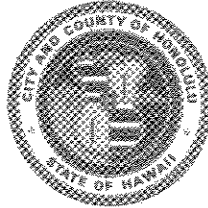


DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

FILE COPY

FRANK F. FASI
MAYOR



JOHN P. WHALEN
DIRECTOR

(BWM)

August 14, 1986

Ms. Letitia Uyehara, Director
Office of Environmental Quality Control
State of Hawaii
Kekuanaoa Building, Room 115
465 South King Street
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Final Environmental Impact Statement (EIS)
Waitec Development Proposal (Village Park Expansion)
Prepared by William E. Wanket, Inc.
For Waitec Development, Inc.
Tax Map Key 9-4-02: 30, and Portion 01, 17

We are notifying you that the above has been found to be an acceptable EIS document by the Department of Land Utilization, pursuant to Chapter 343, HRS, and Title 11, Administrative Rules, Department of Health, Chapter 200, Environmental Impact Statement Rules.

Please publish a notice of this determination in the "OEQC Bulletin" under the Register of Chapter 343, HRS documents.

Permits and approvals will be required to implement the proposed project. These are listed in Section 9 of the EIS.

A copy of our Acceptance Report which describes a number of unresolved issues is attached. If there are any questions, please contact Bennett Mark of our staff at 527-5038.

Very truly yours,

A handwritten signature in cursive script, appearing to read "John P. Whalen".

JOHN P. WHALEN
Director of Land Utilization

JPW:s1

0341B

attach: Acceptance Report
Final EIS (1 copy)

cc: w/o attach.: Wm. E. Wanket

OEQC LIBRARY

FINAL

ENVIRONMENTAL IMPACT STATEMENT

WAITEC DEVELOPMENT PROPOSAL
HOAEAE AND WAIKELE
EWA, OAHU
[VILLAGE PARK EXPANSION]

TAX MAP KEY: 1ST DIVISION
9-4-02, PARCELS 30 AND PORTIONS OF 01 AND 17

OA
358

JULY 1986

WILLIAM E. WANKET, INC.
JOHN ZAPOTOCKY, CONSULTANT

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FINAL
ENVIRONMENTAL IMPACT STATEMENT
WAITEC DEVELOPMENT PROPOSAL
HOAEAE AND WAIKELE
EWA, OAHU
[VILLAGE PARK EXPANSION]

JULY 1986

submitted pursuant to chapter 343,
hawaii revised statutes,
environmental impact statement regulations



PRESIDENT
William E. Wanket, Inc.
Pacific Tower 1010
1001 Bishop Street
Honolulu, Hawaii 96813

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SUMMARY

LOCATION AND OWNERSHIP

Location: Waikele and Hoaeae, Ewa, Oahu
TMK 9-4-02: 30 and por. 01, 17
691.5 acres
The site is bounded on the south by the existing Village Park residential development, Kunia Road on the west, Waikele Gulch on the east, and sugar cane cropland on the north.

Ownership: The subject property is owned by the Robinson Estate. Waitec Development, Inc. has an agreement to purchase the entire 691.5 acres in fee simple.

Existing Use: The land is currently leased by Oahu Sugar Company to grow sugar cane.

PROJECT DESCRIPTION

Project Concept: The proposed project is a planned residential community offering a variety of housing types to attract a mix of income groups and household sizes. The commercial and industrial areas will provide employment opportunities and convenient shopping. The golf course will provide recreation and aesthetic amenities. The proposed project is an extension of the existing Village Park. This extension will provide the critical mass population that is necessary for major retail operations to locate in the commercial area and for an elementary school that would serve the existing Village Park and the proposed expansion. Since the existing public facilities have excess capacity, these facilities would be adequate for the first 1,000 units of the proposed project, thereby reducing front-end costs and development time.

Expected Population: 10,000 persons

Land Uses: Residential (404.6 ac)
-- 3,000 fee simple units (expected price range of \$100,000 to \$295,000)
-- 480 rental units (provided by county on land dedicated by the developer)
Commercial/Industrial mixed use (28.7 ac)
Golf course (168.2 ac)
Public parks (21.0 ac)
Private recreation (6.9 ac)
Circulation (32.1 ac)

Estimated
Cost: \$66,200,000

LAND USE DESIGNATIONS

State Land Use District

Existing: Agriculture
Proposed: Urban

Central Oahu Development Plan

Existing: Agriculture
Proposed: Residential, Low-Density Apartment,
Commercial, Industrial, Public, Parks,
Golf course

Zoning

Existing: AG-1
Proposed: R-6 or PD-H, A-1 or PD-H IMX, P-1

MAJOR ISSUES

Agriculture v. Housing

The proposed project will involve a tradeoff between preserving prime agricultural land and providing affordable housing.

Impact to the Agricultural Industry. The proposed project will not adversely affect the economic viability of OSCO, nor will it require layoffs of sugar workers. Part of the reason for this is that the cost for relocating cane-haul roads, irrigation ditches and pipes, an earthen reservoir, and power poles will be absorbed by the petitioner. In addition, the reduction in sugarcane acreage is expected to be gradual and partially or completely compensated for by increasing yields. Also, reductions in employment will occur through retirement and voluntary movement to other jobs. In the long term, OSCO could accommodate a major reduction in acreage and maintain economies of scale by operating just one mill, rather than two in parallel.

It is extremely doubtful that the proposed project will adversely affect the growth of diversified agriculture and aquaculture in Hawaii. There are three reasons for this assessment: 1) the extensive amount of prime agricultural land and water that has been freed from sugar and pineapple production because of past mill closings and reductions in operations; 2) the very real possibility that additional land and water will be freed from sugar production given the outlook for low sugar prices; and 3) the comparatively small amount of land and water required to grow proven and promising crops to achieve a realistic level of food and animal-feed self-sufficiency, and to increase exports.

Affordable Housing. The project site offers opportunities to deliver affordable housing due to the low site preparation costs associated with agricultural land (flat, rock-free, deep

soil) and the availability of utilities. The existing Village Park demonstrates the commitment and ability of the petitioner to deliver quality, affordable units.

(See sections 1.6.1 (need for housing), 2.1.2 (soils suitability), 2.2.2 (housing), 3.2 (state plan policy), 2.4.2 (benefit-cost analysis)).

Water Supply

The Board of Land and Natural Resources recently allocated 11 mgd from the Pearl Harbor Groundwater Control Area to the Board of Water Supply. Carbon filtration treatment methods have proven successful in removing EDB contaminants that had been previously detected in the Waipahu and Kunia wells.

The Board of Water Supply has accepted the water master plan for the Village Park Expansion. In order to meet the water requirements of the Village Park Expansion the Board of Water Supply has requested an additional 1.04 million gallons from the Department of Land and Natural Resources. The balance of the water necessary for the project will come from an internal Board of Water Supply reallocation. The water to be reallocated will become available as exports outside of the Pearl Harbor Basin by the Board are reduced due to source development projects in export areas which are currently planned or underway. The BWS has requested for additional permitted use for the Kunia Wells II. If the request is approved by the State Board of Land and Natural Resources, it would allow the full utilization of the Kunia Wells II and meet the future demands of the Village Park Expansion.

(See sections 1.2.2 (description of proposed facilities) and 2.3.2 (adequacy of water facilities)).

Traffic

Proposed improvements to Kunia Road and Interchange will mitigate local traffic congestion. Of greater concern is the regional traffic problem concerning the capacity of H-1 Freeway. This regional problem is shared by the existing and proposed communities stretching from Moanalua to Ewa, Waianae, and Central Oahu. Mitigation of this problem is currently under study by the Department of Transportation. The applicant has expressed willingness to form a task force with other developers, community groups, and government agencies in seeking solutions to this complex problem.

(See section 1.1.2 (description of proposed facilities) and 2.3.1 (adequacy of transportation facilities)).

Economic Feasibility

The Village Park Expansion project will have to compete with several other projects proposed for Central Oahu and Ewa. The proposed project has several marketing advantages:

1. Expanded product line-- By offering a wide range of products, from custom to attached units, the developer is able to segment the market into a number of different categories and more closely tailor the product to individual buyers' desires and economic capabilities.
2. Timing-- The proposed project will fill a void in the new single family housing supply. Major residential projects at Gentry Waipio and the Pearl City/Aiea area will be nearing

completion at the end of 1986 and the sales of new units being planned for Waikele, Waiawa, and Ewa will not commence sales until 1991-93. Village Park will be one of the few projects offering moderately priced housing in the market between 1986 and the early 1990's.

3. Location-- Village Park and Mililani are closer to the primary urban center than the new projects proposed for Ewa.
4. Economic factors-- Interest rates and low inflation are favorable to the housing market at this time; the outlook for the near future is favorable.
5. Momentum-- The mobilized construction and sales team for the existing Village Park cuts the lead time that new projects would otherwise incur.
6. Infrastructure availability-- The other proposed projects for Central Oahu will incur additional time to design and to obtain financing for major infrastructure improvements such as freeway on-ramps, new water systems, and sewage pump stations. In comparison, sewer and water facilities are already available for the first 1000 units of the proposed project, and adequate facilities can be reasonably provided for the balance of the project.

(See section 1.6 (feasibility analysis)).

SUMMARY OF IMPACTS

The proposed project would have the following impacts:

- o Beneficial impacts
 - Housing
 - increased availability of affordably priced housing;
 - development of rental housing;
 - variety of housing types to attract a mix of income groups and family sizes;
 - Land use policies
 - compliance with the objectives and policies of the State Land Use Law, State Plan, Functional Plans; amendment required for the Development Plan.
 - Environmental
 - physical characteristics of the land are suitable for urban development (level topography; deep, non-stony soils);
 - absence of endangered species and archaeological sites;
 - absence of flood hazards;
 - no significant degradation of air or water quality;
 - Public facilities
 - public facilities and services are available or

- can be made available at reasonable cost.
- Social impacts
 - employment opportunities generated by construction and light industrial/commercial areas;
 - support from and ongoing consultation with the surrounding community.
 - Fiscal impact
 - favorable to the public (projected revenues exceed public expenditures).

