required by Engineer. Cost to relocate shall be incidental to contract items.

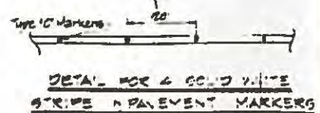
STRIPING PLAN



LANE LINE DETAIL



DOUBLE YELLOW STRIPE DETAIL



DETAIL FOR 4 SOLID WHITE STRIPE & PAVEMENT MARKERS

NOTE:
THIS PLAN FOR ILLUSTRATIVE PURPOSES ONLY.

NO	DATE	DESCRIPTION	ENGR		APPROVED
		REVISIONS			

PARK ENGINEERING INC
1149 BETHEL STREET HONOLULU HAWAII

VILLAGE PARK PD-H PHASE I
AT HOAKAE, EWA, OAHU HAWAII

KUNIA ROAD IMPROVEMENT

Owner: James Robinson Hale, et al.
Tax Map Key: 9-4-08: 11

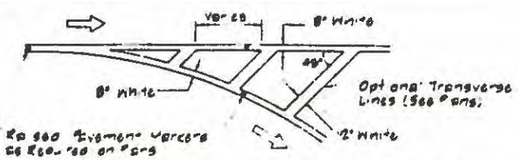
PRELIMINARY LAYOUT PLAN

PRELIMINARY LAYOUT PLAN-KUNIA RD

VILLAGE PARK PROJECT
WAIPAHU OAHU HAWAII

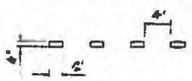
FIGURE: 10 a
DATE: JAN 1979

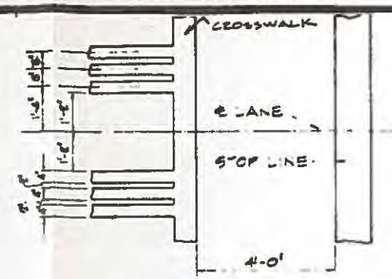
HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



CHANNELIZING ISLAND DETAIL
NOT TO SCALE

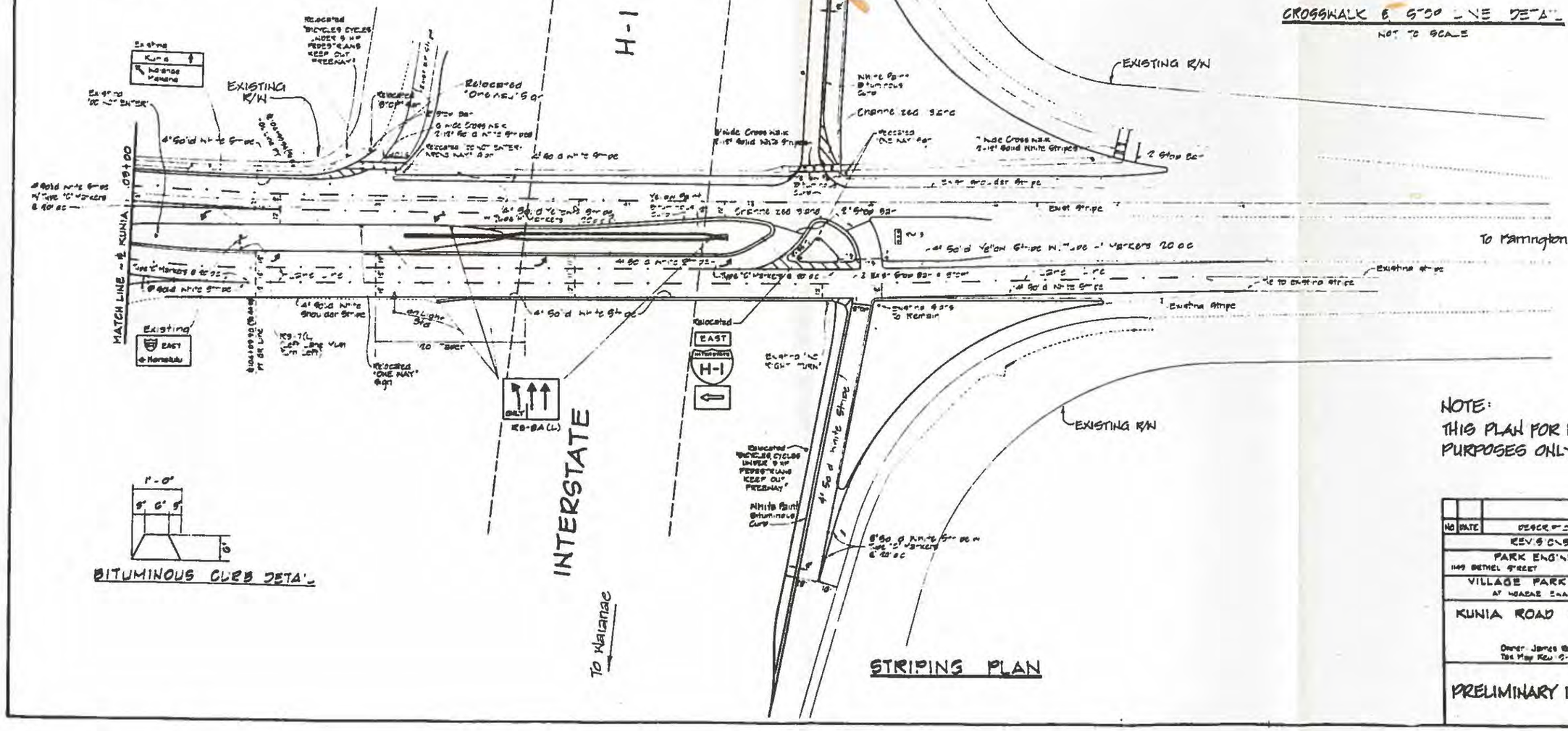
4' WHITE OR YELLOW GUIDELINE DETAIL
NOT TO SCALE