Adverse Impacts

Mitigating Measure

- | | | |
|----|---|---|
| 1. | Loss of Agricultural Land | Other land is available for agricultural activities. The developer will bear the cost of relocating existing ag infrastructure. |
| 2. | Traffic: | |
| | Local: Traffic congestion will increase on Kunia Road and at the Kunia Interchange. | The developer will improve Kunia Road and the Kunia Interchange to minimize the congestion. |
| | Regional: The capacity of H-1 is a regional problem shared by existing and proposed communities from Moanalua to Ewa. | This problem is the subject of a Department of Transportation short and long range program that is being publicly discussed. The first phase of this program, adding additional lanes to portions of H-1, is being implemented now. |
| 3. | Clearing and construction work will result in temporary dust, noise and some traffic disruption. | The developer and its contractors will comply with local grading and subdivision ordinances which have provisions to minimize these impacts. |
| 4. | Increased need for utility services, including city supplied water and sewer. | Water consumption would be less than current agricultural use. Both the water and sewer plans must be approved by public agencies. |
| 5. | Increased need for public services such as police, fire, schools and recreational facilities. | A study of impact on state and local finances indicates that the project will generate revenues exceeding expenditures of \$2.6 million per year. |

Alternatives Considered

The draft EIS considers six alternatives, four alternate land uses, alternate site designs and the "no project" alternative, as described below:

--- Alternative land uses

Industrial- Use of the entire site for industrial use. Good location is offset by availability of land at other locations and the economic prospects of such a development.

Commercial- Use of entire site for commercial purposes. The site has limited potential for commercial due to the availability of commercial developments in close proximity and the lack of adequate access to the site.

Agricultural- Retention of the site in sugar production or conversion of the site to other agricultural pursuits would not allow the applicant to purchase the land and then obtain a reasonable rate of return. In addition such an action would put pressure on other ag lands to be used for residential purposes.

**Parks/
Recreation-** There are limited public funds to purchase and operate large scale park and recreation facilities.

--- Alternate site designs

The current development proposal is the result of governmental and community input to the original developer proposal. The current proposal best meets the issues and comments raised to date.

--- "No Project" Alternative

This alternative is possible at the present time. Essentially the land will remain in sugar production however the demand for residential development will continue unmet.

Unresolved Issues

Regional Traffic is an unresolved issue. As mentioned earlier in the summary the development will contribute to congestion on the H-1 freeway. The fact is that all developments in the Central Oahu and Ewa areas as well as those in the Pearl City to Aiea areas share this problem. The State Department of Transportation has put out for public discussion a program for short and long range mitigation of the traffic congestion on the H-1 freeway. The first phase of the program which calls for the widening of portions of the H-1 freeway is currently being implemented. A summary of the DOT's recommendations is contained in Appendix J of this draft EIS.

Compatibility with Land Use Plans and Policies and Listing of Necessary Permits

The proposed action calls for the amendment of current land use plans. Section 3.0 of this draft EIS describes how the proposed action implements the land use policies of the various state and local governments. The following is a list of the necessary permits to permit the proposed action:

<u>Permit</u>	<u>Legal Reference</u>	<u>Status</u>
Land Use District Boundary Amendment	Chap. 205, HRS	Application filed 2/86
Development Plan Amendment	Central Oahu DP (Ord. No. 83-7, 84-59, 85-48)	Application filed on 1/85; decision expected by 6/86
Zoning Amendment	Chap. 21, R.O. of Honolulu	Will be filed after decision on DP amendment
EIS	Chap. 343, HRS	Notice of Preparation filed 10/86
Subdivision Approval	Chap. 22, R.O. of Honolulu	Will be filed during pendency of zoning amendment
Grading Permit	Chap. 23, R.O. of Honolulu	Processed concurrently with subdivision application
Groundwater Control Area Permit	Chap. 177, HRS	BWS applied for additional allocation

Purpose

The reason for preparing this EIS is in anticipation of submitting a request to rezone a 691.5 acre parcel from AG-1 to various urban uses.

Accepting Authority

Department of Land Utilization
650 S. King Street
Honolulu, Hawaii 96813

Applicant

Waitec Development, Inc.

Agent

William E. Wanket, Inc.

1.0. PROJECT DESCRIPTION

1.1. LOCATION AND OWNERSHIP

The proposed development site, consisting of 691.5 acres, is located at Waikele and Hoaeae, Ewa, Oahu, tax map key 9-4-02:30 and portions of 01 and 17.* The parcel is approximately 1900 feet north of the H-1 overpass on Kunia Road. The site is bounded on the south by the existing Village Park residential development, Kunia Road on the west, Waikele Gulch on the east, and sugar cane crop land on the north (see Fig. 1-1).

Although the property is presently owned by the Robinson Estate, WAITEC Development, Inc., a Hawaii corporation, has an agreement to purchase the entire 691.5 acres in fee simple. The land is currently leased by Oahu Sugar Company (OSCO) to grow sugar cane.

1.2. CONCEPTUAL PLAN

1.2.1. Land Use

The proposed development is an extension of the existing planned community of Village Park. Development of the existing Village Park, which is a community of 1,745 single-family homes and townhouses, is expected to be completed in 1988. The sale of units in the expansion area is expected to commence in 1988 and continue the momentum of sales initiated by the existing Village Park. The proposed plan consists of the following land uses (see Fig. 1-2):

<u>Land Use</u>	<u>Acreage</u>	<u>%</u>
Residential		
Single-family	404.6	59 %
Multi-family	30.0	4
Commercial/Industrial Mix	28.7	4
Golf Course	168.2	24
Parks		
Private	6.9	1
Public	21.0	3
Circulation		
Total	<u>32.1</u>	<u>5</u>
	<u>691.5</u>	<u>100%</u>

Residential. Approximately 3,480 units are planned for the Village Park Expansion, resulting in an estimated population of 10,000 persons. About 3,000 units will be in fee simple, as compared to the leasehold units at the existing Village Park

* Although the project site is located in the Ewa judicial district, which is the basis for U.S. census divisions, it is in the Central Oahu development plan area for purposes of the City & County General Plan.

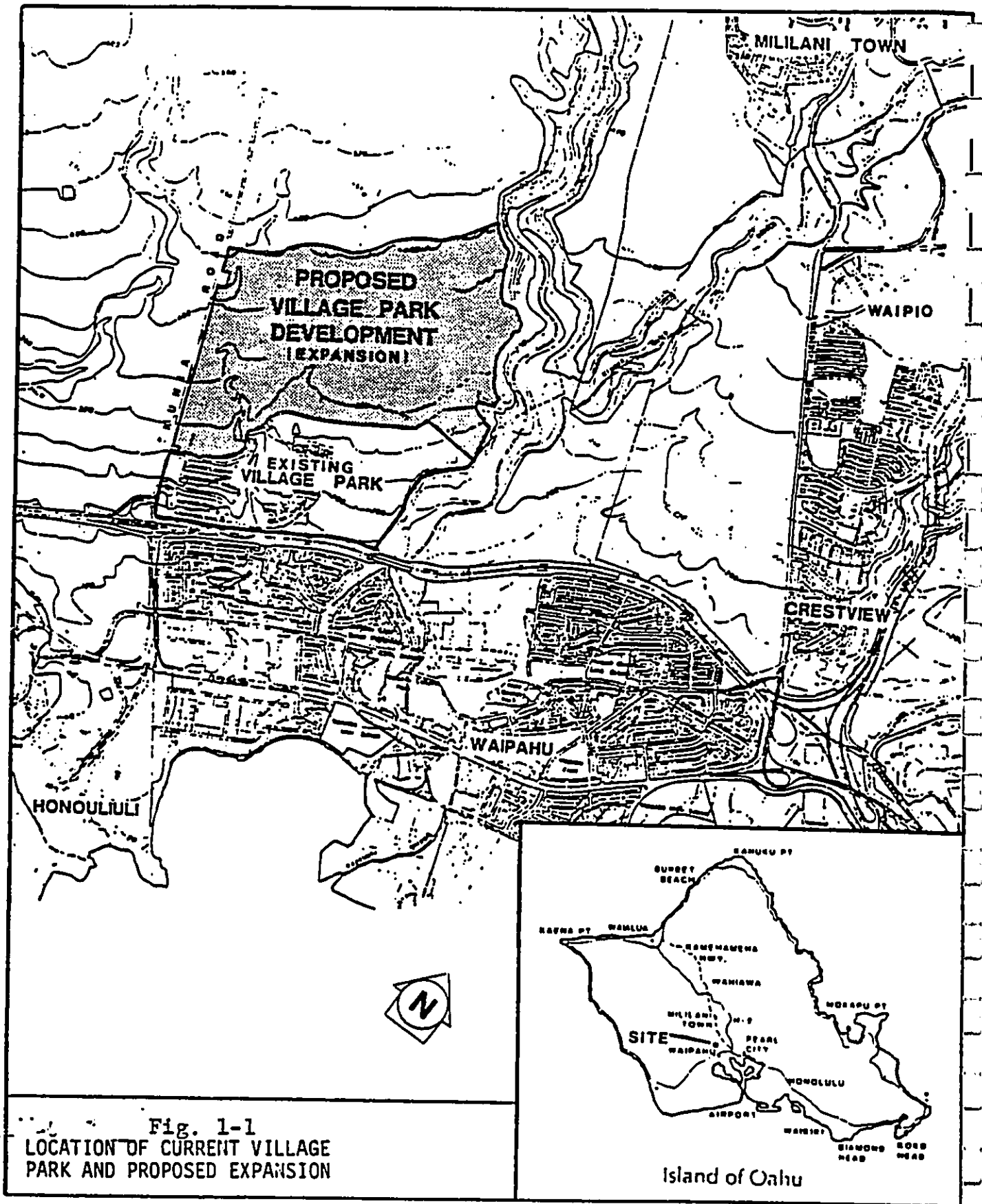


Fig. 1-1
 LOCATION OF CURRENT VILLAGE
 PARK AND PROPOSED EXPANSION

community. The other 480 units will be rental units constructed and administered by the county on 30 acres of land dedicated to the county by the petitioner (see letter from DHCD, Appendix I).

The project will feature a variety of housing types, from rental apartments to custom lot/home packages, and will appeal to several segments of the housing market. The various housing types include:

- 1) Prime Building Sites-- These prime sites front the golf course. The product will be custom and semi-custom built single family homes.
Average lot size (pad area): 5,500 s.f.
Floor area: 1,800 to 2,800 s.f.
Sales price: \$200,000 to 295,000; average \$250,000; targeted to the upper/middle income.
Number of units: 270 units, or 9% of the 3,000 market units.
- 2) Upgraded Single Family Housing-- These sites are either in close proximity to the golf course or have good views.
Average lot size (pad area): 4,750 s.f.
Floor area: 1,400 to 1,800 s.f.
Sales price: \$165,000 to \$195,000; average \$185,000; targeted to the middle income.
Number of units: 445 units, or 15% of the 3,000 market units.
- 3) Traditional Single Family Housing-- This product is similar to the homes being produced at the existing Village Park.
Average lot size (pad area): 3,600 s.f.
Floor area: 1,000 to 1,400 s.f.
Sales price: \$125,000 to \$165,000; average \$145,000; targeted to first-time buyers.
Number of units: 1,055 units, or 34% of the 3,000 market units.
- 4) Starter Single Family Housing-- These products will offer lower priced single family residences on relatively small lot areas.
Average lot size (pad area): 3,000 s.f.
Floor area: 800 to 1,200 s.f.
Sales price: \$120,000 to \$140,000; average \$130,000; targeted to first-time buyers.
Number of units: 990 units, or 33% of the 3,000 market units.
- 5) Attached Units-- These units are tentatively planned to be townhouses; experimental designs are being considered.
Sales price: average \$100,000.
Number of units: 240 units, or 8% of the 3,000 market units.

Commercial/Industrial. The developer proposes 28.7 acres for a mix of commercial and light industrial uses. The requested

Mixed Use Industrial zoning designation (anticipating the adoption of the proposed Land Use Ordinance) allows more flexibility to adjust to market conditions.

The commercial area will probably consist of a shopping center anchored by a supermarket and/or super drug store. Other tenants will include variety stores, food service establishments, personal service establishments, hardware and garden shops, medical services, and community services. Actual floor space will be approximately 145,000 square feet, with the remainder used for abundant parking and extensive landscaping.

The objectives of the light industrial business park are to provide employment opportunities and to take advantage of an excellent location with convenient access to the freeway and located equi-distant between the airport and new deep-draft harbor.

Schools. The petitioner has already dedicated an elementary school site in the existing Village Park. Another 6-acre parcel will be reserved in the expansion area for a second elementary school, for 3 years following zoning.

Parks. The petitioner will dedicate three park sites to the county totalling 21.0 acres. In addition, a 6.9 acre private recreation facility will be provided for the project's residents.

Golf Course. An 18-hole golf course (168.2 acres) will provide open space and recreational amenities.

Circulation. The internal circulation system will consist of a series of collector streets that will function as thoroughfares and be attractively landscaped. Individual homes will be accessed from an internal street network that will feed into the collector streets. Three of the collector streets will have 56-foot rights-of-way. One street will have a 40-foot right-of-way.

1.2.2. Public Facilities

The petitioner will provide the facilities described in this section, including roads and highway improvements, water, wastewater, drainage, and easements for electrical and telephone.

Circulation. The project will have two accesses from Kunia Road: 1) a new intersection, located approximately two-thirds of a mile north of the existing intersection of North Kupuna Loop and Kunia Road, and 2) the existing North Kupuna Loop intersection. Four collector streets will provide internal circulation:

- o Collector street #1-- This is the main road for the development. Two lanes in each direction will provide the capacity for the projected 1,600 vehicles per hour

- o one way during the peak hours.
- o Collector street #2-- This is a secondary road that intersects collector street #1 at two points and provides a loop for circulation. Two lanes in each direction will provide for the projected 600 vehicles per hour one way during the peak hours. A school and park complex is planned at one of the intersections.
- o Collector street #3-- This road will connect with the existing Kupuna Loop to provide a secondary access to Kunia Road. The business and commercial areas will be accessed from this road as well as from Kunia Road. Two lanes in each direction will provide adequate capacity for the projected 200 vehicles per hour one way during the peak hours.
- o Collector street #4-- This road will provide access to the remote areas of the development. One lane in each direction will provide adequate capacity for the projected 100 vehicles per hour one way during the peak hours.

In addition to the internal roadways, improvements are proposed to Kunia Road, Kunia Interchange, and various intersections in order to accommodate the expected increase in vehicular traffic. These improvements include:

- o Kunia Road widening-- In the northbound direction, an additional lane will be added from the North Kupuna Loop intersection to the Collector Street #1 intersection. In the southbound direction, an additional lane will be added from the Collector Street #1 intersection all the way to Kunia Interchange.
- o Intersection signal modifications-- Existing traffic signals at the North and South Kupuna Loop intersections will be converted from 3-phase to 2-phase. One phase will be for the movements on Kunia Road and the other for the movement out of North and South Kupuna Loops. This change would encourage the left turns from Kunia southbound to be made at the Collector Street #1 intersection where the left turns will have a separate phase in a three phase system. The through capacity along Kunia Street would improve with the two phase system as it can pass through more vehicles during the peak hours.
- o Kunia Interchange improvements-- Capacity will be increased at two of the ramp intersections by adding additional lanes. Another intersection will be signalized.

For more detail, see section 2.3.1 and the transportation study (Appendix F).

Water. The proposed project will require approximately 2.5 mgd (average flow) of water. The flow requirement was computed according to the Board of Water Supply standards as follows:

Residential	500 gpud	3000 units	1.5 mgd
Apartment	400 gpud	480 units	0.133 mgd
Commercial/Indus.	3000 gpad	2.7 ac	0.086 mgd
Golf Course	4000 gpad	168.2 ac	0.673 mgd
Parks and Schools	4000 gpad	27 ac	0.108 mgd
		Total	2.500 mgd

Existing water facilities, which service the Harbor View Subdivision and the existing Village Park, consist of two deep wells and a 1.5 MG reservoir at the Kunia Wells II site. First phase improvements will consist of installing an additional 1.0 MG concrete reservoir, an additional well, and additional water treatment facilities at the Kunia Well II site. These improvements, together with the existing facilities, have the capacity to service the first 1000 units of the proposed project below the 340 foot elevation.

The second phase improvements will consist of the following transmission and storage facilities:

- a) Construct a booster pump station at the existing Kunia "228" Reservoir and Kunia Well I site. Approximately 1.54 mgd (average flow) of water will be boosted to the Kunia "440" Reservoir.
- b) Construct a booster pump station at the Kunia Well II site. Approximately 1.862 mgd (average flow) of water will be boosted to the new Kunia "675" Reservoir.
- c) Install approximately 4000 linear feet of 20" and 3900 feet of 30" main from the existing Kunia "440" Reservoir to the new Kunia "675" Reservoir.
- d) Construct a 3.0 MG Kunia "675" concrete reservoir.

The proposed improvements are in conformance with the Revised Board of Water Supply's (BWS) Water System Standards. The Water Master Plan for the area dated February 10, 1986, was approved by the BWS. The proposed Village Park Expansion refers only to Phase I of that plan. For more detail, see section 2.3.2 and the engineering study (Appendix E).

The Board of Water Supply has accepted the water master plan for the Village Park Expansion. In order to meet the water requirements of the Village Park Expansion the Board of Water Supply has requested an additional 1.04 million gallons from the Department of Land and Natural Resources. The balance of the water necessary for the project will come from an internal Board of Water Supply reallocation. The water to be reallocated will become available as exports outside of the Pearl Harbor Basin by the Board are reduced due to source development projects in

export areas which are currently planned or underway. The BWS has requested for additional permitted use for the Kunia Wells II. If the request is approved by the State Board of Land and Natural Resources, it would allow the full utilization of the Kunia Wells II and meet the future demands of the Village Park Expansion.

Wastewater. The project will generate approximately 1.3 mgd average daily wastewater flow. The flow requirement was computed according to the City and County wastewater standards as follows:

Residential	320 gpud	3000 units	0.96 mgd
Apartment	224 gpud	480 units	0.107 mgd
Commercial	3,200 gpad	10 ac.	0.032 mgd
Business Park	11,200 gpad	18.7	0.209 mgd
School	12,500 g/sch/d	1 sch.	0.013 mgd
		Total	1.3 mgd

Approximately the first 1000 units can be serviced by existing facilities which were installed in accordance with the sewer master plan for the existing Village Park development.

To service the remainder of the project, the petitioner will

provide a new trunk sewer main from the project site to the existing Waipahu Sewage Pump Station. The new trunk sewer main will be capable of handling 2.7 mgd of average daily wastewater flow.

All improvements will be designed to current City and County Department of Public Works wastewater design standards. For more detail, see section 2.3.3 and the engineering study (Appendix E).

Drainage. Approximately 60% of the new development, the westerly portion along Kunia Road, slopes toward the existing Village Park subdivision. The storm runoff from this portion (1900 cfs) will discharge through the existing Village Park drainage facilities, which had been designed to handle this additional flow.

The remaining 40% of the new development, the easterly portion, slopes toward Waikele Stream. The storm runoff from this portion (1275 cfs) will be discharged to Waikele Stream.

Waikele Stream and the drainage facilities in the existing Village Park subdivision discharge into Pearl Harbor.

All drainage improvements will be designed to City and County Department of Public Works design standards. For more detail, see section 2.3.5 and the engineering study (Appendix E).

Electric and Telephone. Hawaiian Electric Company (HECO) is proposing to locate a new substation within the project site adjacent to Kunia Road. A low profile substation will be considered (approximate land area required is 120' x 180'). A primary overhead 46 KV feeder is proposed along Kunia Road to service the substation.

Hawaiian Telephone Company (HTCo) is proposing to install a remote switching unit within the project site. This facility will be housed in a small building. Total land area is estimated at less than 5000 square feet.

As Kunia Road is widened, existing HECO and HTCO overhead facilities are proposed to be relocated underground. HECO has a 12 KV feeder that needs to be placed underground and HTCO has the responsibility to underground the existing WOLFE cable. Work for all HECO and HTCO facilities will be planned to coincide to the needs of the proposed expansion.