CROSSWALK & STOP LINE DETAIL
NOT TO SCALE

BITUMINOUS CURB DETAIL



NOTE:
THIS PLAN FOR ILLUSTRATIVE PURPOSES ONLY.

NO	DATE	DESCRIPTION	BY	DATE
		REVISIONS		APPROVED

PARK ENGINEERING INC
1149 BETHEL STREET HONOLULU HAWAII

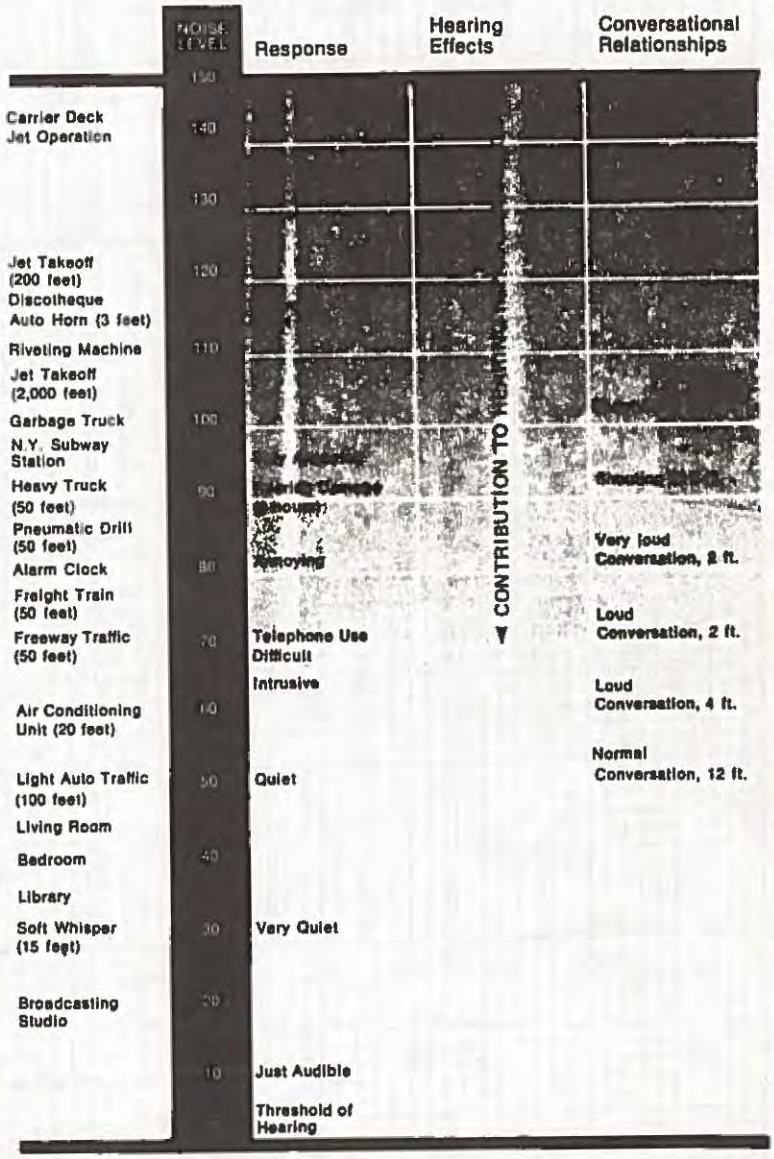
VILLAGE PARK PD-H PHASE I
AT HOAKAE 2nd CAM. HAWAII