For more detail, see section 2.3.6 and the engineering study (Appendix E).

1.3. CHANGES IN LAND USE DESIGNATIONS REQUIRED TO IMPLEMENT THE PROJECT

Amendments to the State Land Use District, Development Plan, and zoning will be required.

State Land Use District				
Existing:		Agriculture		
Proposed:		Urban		
Development Plan (corresponding zoning designation in paranthesis)				
Existing:		Agriculture (AG-1)		
Proposed:		Residential (R-6 or PD-H)		
		Apartment (A-1 or PD-H)		
		Commercial (IMX)		
		Industrial (IMX)		
		Public		
		Parks (P-1)		
		Golf course (P-1)		

1.4. DEVELOPMENT TIMETABLE

The petitioner plans to commence construction within two years of receiving all government approvals. At a projected absorption rate of 430 units per year, the project should be completed within 7 years.

1.5. PROJECTED DEVELOPMENT COSTS

The project will encounter relatively low front-end costs because sewer and water facilities are already available for the first 1000 units, or the first 2 years of development.

Estimated costs for infrastructure improvements are as follows:

Roadway	
Internal roadways	\$3,200,000
Kunia Road improvements	1,400,000
Drainage facilities	8,000,000
Water facilities	7,600,000
Wastewater facilities	4,000,000
Total	<u>\$24,200,000</u>

Estimated onsite costs are as follows:

Residential areas	\$41,000,000
Commercial areas	1,000,000
	<u>\$42,000,000</u>

Estimated total project costs amount to \$66,200,000.

No public funds will be involved; the project will be financed by the petitioner.

1.6. FEASIBILITY

1.6.1. Market Analysis-- Residential (see Appendix A)

Need for housing. Oahu has been experiencing a housing shortage for the past 25 years due to the following factors:

1. Increase in number of households and decrease in household size. The number of households has increased because of a number of socio-demographic factors including changes in lifestyle, decline in family size, extended life expectancies, increase in divorce rates, formation of nonconventional households, immigration, undoubling, and a variety of other reasons. As the trend in declining household size continues, more dwelling units will need to be built even if there is little or no net increase in population.
2. Population increase. The population has increased significantly since statehood (1959), an event generally recognized as a major turning point in the growth of post World War II Hawaii. Between 1970 and 1980, the population on Oahu grew from 630,528 to 762,565 persons, an average annual growth rate of 2.1 percent. The January 1985 population is estimated at 815,300 persons, an estimated 1.2% increase over 1984. Although the annual growth rate has declined from the rapid growth of the 1950's and 1960's, it appears to have stabilized at about 1.5%. The Department of Planning and Economic Development, State of Hawaii, is presently utilizing the M-F Series projections as the official population projections for the State of Hawaii. The projected population for the Island of Oahu in the year 2005 is approximately 954,500 persons, an increase of 139,200 persons from the 1985 population that will be in need of housing.
3. Increase in land costs. Land costs have increased rapidly over the last 25 years, reflecting over and above inflation, a shortage of developable land with proper use and zoning designations.

National housing studies have cited vacancy rates of 3-5% for sale and 5-8% for rent as the levels necessary to permit households an adequate choice of housing. This would allow sufficient mobility in order to take advantage of job opportunities, promote price competition, and provide a choice of unit type and location. Oahu vacancy rates have been traditionally well below these standards. In 1983, the actual rates for Oahu were 0.6 % for single family residences and 2.1% for apartments, resulting in a composite average of 1.3%, well below the recommended 3-5% vacancy rate.

Public housing is also generally unavailable. The total placements for 1981-82 were 372 of 4,242 applications on file with the Hawaii Housing Authority.

Neither the increased production of new housing nor the economic recession of the past three years seems to have appreciably affected the vacancy rates. The apparent oversupply of condominium units during 1981/82 have been absorbed by purchasers and renters during 1983/84. This would indicate that there is still a long-term need for additional housing in order to create a desirable vacancy factor.

An annual shortfall of housing units from 1983 to the year 2005 is estimated to be between 2,200 - 3,000 units. These estimates are based on the DPED M-F population projections, an average household size of 2.7 persons/unit, replacement of demolitions, and a 5% vacancy factor. A range in housing units results from the incorporation of two assumptions. One assumption is that the PUC would not be able to achieve the level of redevelopment anticipated by DGP. The reasons for this skeptical assumption include the resistance to displace existing populations (e.g., Chinatown, Date-Laau, Huna Street- Nuuanu Park Place), small lot sizes, inadequate infrastructure, higher land costs in the PUC, and unproven track record for redevelopment projects such as Kaka'ako. The second assumption is that housing units within Waikiki will be converted to visitor use to meet the projected unmet demand for hotel rooms. The alternative assumptions and projections are summarized in Table 1-1.

Distribution of housing and alternative locations to meet housing need. Several residential projects have been proposed in the Central Oahu and Ewa areas to meet the island-wide housing needs. Table 1-2 compares the major projects proposed for Central Oahu. The proposed project is slightly larger than Waikele, but smaller than the proposed Mililani Expansion and Waiawa.

Distinguishing Characteristics of the Village Park Expansion. Compared to the other projects proposed in Central Oahu, Village Park Expansion has the following distinguishing characteristics:

- o Momentum-- Any large new development faces a long lead time to assemble a development team, obtain the necessary approvals, and finally deliver the units. In the case of the Village Park Expansion, the development team is already in existence, a track record of financial and technical competence has been demonstrated, and the momentum of sales generated from the marketing of the existing Village Park units can be carried over.
- o Infrastructure availability-- Each of the other developments proposed for Central Oahu will require major infrastructure development such as new water systems, freeway on-ramps, and sewage pump stations. These items will add to the time necessary to deliver the product since further negotiations will be required between the petitioner and government agencies, and

Table 1-1.
SUMMARY OF HOUSING UNIT SHORTFALL, 1983-2005
Island of Oahu

<u>Assumptions</u>	<u>Alt.I</u>	<u>Alt.II</u>	<u>Alt.III</u>
Total housing units required by 2005 (1)	378,033	378,033	378,033
Existing housing units 1983	259,574	259,574	259,574
New housing units permitted by 2005	118,459	118,459	118,459
<u>Subtract</u>			
DGP's projection of additional units premitted by 2005 under the existing GP & DP's	<u>69,824</u>	<u>69,824</u>	<u>69,824</u>
Subtotal	48,635	48,635	48,635
<u>Add</u> Inability of PUC to achieve DGP assumptions for redevelopment	-	15,000	15,000
<u>Add</u> Balance of projected unmet demand for hotel rooms met through conversion of Waikiki housing units to visitor accommodations (2)	-	-	<u>4,500</u>
Total unmet housing demand	<u>48,635</u>	<u>63,635</u>	<u>68,135</u>
ANNUAL SHORTFALL OF HOUSING UNITS 1983-2005	<u>2,210</u>	<u>2,892</u>	<u>3,097</u>

- (1)a. DPED M-F Population projections (954,500 in the year 2005)
 b. Average 2.7 persons per household = 353,519 units
 c. Replacement of demolitions = 12,848 units
 d. 5% vacancy factor = 11,666 units. Total 378,033
 (2) 3,000 units already included in 15,000 above

Alt.I: Units developed as proposed by DGP
 Alt.II: Assumption that PUC unable to meet DGP's estimate
 Alt.III: Alt.II assumption plus assumption that Waikiki housing units converted to hotel rooms

Source: Chaney, Brooks & Co., 1986 (Appendix A)

Table 1-2
COMPARISON OF PROJECTS PROPOSED FOR CENTRAL OAHU

	<u>VILLAGE PARK</u>	<u>MILILANI</u> 2/	<u>WAIAWA</u> 1/	<u>WAIKELE</u> 2/-
Population Accommodated	10,000	20,655	31,000	8,100
Acres	691	1,250	2,100	570
Units	3000 Mkt 450+/-City	6,600	11,000	2,760
Estimated Units per year	345-500	450-500	400-500	330
Estimated life of project	7 yrs.	13-15 yrs.	25-30 yrs.	8-9 yrs.
<u>Unit distribution</u>				
Single-family	80%	66%	64%	60%
Multi-family	20%	34%	36%	40%

1/ From Lear Siegler Waiawa submittal February, 1985
2/ DGP Summary of General Plan Amending Proposals October, 1984

Source: Chaney, Brooks & Co., 1986 (Appendix A)

financing will need to be obtained for these front-end improvements. Infrastructure for the first increment of the Village Park Expansion (1000 units) is already available.

- o Delivery of Affordable, Quality Products. Village Park Expansion offers an opportunity to continue an existing project which has been providing moderately-priced housing to local families over the past seven years.

In short, the proposed project can deliver affordable housing while the other projects are still being planned.

Targeted Market and Absorption Rate. Village Park Expansion has been planned to offer a variety of housing types and prices. For single-family dwellings, the majority of the market will be first time buyers with small to medium sized families who have been renting or doubling up with other family members. A second but smaller segment of purchasers may have owned a previous residence which may have been a single-family dwelling in a less convenient location or a condominium apartment which is no longer suitable to the size requirements of the family. A third group, consisting of higher income families or families who have accumulated a significant amount of savings will also be attracted to the prime lots and the upgraded single-family units that will be offered.

In the above cases, it is projected that there will be a high percentage of two income families. It is estimated that 85% or more of the single-family dwelling households will have two sources of income. Some larger families may have three or more sources of income, the aggregate of which will range from \$36,900 per year to \$59,900 with an average of \$44,600. The estimates are based on a projected price from \$120,000 to \$195,000 with an average price of \$145,000 (based on 1985 costs) (see Table 1-3).

For multi-family dwellings, family size would be predictably smaller, probably averaging closer to 2.0 persons per dwelling unit, compared to 3.0 persons per dwelling for single-family dwellings. The group would consist of young married couples without children, nonconventional households (e.g., two singles or divorcee with child), empty nesters, mature couples, and single individuals.

Purchasers in the multi-family groups will require incomes ranging from \$31,100 to \$39,100 with an average income of approximately \$35,000 in order to qualify for multi-family units ranging in price from \$90,000 to \$110,000 with an average of \$100,000.

The market study projects sales ranging from 345 to 500 units per year with an average of 430 units per year. At this rate, the 3,000 market units would be sold in less than seven years, absent any major unforeseen changes in the economy.

Table 1-3

VILLAGE PARK EXPANSION INCOME REQUIREMENTS

	<u>LOW</u>	<u>AVERAGE</u>	<u>HIGH</u>
<u>Single-family dwelling (fee simple)(1)</u>			
Price:	\$120,000	\$145,000	\$195,000
80% Mortgage:	\$ 96,000	\$116,000	\$156,000
Debt Service:(2)	\$ 987/mo.	\$ 1,193/mo.	\$ 1,604/mo.
CTF:(3)	\$ 120/mo	\$ 145/mo	\$ 195/mo.
TOTAL	\$ 1,107/mo.	\$ 1,338/mo.	\$ 1,799/mo.
Required Income (4):	\$ 36,900	\$ 44,600	\$ 59,966
<u>Multi-Family Dwelling (fee simple)</u>			
Price:	\$ 90,000	\$100,000	\$110,000
90% Mortgage:	\$ 81,000	\$ 90,000	\$ 99,500
Debt Service:	\$ 833	\$ 925	\$ 1,023
CTF	\$ 100	\$ 125	\$ 150
TOTAL	\$ 933	\$ 1,050	\$ 1,173
Required Income	\$ 31,100	\$35,000	\$ 39,100

- (1) Single-family product excluding prime sites
- (2) 30 year 12% mortgage
- (3) Customer trust funds (insurance, real property taxes, etc.)
- (4) 36% of debt free income for housing

Source: Chaney, Brooks & Co., 1986 (Appendix A)

Several factors support this estimated absorption rate.

- 1) Expanded product line-- By offering a wider range of products, from custom to attached units, the petitioner is able to segment the market into a number of different categories and more closely tailor the product to individual buyers' desires and economic capabilities.
- 2) Timing-- The proposed project will fill a void in new single family housing supply. Major residential projects at Gentry Waipio and the Pearl City/Aiea area will be nearing completion at the end of 1986 and new construction planned at Waikele, Waiawa, and Ewa will not commence sales until 1991-93. Village Park will be one of the few projects offering moderately priced homes between 1986 and the early 1990's.
- 3) Location-- Village Park and Mililani are closer to the primary urban center than the new projects proposed for Ewa.
- 4) Economic factors-- Interest rates and low inflation are favorable to the housing market at this time.

1.6.2. Market Analysis-- Commercial Development and Business Park (see Appendix A)

Commercial Development. The area proposed for commercial development is approximately 10 acres with 145,000 square feet of commercial space. Since demand for commercial space is population driven, the market study recommends that the commercial area be developed in two increments, the first half by year four (1991) and the second half by the seventh year (1994).

Business/Light Industrial Park. A 18.7 acre site is proposed for business/light industrial uses to take advantage of the convenient access to the freeway, airport, and new deep-draft harbor.

Demand for industrial land seems to be increasing due to the conversion of industrial areas in Kakaako and Kalihi to residential and other uses (see letters from Hawaiian Dredging & Construction Co. and Pacific Construction Co., Ltd., Appendix I). Furthermore, economic policy in this state has recently emphasized industrial growth to counter Hawaii's anti-business image, to diversify the economy, and to advantageously position itself for the computer age.

Other proposed industrial areas on Oahu include the Campbell Industrial Park expansion, high tech park proposed by Oceanic Properties near Wahiawa, Waikele office park, and Gentry Park. Because the Village Park Expansion will cater to users who are more sensitive to locational and transportation factors, it is estimated that this project will capture between 5% - 10% of the statewide market for industrial space (about 75 acres per year). Assuming an average of 7.5%, or 5 acres per year, the market will absorb the proposed 18.7 acres within 3 - 4 years.

STATEMENT OF OBJECTIVES

1.7 Statement of Objectives

The Village Park Expansion has been proposed as a response to an acknowledged shortage of and a future need for housing. The applicant, Waitec Development, Inc., is the developer of the existing Village Park Project. This project has enjoyed market acceptance and economic success by concentrating on the low end of the for-sale single family housing market on the Island of Oahu. The applicant has less than two years of inventory left to be developed in the existing Village Park Development. The success of the initial development demonstrates that there is a demand for the product currently being offered. The Village Park Expansion proposes to continue the existing development program with a few modifications to expand the market for the product. The applicant recognizes that any development proposal which uses resources necessarily eliminates the use of those same resources for other purposes. It is the applicant's belief that the proposed project represents a course of action whose advantages outweigh alternate uses of those resources. The objectives of the Village Park Expansion are as follows:

To Expand Opportunities for the First Time Home Buyers

Buyer profiles for recent purchasers in the existing Village Park community indicate that in excess of 60% of purchasers are first time homebuyers. The development being proposed will target over 80% of the for-sale units to this market.

To Expand Housing Opportunities for Lower Income Groups

The applicant has agreed to dedicate 30 acres of land to the City for the purpose of providing subsidized housing units. This agreement was reached with the Department of Housing and Community Development to satisfy the applicant's obligation to provide such housing. The Department estimates that approximately 450 units of rental housing can be accommodated on this site.

To Provide Employment Opportunities

It is estimated that the industrial, commercial and recreational activities planned in the Village Park Expansion will provide for approximately 700 full-time permanent jobs. In addition, during the seven-year development time frame approximately 300 to 400 full-time jobs will be available for construction and sales personnel involved in the development of the project.

To Increase Recreational Opportunities In Village Park and in The Waipahu Region

Over 28% of the land area in the proposed Village Park Expansion will be dedicated to public and private recreational activities including a golf course, recreational center and public parks. The golf course will increase the recreational activities available in the region while the private recreational center will offer a wide range of opportunities not only to the residents of the Village Park Expansion but will also be available to residents of the existing Village Park community.

To Continue, Enhance and Expand the Existing Symbiotic Relationship Between Waipahu Town and the Village Park Community

The Waipahu Community benefits from the expansion program because the additional population generated will expand opportunities for existing and future Waipahu merchants and the labor pool for businesses wishing to locate or expand in the Waipahu area. The Village Park community benefits because of the existence in close proximity of Waipahu shopping, employment and cultural activities which could not be supported by the present or projected population of Village Park. Growth is an integral part of the Waipahu Town Revitalization Program.

To Continue the Development of Village Park as a Planned Community

The existing Village Park Development and most new developments proposed in the future are based on the Planned Community concept. This concept is very popular among both buyers and government officials because long-term planning can eliminate many of the disagreements that surface in unplanned communities about the architectural character and the amenities to be included in the community over the long run. The party that will be responsible for future improvements or ongoing maintenance is identified prior to development.

To Promote Energy Conservation

The applicant will participate in the ride sharing program proposed by the State Department of Transportation by providing a park and ride facility and by subsidizing a ride sharing coordinator during the formative stages of the State's ride sharing program. In addition, the project includes shopping facilities and industrial and recreational activities which should lessen external traffic that would ordinarily be generated by such a community. In addition, the location of the project within close proximity to Waipahu offers other energy saving advantages.

To Promote a Well Balanced Community that will be an Asset to its Residents and the Region

The completed development will be an asset to individual buyers as well as the community as a whole. It will provide housing in an aesthetically pleasing setting, will provide employment, and will be part of the Waipahu Community.

To Be Supportive of the Oahu Sugar Survival Plan

The applicant is coordinating the phasing of the project to minimize the impact of the development on Oahu Sugar. In addition, the applicant will bear the cost of relocating agricultural infrastructure in order to minimize the fiscal impact on Oahu Sugar. The applicant has cooperated with sugar company management in the planning and will cooperate with sugar company management in the development of the project.

1.8 Purpose of this EIS

In order to implement the objectives described above the proposed development site must be rezoned to the appropriate designations, i.e., Residential, Industrial/Commercial (IMX), Park and Preservation. City and County of Honolulu requires that an EIS be prepared and accepted prior to the approval of such zoning changes. This EIS is being prepared to satisfy those requirements.

1.9 Historical Perspective

The project site is currently owned by Robinson Estate. Waitec Development Inc. has an option to purchase the property. The site is currently in sugarcane production with the Oahu Sugar Company leasing the land from the Robinson Estate. The site has been in continuous sugar production for approximately 90 years.

In 1969 the State Land Use Commission designated 300+ acres of land immediately south of the proposed project site for urban use. In 1971 the City and County of Honolulu amended its general plan to permit residential, low density apartments, schools and commercial land uses on the State designated urban area. The existing Village Park Development started construction in 1979 and as of 1986 approximately 1,200 of the projected 1,750 units have been developed.

Recognizing that the inventory of developable land in Village Park would be exhausted in approximately two years, Waitec Development, Inc. made application to amend the Central Oahu Development Plan to include the subject property for residential, commercial, industrial, recreation and other uses during the 1985-1986 Development Plan Review. In February of 1986

Waitec Development, Inc. submitted the project to the State Land Use Commission for a boundary change amendment. The EIS Preparation Notice for the project was published in the January, 1986 OEQC Bulletin.

At the present time the proposed project site retains its designation as agriculture under the State and County land use plans, however, there is a boundary change pending before the Land Use Commission and a Development Plan amendment pending before the City Council.

2.0. EXISTING CONDITIONS AND IMPACT ASSESSMENT

2.1. PHYSICAL ENVIRONMENT

2.1.1. TOPOGRAPHY/GEOLOGY

Existing Conditions

The site slopes downward from the northwest to the southeast at a gradient of 4 - 7%. The ground elevations range from approximately 220' to 470' MSL. Two drainageways traverse the middle section of the site.

There are no unusual or unique geological features or scenic landmarks at or near the project site.

Impacts

The entire site will be graded. Expected impacts from grading include:

- Dust from grading operations; and
- Exposed soil subject to wind and rainfall erosion.

These impacts will be mitigated to acceptable levels as described below.

No scenic or geological landmarks will be affected.