KUNIA ROAD IMPROVEMENT

Owner James Campbell Estate et al
Tax Map Key 9-4-09:17

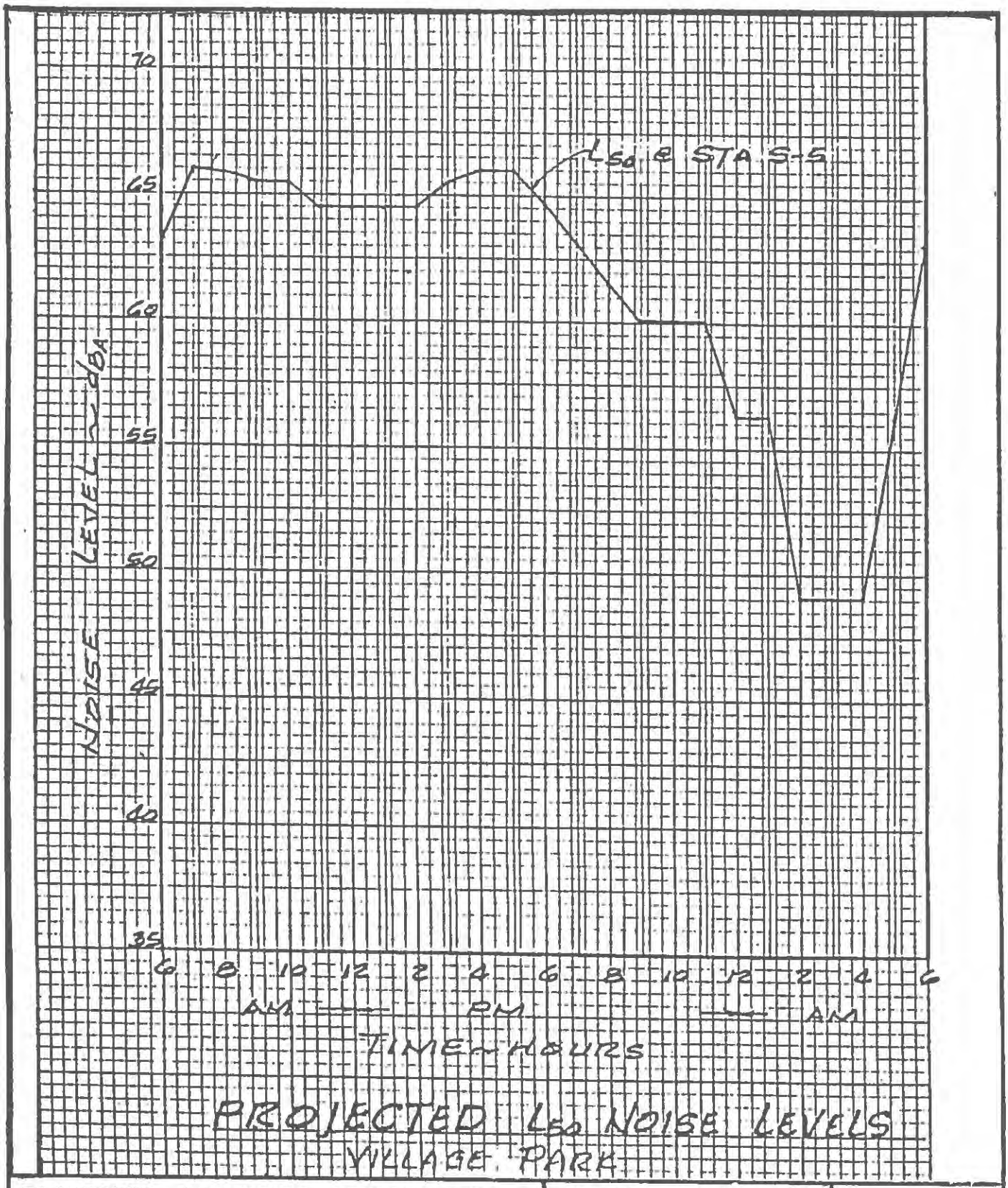
PRELIMINARY LAYOUT PLAN