Mitigation Measures

Dust generation and soil erosion will be minimized by compliance with the city's grading ordinance (Chapter 23, Revised Ordinances of Honolulu). Typical controls that are incorporated in an erosion control plan include:

- o limiting the extent of exposed area at any one time;
- o structural measures, including dikes, berms, interceptor ditches, sediment traps, and sediment basins;
- o temporary and permanent vegetative cover or mulching;
- o spraying chemicals or liquid asphalt;
- o temporary wind barriers.

2.1.2. SOILS

Existing Conditions

Red to reddish brown residual soils are generally found on the site. A detailed soils investigation conducted for the existing Village Park indicated that the surface soils are underlain by rocks, generally near depths of about 10 feet. Boulders and cobbles were encountered at lesser depths.

The U.S. Soil Conservation Service (SCS) classifies the soils as Molokai silty clay loam (MuA, MuB, MuC, MuD) and Lahaina silty clay (LaB) (see Table 2-1 and Fig. 2-1). The Molokai and Lahaina soils have similar characteristics-- they are moderately permeable, have slight erosion hazards, and are underlain by bedrock at depths greater than 5'.

Under the Unified Soil Classification System, which is used for engineering purposes, the soils are classified as ML and MH. The "M" indicates that the soils are silt with high ("H") and low ("L") liquid limits. These designations have limited value in Hawaii since engineering properties for tropical soils may be significantly different than temperate soils having the same classifications. Tropical soils exhibit a higher shear strength and lower shrink-swell volume change with change in moisture content. The difference is apparently related to the very fine particulate size, microstructure, and high aggregate stability of tropical soils (USDA, 1972). In fact, experience at the existing Village Park Subdivision indicates that the soils are generally good for homesite development. Roadways have been constructed without utilizing a subbase course. Good bearing values of up to 4000 pounds per square foot have been used for the design of footings and walls.

The soils are suitable for agriculture as indicated by the ALISH (Agricultural Lands of Importance to the State of Hawaii), Land Study Bureau (LSB), and Soil Conservation Service (SCS) classification systems:

ALISH: prime (691.5 acres)
LSB: A or B (irrigated); D or E (non-irrigated)
SCS: I or II (irrigated); III or IV (non-irrigated)

The Land Evaluation and Site Assessment (LESA) Commission developed a rating system to synthesize these various classification systems for agricultural suitability. The soils were rated quite highly (LESA, 1985).

Impacts

The soils have good bearing capabilities to adequately support the planned residential structures. Additional soil engineering investigations are necessary for the heavier structures planned for the commercial and light industrial areas.

The prime agricultural soils will be lost for commercial agricultural operations.

Mitigation Measures

Findings from detailed soils investigations will be used in developing the construction plans. These plans will be reviewed and approved by various county agencies as part of the subdivision approval and building permit process.

Table 2-1. SUMMARY OF SOIL CHARACTERISTICS, VILLAGE PARK EXPANSION, OAHU, HAWAII

SCS Soil Classification	Unified Soil Classification	Permeability (inches/hour)	Depth to Consolidated Material	Erodibility	Expandibility	SCS Rating	Agricultural Rating
Lahaina silty clay (LaB)	CL - ML	0.63 - 2.0 (moderate)	5'	slight	low	Irrigated: Iie Non-irrigated: IIic	Irrigated: A prime Non-irrigated: E prime
Molokai silty clay loam (MuA, MuB, MuC, MuD)	ML	0.63 - 2.0	5'	slight - moderate	low	Irrigated: I (MuA) Iie (MuB) IIie (MuC) IVe (MuD) Non-irrigated: IVc (MuA, E) IVe (MuC) Vlc (MuD)	Irrigated: A prime Non-irrigated: E prime

The loss of prime agricultural land is an unavoidable impact. The acceptability of this impact is a policy determination that must weigh the trade-offs between agriculture and housing. These policy issues are discussed in more detail in Section 3.0. Briefly, the analysis concludes that the loss to the agricultural industry would not be significant since the proposed project area is not essential to maintain the viability of sugar nor diversified agriculture. Moreover, the relatively low site preparation costs associated with level, non-stoney soils will enable the delivery of affordable housing to help alleviate the housing shortage problem.

2.1.3. CLIMATE

Existing Conditions

The project site is located above Waipahu with elevations from 220' to 440' MSL. This elevation and associated climate is comparable to Gentry-Waipio.

The annual median rainfall is about 34" (State gage no. 740.1). The months of May - September are usually drier than October - April. Temperatures at the project site are about 1 degree F. higher than Wahiawa (based on a general observation that temperatures in Hawaii decrease about 3.2 degrees F. per 1,000 feet in elevation) (see Table 2-2). Predominant wind direction and the higher wind speeds are from northeast to east (based on data from Wheeler AFB). These tradewinds prevail 41.5% of the time with an average speed of 6.1 knots (see Table 2-3).

Impact

Climatic factors are being considered in the planning, design, and construction of the project. Such factors as the wind direction, path of the sun, and amount of rainfall influence the siting and orientation of housing, grading practices, and landscaping. By considering these factors, natural ventilation of homes can be maximized, solar heating options ensured, erosion during construction minimized, and water consumption for landscape irrigation minimized.

Mitigation Measures

None necessary since there are no adverse impacts.

2.1.4. FLORA/FAUNA

Existing Conditions

Sugar cane production since the early 1900's has resulted in the removal of the original flora from the project site. It is unlikely, therefore, that rare and endangered species of flora or fauna exist on the property.

Table 2-2. TEMPERATURES AND RAINFALL IN THE CENTRAL OAHU AREA

<u>Months</u>	<u>Temperature</u> ¹		<u>Rainfall</u>
	<u>Ave. Max. Temp. (°F)</u> ²	<u>Ave. Min. Temp. (°F)</u> ³	<u>Median rainfall (inches)</u> ⁴
January	75.8	60.1	4.2
February	76.3	60.1	2.8
March	76.2	60.8	2.2
April	77.0	62.3	1.5
May	79.1	63.6	0.8
June	81.0	65.8	0.4
July	81.9	66.7	0.7
August	82.5	67.1	0.8
September	82.7	66.5	0.3
October	81.9	65.4	2.3
November	78.9	63.6	3.2
December	76.5	62.2	4.0
Ave. Annual	79.2	63.7	Median Ann. 33.9

¹Temperature data for Wheeler AFB (U.S. Dept. of Commerce, National Weather Service, Climatic Summary of Hawaii, 1919-1952); add 1° F for Village Park Expansion project site.

²Average of the highest temperatures for the month

³Average of the lowest temperatures for the month

⁴Department of Land and Natural Resources, Median Annual Rainfall, state key no. 740.1, gage name is Field 220A, 21 record years of data.

Table 2-3. PERCENTAGE FREQUENCY OF WIND DIRECTION AND SPEED
(Hourly Observations, Surface Winds)

22508 MAHANA HAWAII/WHEELER AFB 19-49,67-66 ALL
STATION CODE YEAR MONTHS
 ALL WEATHER
CLASS
 ALL
GROUP (1-37)

SPEED KNOTS 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	2.0	2.0	1.5	.3	.0	.0						6.6	5.0
NNE	1.1	1.4	1.4	.4	.1	.0						6.4	6.6
NE	2.9	3.4	6.3	3.2	.4	.0						16.8	7.9
ENE	1.1	2.3	5.3	3.3	.4	.0						12.6	9.0
E	1.8	2.4	4.7	2.9	.4	.0	.0					12.1	8.4
ESE	.7	.9	1.3	.7	.1	.0						3.6	7.8
SE	1.2	1.4	1.5	.5	.1	.0						4.7	6.5
SSE	.5	.8	.9	.5	.1	.0	.0	.0				3.0	7.9
S	.9	.8	.9	.4	.1	.0	.0	.0				3.1	7.0
SSW	.3	.2	.2	.1	.0	.0	.0					.9	6.7
SW	.6	.3	.3	.1	.0	.0	.0					1.3	6.0
WSW	.3	.2	.1	.0	.0	.0						.7	6.7
W	1.8	.7	.2	.0	.0	.0						2.6	3.8
WWW	1.5	.7	.3	.0	.0							2.6	4.0
NW	4.5	3.0	1.3	.2	.0							9.1	6.4
NNW	1.6	1.3	.7	.1	.0							3.7	4.6
VARS												12.1	
CALM													
	23.6	22.5	27.0	12.7	1.8	.2	.0	.0				100.0	6.1

TOTAL NUMBER OF OBSERVATIONS 90193

Source: Data Processing Division
 ETAC, USAF
 Asheville, N.C. 28801

A previous field reconnaissance undertaken for the existing Village Park development indicated that the plants, insects, avifauna, and mammals living in the gulch and open areas are exotic species which are not endangered (HUD, 1979).

Impact

Since no rare or endangered species are found on the site, there will be no significant impacts.

Mitigation Measures

None necessary since there are no adverse impacts.

2.1.5. ARCHAEOLOGICAL/HISTORICAL RESOURCES

Existing Conditions

An archaeological reconnaissance survey and literature search were conducted for the proposed project site (see Appendix B). The literature search included inspection of The Hawaiian Planter (Handy, 1940), Archaeology of Oahu (McAllister, 1933), Sites of Oahu (Sterling and Summers, 1978), Hawaiian Petroglyphs (Cox and Stasack, 1970), maps on file at the State of Hawaii Survey Office, site maps on file at the State Historic Preservation Office, and reports and publications in the Hawaiian collection of the University of Hawaii.

No archaeological or historical sites were previously recorded in the petition area. Handy and McAllister discuss sites located outside the petition area.

Handy mentions terraces along Waikele stream, immediately outside of the survey area on the east:

In the flatland, where the Kamehameha Highway crosses the lower valley of Waikele Stream, there are the remains of terraces on both sides of the road, now planted to bananas, beans, cane, and small gardens. For at least 2 miles upstream there were small terrace areas. (Handy, 1940, p. 82).

McAllister discusses three sites to the south of the survey area, all of which have been destroyed:

Site 127. Mokoula heiau, southwest of the main road in the village of Waipahu.

The heiau has been completely destroyed for building purposes of the neighborhood. The site is at the edge of a 50-foot elevation which projects out into the present rice fields and was pointed out by Kaluwai, a kamaaina undoubtedly more than 100 years old.

Site 128. Waipahu spring, famous in tradition as the place at which the tapa mallet appeared after having been lost in Kahuku. A pump has been placed over the site.

Site 129. Heiau, Waipahu, said to have been named Hapupu.

The Waipahu plantation stables on the mountain side of the road across from the schoolhouse west of the town now occupy the site of the former heiau at Waikele. Nothing remains of the heiau. According to Thrum, it was a 'Heiau pookanaka, where the chief Hao was surprised during temple worship and slain with his priest and attendant chiefs by direction of the moi of Oahu, about 1650. The site was pointed out by Kapano. (McAllister, 1933, p. 106).

To the south of the project site, on the makai side of the H-1 Freeway, is a small petroglyph site:

On the cliff boulders, north side of Waikele Stream, west edge of Waipahu town. Human figures, triangular (arms curved downward), dogs. (Cox and Stasack, 1970, p. 97).

The fieldwork consisted of a two-day walk-through of the property. Structural remains (e.g., platforms, terraces, shelters) would have been destroyed by sugarcane production long ago, so the only evidence of past human utilization expected were unearthened fragments of food remains (e.g., bones and shells) and artifacts. In the unplanted and recently-planted northern and eastern three-quarters of the property, it was possible to walk anywhere and search for such items at will. The southwestern one-quarter was accessible only along irrigation ditches cutting through the thick stands of sugarcane. No evidence of past utilization of any kind were observed either in the open fields or in the exposed earthen faces of the irrigation ditches.

Impact

Because no evidence of past utilization in the form of structural or midden remains was found, and because there have been no archaeological or historical sites previously recorded on the property, there should be no adverse impacts caused by the proposed development.

Mitigation Measures

Should any archaeological or historic remains be uncovered during construction, the contractor will stop further construction in the area and will immediately notify the State Historic Preservation Office.

2.1.6. HAZARDS

Existing Conditions

The probabilities for flooding and earthquakes are very low

for the project site. The flood insurance hazard rating for this area is Zone C, areas of minimal flooding. The seismic risk classification for the entire island of Oahu is Zone 1 (Uniform Building Code). Zone 1 indicates that the island is subject to minor earthquake damage.

Potential man-made hazards in the project vicinity include fire hazards from nearby sugar cane harvesting, and safety hazards posed by cane haul trucks and the steep slopes of the gulch. In addition the proposed project's eastern (Honolulu) border is shared with Naval Magazine Waikale Branch. (See Preliminary Map insert on page 27a.)

Agricultural Operations (Sugar Cultivation) pose a potential hazard to the environment due to the potential for accumulation of toxic substances found in agricultural chemicals (fertilizers, pesticides and herbicides) in the environment. This hazard may be from accidents or from long run accumulation of "safe" applications.

Impact

All hazards will be mitigated to acceptable levels, as described below.

The suburban planned community being proposed will contain an industrial/commercial area which has the potential to generate industrial and hazardous wastes. At the present time the potential for such waste generation cannot be known because the mix of commercial and industrial users is unknown. The development will also contain a golf course which poses risks similar to the potential hazards from the existing agricultural operations.

Mitigation Measures

Flooding-- Drainage facilities will be constructed to county standards. No special flood-proofing measures are necessary.

Earthquake-- Structural designs will conform to building code requirements.

Steep slopes-- Fences will be constructed along the top of steep slopes along the gulch.

Sugarcane burning-- Oahu Sugar complies with State Department of Health controls for burning sugar cane. These controls ensure that burning is undertaken during favorable wind conditions. In addition, the subdivision design provides an adequate fire break between the sugarcane and any structures.

Cane haul trucks-- There will be cane hauling north of the proposed project; however, the roads will be located far away enough to pose no hazards to residents.

Naval Magazine Waikale Branch-- No residential development will take place in the area described by the Department of the Navy as being within the official blast zone for the Naval Magazine Waikale Branch.

Industrial and hazardous wastes-- There are State and Federal laws dealing with the generation and disposal of industrial and hazardous wastes. The EPA and the State Health Department enforce these laws and regulations which mandate mitigating measures in Industrial/Commercial areas. Golf course operations do pose a threat similar to other agricultural operations; however, the risks should be lessened by the fact that the area involved is only one-fourth the size of the area currently involved in agricultural production and that chemical application on golf courses is done in a more controllable fashion than the aerial spraying method prevalent in sugar operations.

2.1.7 AIR QUALITY

The following information was excerpted from the Air Quality Study prepared for the project in July 1986 by Barry D. Root (see Appendix K).

Existing Conditions

Judging from readings at nearest long term monitoring stations, air quality in the project area is presently well within allowable State and National Ambient Air Quality Standards. Existing air pollutants in the area include dust and smoke generated by sugar cane cultivation, and emissions from vehicles traveling on nearby roadways.

Impact

Except for dust emissions during the construction phase of the development, no significant short term direct air quality impacts are expected. Adequate control measures exist to limit the impact of windblown dust, but special care will have to be exerted to insure that previously developed residential areas are not subjected to excessive levels of particulate pollution from construction activities.

Indirect air quality impacts are expected to result from new demands for electrical energy. This impact is most likely to occur in the vicinity of existing power plants such as the Kahe Plant on the Waianae coast where increased levels of particulates and sulfur dioxide can be expected. Maximum use of solar energy designs in project development can at least partially mitigate the magnitude of this impact. New methods of generating electrical power such as wind or ocean thermal energy conversion may eventually also play a mitigative role in this regard.

Increased traffic generated by the Village Park Expansion will increase emissions of carbon monoxide along Kunia Road in the project area and along the H-1 Freeway corridor. Modeling of

current and projected peak hour worst case concentrations of carbon monoxide at three critical receptor sites in the project area indicates that levels will be well within allowable State and National ambient air quality standards with or without project development. For that reason no special air pollution mitigation measures other than those roadway and intersection improvements already planned as an integral part of the development are proposed by this study.

Mitigation Measures

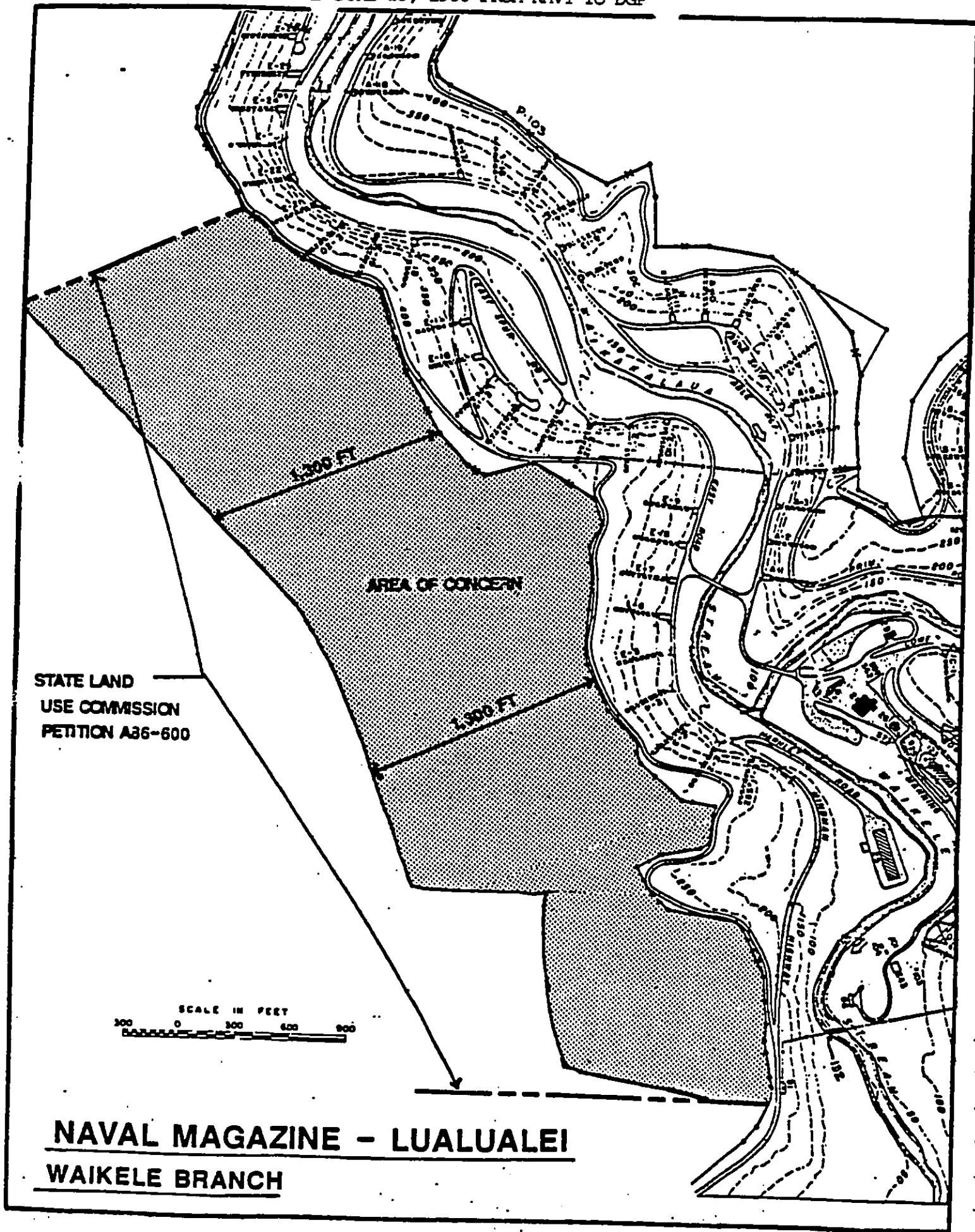
Short Term: As previously indicated the only direct short term adverse air quality impact that the proposed project is likely to create is the emission of fugitive dust during construction. State of Hawaii regulations stipulate the control measures that are to be employed to reduce this type of emissions. Primary control consists of wetting down loose soil areas. An effective watering program can reduce particulate emission levels from construction sites by as much as 50 percent. Other control measures include good housekeeping on the job site and pavement or landscaping of bare soil areas as quickly as possible.