Sound Levels and Human Response



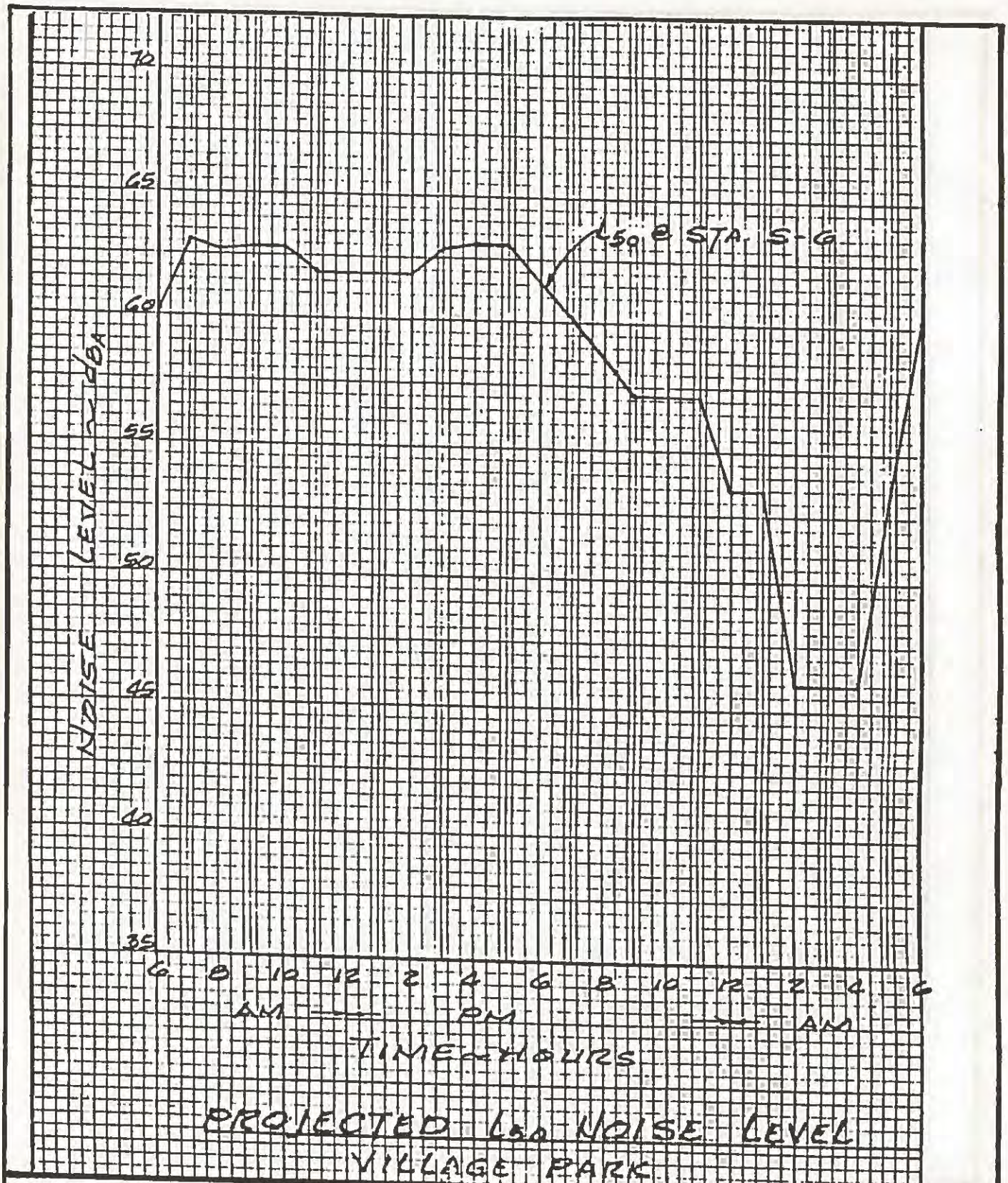
SOUND LEVELS & HUMAN RESPONSE	VILLAGE PARK PROJECT WAIPAHU OAHU HAWAII	FIGURE: 11 DATE: AUG. 1978

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



PROJECTED L50 NOISE LEVELS: S-5	VILLAGE PARK PROJECT WAIPAHU OAHU HAWAII	FIGURE: 12 DATE: AUG. 1978

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850

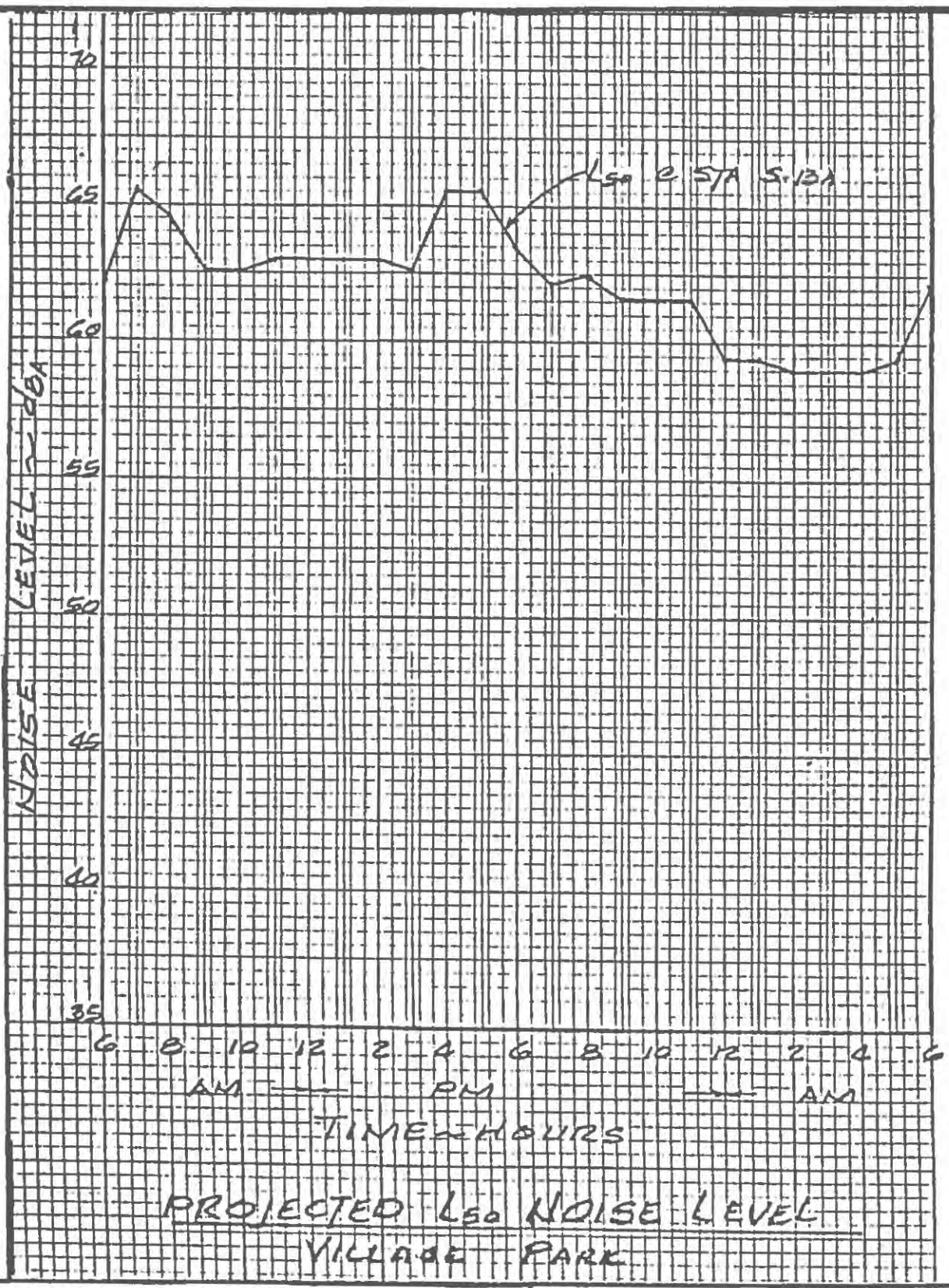


PROJECTED L50 NOISE LEVELS: S-6

VILLAGE PARK PROJECT
WAIPAHU OAHU HAWAII

FIGURE: 13
DATE: AUG. 1978

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850

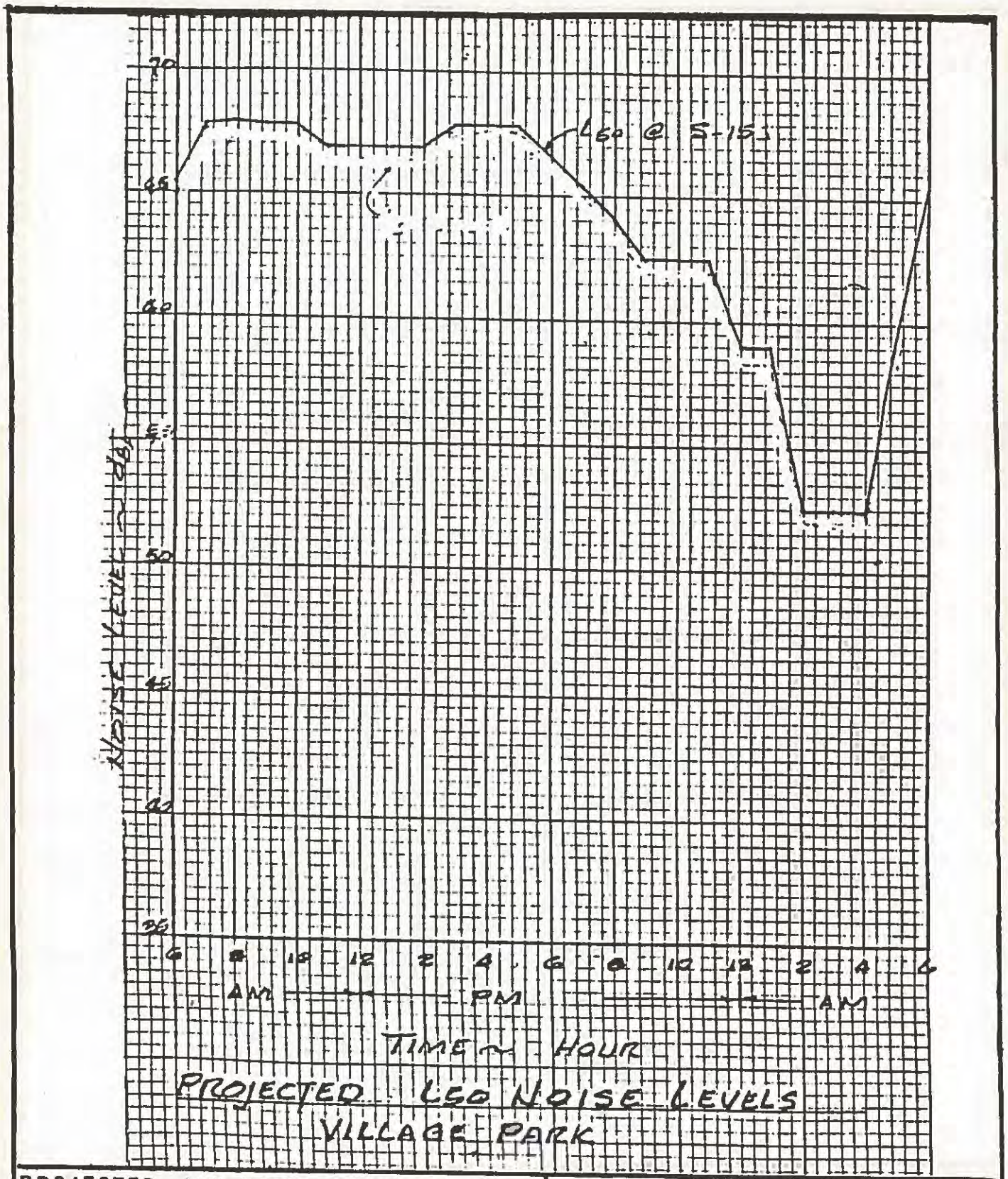


PROJECTED L50 NOISE LEVELS: S-13A

VILLAGE PARK PROJECT
WAIPAHU OAHU HAWAII

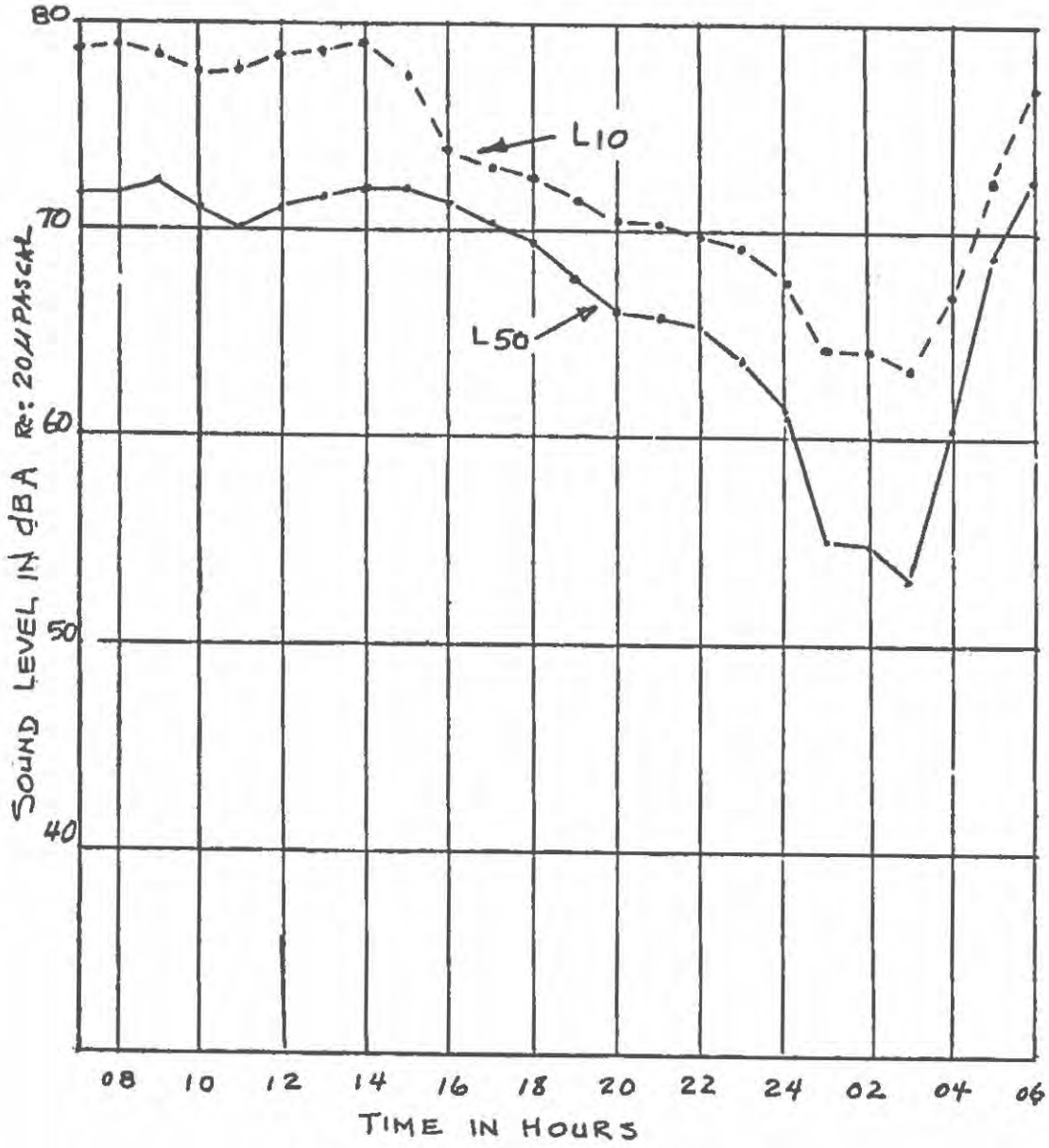
FIGURE: 14
DATE: AUG. 197

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



PROJECTED L50 NOISE LEVELS: S-15	VILLAGE PARK PROJECT WAIPAHU OAHU HAWAII	FIGURE: 15 DATE: AUG. 197

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



1998 ESTIMATED H-1 FREEWAY TRAFFIC NOISE AT
100 FT. FROM FREEWAY - SPEED 55 MPH

1998 ESTIMATED H-1 TRAFFIC NOISE	VILLAGE PARK PROJECT WAIPAHU OAHU HAWAII	FIGURE: 16 DATE: AUG. 1978

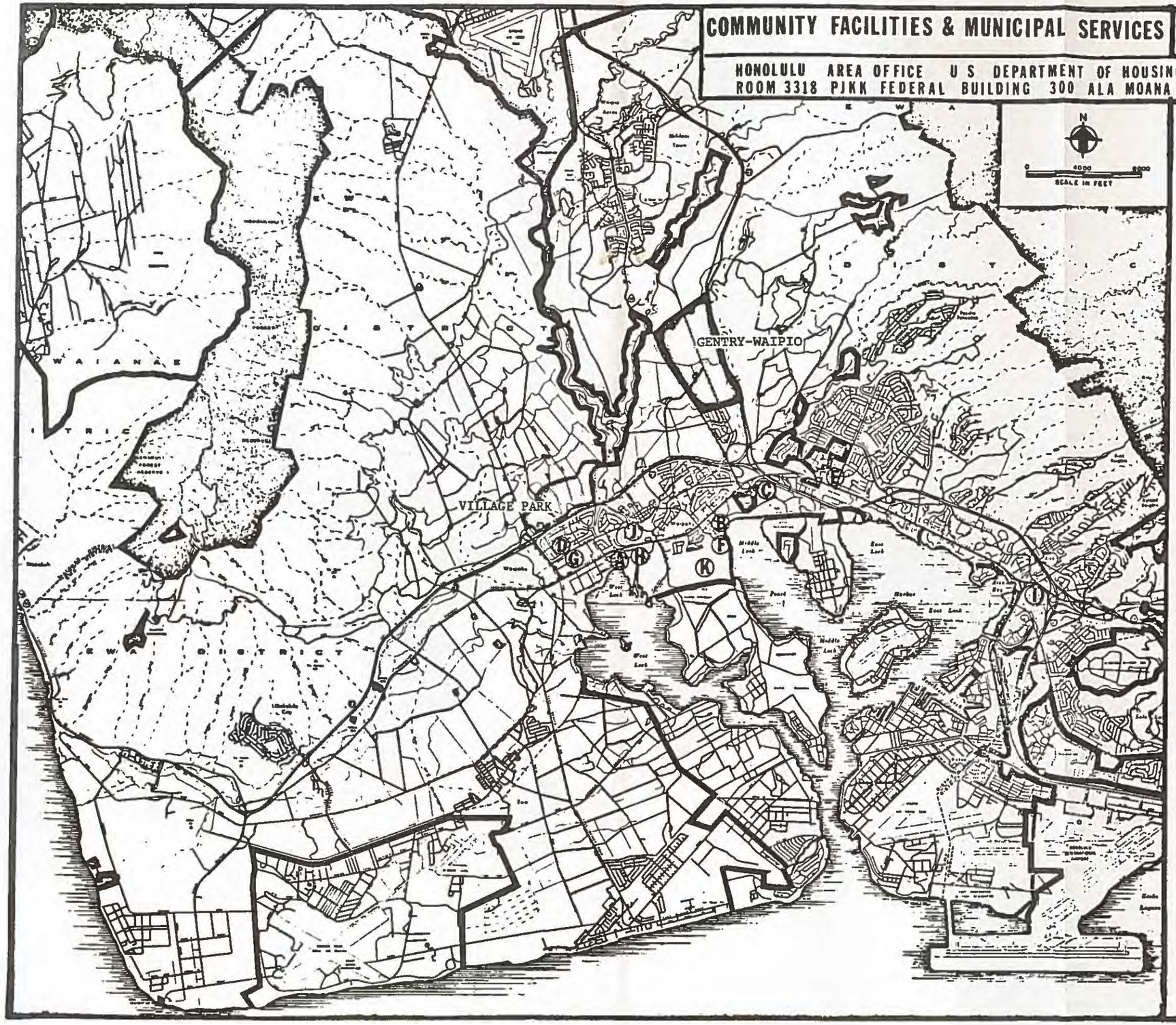
HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PIKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850

COMMUNITY FACILITIES & MUNICIPAL SERVICES

VILLAGE PARK
WAIPAHU OAHU

FIGURE : 17
DATE : AUG. 1978

HONOLULU AREA OFFICE U S DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ROOM 3318 PJKK FEDERAL BUILDING 300 ALA MOANA BLVD HONOLULU HAWAII 96850



LEGEND

- (A) WAIPAHU INTERMEDIATE SCHOOL
- (B) WAIPAHU HIGH SCHOOL
- (C) LEEWARD COMMUNITY COLLEGE
- (D) HONOWAI ELEMENTARY SCHOOL
- (E) PEARL CITY POLICE STATION
- (F) WAIPAHU CLINIC
- (G) PUNAWAI CLINIC
- (H) WAIPAHU LIBRARY
- (I) ALOHA STADIUM
- (J) WAIPAHU CULTURAL GARDEN PARK
- (K) TED MAKALENA GOLF COURSE
- (L) WAIPAHU FIRE STATION

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ACKNOWLEDGMENTS

During the preparation of this EIS, a number of individuals and organizations provided valuable assistance and information. Their cooperation is deeply appreciated and gratefully acknowledged. A listing of all individuals is not practical; however, their affiliations are given below:

FEDERAL

Department of Agriculture, Soil Conservation Service
U. S. Navy, Fourteenth Naval District

STATE

Office of Environmental Quality Control
Dept. of Land and Natural Resources
- Water and Land Development Division
- State Historic Preservation Officer
Dept. of Transportation
Dept. of Education

CITY & COUNTY

Dept. of General Planning
Dept. of Land Utilization
Dept. of Parks and Recreation
Dept. of Public Works
- Division of Wastewater Management
- Refuse Collection and Disposal Division
Dept. of Transportation Services
Board of Water Supply
Police Department
Fire Department

OTHERS

Park Engineering, Inc.
Herbert K. Horita Realty Inc.
Hawaiian Electric Company
Hawaiian Telephone Company
GASCO, Inc.
Oahu Sugar Company

U.S.GPO:1979-690-619/163