Long Term: Once completed, the proposed Village Park Expansion is expected to have little direct impact on the air quality of the surrounding region. In fact, direct contributions of particulate pollutants to the air will be decreased somewhat since open field fires and fugitive dust from sugar cane growing activities will no longer be taking place. On the other hand, there are likely to be some emissions from commercial developments such as emissions from restaurant grills or emissions from light industrial activities within the proposed project. Most likely such emitters will be too small to fall under existing air pollution control regulations, but should any substantial new air pollution emission source be proposed for the site it would have to meet fairly stringent new source performance standards and prevention of significant deterioration requirements.

Indirect long term impacts in the form of increased air pollutant emissions from power plants serving new residences in the project area can be mitigated somewhat by planning and implementing solar energy design features to the maximum extent possible.

Other indirect long term air quality impacts are expected in those areas where traffic congestion can potentially be worsened by the addition of vehicles traveling to and from the proposed project. Project planners can do very little to reduce the emission levels of individual vehicles, but the traffic impact study for the project lists several major roadway improvements which should serve to decrease traffic congestion in the immediate project area since these improvements are scheduled to be an integral part of project development.

EXHIBIT TO LETTER DATED JUNE 25, 1986 FROM NAVY TO DGP



AREA OF CONCERN BEING REEVALUATED BY THE DEPARTMENT OF THE NAVY
27a

ENCLOSURE (1)

Reproduced at Government Expense

2.1.8. NOISE

Existing Conditions

Sources of noise in the project site include vehicular traffic along the cane haul road and Kunia Road. Noise has not been a concern with the existing Village Park residents.

Impact

Reaction to noise differs from person to person. The most common complaints include:

- o Interference with rest and recreation;
- o Interference with speech communication;
- o Interference with radio, music, and television listening;
- o Interference with sleep.

The severity of the impact is a function of the following factors:

- o Frequency and amplitude of the noise;
- o Loudness and duration;
- o Time of occurrence (day, evening, night);
- o Number of occurrences per day;
- o Ambient noise levels;
- o Activity the person happens to be engaged in when the noise intrusion occurs;
- o Health and noise exposure history of the person.

Because approximately 10% of the population is apparently supersensitive and would object to any noise (except that of their own making), complaints should be expected under any conditions. On the other extreme, approximately 25% of the population tolerate noise of any level. The remaining 65% generally do not complain until the indoor noise level exceeds 56 dbA for more than 10% of the exposure time. This means, for light weight structures such as those found in Hawaii, the outdoor L10 value should not exceed 66 dbA. For concrete and masonry structures, the outdoor L10 noise level can be as much as 79 dbA. Complaints can expect to increase rapidly as the noise level exceeds these limits.

Potential sources of noise in the area include vehicular traffic from H-1 Freeway, Kunia Road, cane haul roads, and aircraft operations.

H-1 Freeway and Cane Haul Roads. The EIS for the existing Village Park (HUD, 1979) identified potential noise problems for residential units located near cane haul roads and the H-1 Freeway. These noise sources are not present near the proposed project. The existing Village Park lies between the proposed project and H-1 Freeway. The only cane haul road that will remain in the vicinity of the proposed project will be located

over a mile north of the project site.

Kunia Road. Commercial and industrial uses are proposed in the areas between Kunia Road and the residential units. Highway noise from Kunia Road would be buffered by the distance and intervening structures between the highway and the residential units.

Aircraft Operations. Honolulu International Airport, Hickam Air Force Base, and Barbers Point Naval Station are all active airports located within 10 to 17 miles of the project. No noise problems from aircraft operations were identified in the previous EIS for the existing Village Park (HUD, 1979, p. II-38) nor have any problems been actually experienced by the current residents.

Commercial/Industrial Noise Impact on Residential Areas. There is a potential for noise generated in commercial and industrial areas to impact residential areas. The applicant believes that any impacts would be minimal because with the exception of two apartment designated parcels, all other residential areas are buffered from commercial/industrial activities by a golf course fairway. In addition, the new commercial/industrial areas are a significant distance from any existing or planned development in the existing Village Park Development.

Recreation Noise Impact on the Residential Areas. The proposed development will contain three park sites, a private recreation center and a golf course and clubhouse. Recreational activities conducted on these sites may generate noise which will impact the residential areas. The applicant believes that the noise impacts of these facilities on residential areas will be minimal and that numerous mitigating measures are available.

Mitigation Measures

Commercial/Industrial Noise. The applicant will follow all City and State laws and regulations relating to noise. In addition the applicant will follow City ordinances relating to the separation of commercial/industrial and residential districts. Current ordinances require setbacks, solid walls, and landscaping. In certain instances, uses are restricted within the commercial industrial districts where there is an abutting residential district. In addition the applicant intends to develop restrictive covenants for the commercial/industrial development which will ensure a harmonious relationship with the residential development in close proximity including restrictions on noise, and other items incompatible with residential development.

Recreation Noise. The primary mitigating measure will be in facilities design. For the Golf Course and Clubhouse the siting of the clubhouse facilities, their orientation and the location

of the tees and greens on the course will have a major impact on the potential noise impact of the facilities. The siting and design, as well as landscaping, will be major considerations during the design phase of the golf complex. Selection of maintenance equipment which includes noise minimization features can also mitigate against noise impacts. In addition the scheduling of maintenance operations and golf activities can also be done to minimize noise impacts.

The same mitigation measures as apply to the golf courses also apply to the private recreation center and the park areas. In addition, the Village Park expansion area will have a community association which will be a forum for balancing the needs of residents for recreational activities with those of the nearby residents for minimal noise impacts. This organization will assure that the rules and regulations governing the various recreational facilities of the development will continue to meet the needs of the community that they serve.

2.1.9. WATER QUALITY

Existing Conditions

Groundwater Quality. The existing conditions and impact on groundwater quality are addressed in section 2.3.2, Water Facilities.

Coastal Water Quality. About 40% of the project area presently drains into Waikele Stream and ultimately into Pearl Harbor.

Impact

Development of the project site is not expected to have any noticeable impact upon the configuration of Waikele Stream. Flow levels and water quality of Waikele Stream are not expected to be altered or changed to any noticeable or measurable degree. This conclusion is based on the relatively small area of that portion of the project site that presently drains directly into Waikele Gulch (275 acres) as compared to the large area of the Waikele Stream hydrological basin (29,000 acres).

Mitigation Measures

Erosion control measures will be implemented to mitigate impacts during construction (see section 2.1.1).

2.2. SOCIO-ECONOMIC ENVIRONMENT

2.2.1. POPULATION (see Appendix C)

Existing Conditions

Population Size. The resident population of Oahu as of July 1, 1984 was estimated to be 805,266 (DPED, 1985). The last U.S. Census counts were 762,565 in 1980 and 630,528 in 1970. More than half of Oahu's 1980 population lived in the Primary Urban Center, which extends from Kahala to Pearl City. About 13% (100,953 persons) lived in the Central Oahu area, and 5% (36,234) in the Ewa area. The Ewa and Central Oahu areas were the fastest growing parts of Oahu during the 1970's, with resident population increasing by about 50% in each area over the 10-year period, or average annualized growth rates of 4.17% in Ewa and 4.31% in Central Oahu.

Population Characteristics. Population characteristics for Waipahu, the existing Village Park residents, and the Central Oahu and Ewa areas compare with Oahu as a whole as follows:

- o Ethnicity-- Compared to Oahu as a whole, Ewa's population was proportionately more Caucasian and Filipino, less Japanese and Chinese. Central Oahu's population was a somewhat closer match to the islandwide figures, although still with more Filipinos and also with proportionately fewer Hawaiians and Chinese. The existing Village Park residents were more similar in ethnic composition to Waipahu residents than with the Crestview/Waipio residents. The dominant ethnic groups in 1980 were Japanese and Filipino (34.4% each), with smaller proportions of Caucasians (11.7%) and Hawaiians and part-Hawaiians (8.3%).
- o Age-- Both the Ewa and Central Oahu areas grew older on average from 1970 to 1980, but both still feature a much higher proportion of children and a smaller proportion of senior citizens than Oahu as a whole. This is borne out by the higher proportion of Ewa and Central Oahu residents living in family situations. The 1980 Village Park residents exemplified the high proportion of children (37%) and young homebuyers (two-thirds under 35 years of age).
- o Mobility-- Compared to the island as a whole, Ewa and Central Oahu residents in 1980 were much more likely to have been Mainland-born and/or to have moved from the Mainland in the past five years. The influence of the military population is particularly evident. However, the existing Village Park residents are extremely "local", with high proportions either Hawaii-born and/or living on the islands five years previous to 1980.

- o Education-- Residents of Central Oahu and, particularly, Ewa were less likely than other Oahu residents to have graduated from college. However, the 1980 Village Park population featured a relatively high proportion of college-educated people (32%), probably due to the high proportion of young adults who tend to be better educated than older adults.
- o Family Composition-- Residents of Central Oahu and, particularly, Ewa were more likely than other Oahu residents to be living in family-household situations, and these families were more likely to include children at home under age 18. These families were also more likely than other Oahu families to have both a husband and wife present, although there was a substantial increase in the percentage of Central Oahu families (with or without children) to be headed by a single female. Nearly 100% of the 1980 Village Park residents lived in such family situations with conventional two-spouse households.
- o Labor Force Characteristics-- The 1980 civilian labor force unemployment rate was substantially higher in Ewa (8.0%) and Central Oahu (6.0%) than it was islandwide (4.6%). Of those employed in the civilian labor force, residents of Central Oahu and Ewa were less likely than other Oahu residents to be in managerial or professional jobs. Rather, they were more likely to report working in the agricultural (particularly in Central Oahu), construction, or manufacturing industries. Employment in the armed forces was substantially higher for residents of Ewa (18.5%) and Central Oahu (22.8%), compared to the island as a whole (10.1%). The general occupational profile of the existing Village Park residents is that of a skilled blue-collar and middle-class labor force.
- o Family Income-- In Ewa and Central Oahu areas, median 1980 family income lagged behind the islandwide median. However, the 1980 mean family income in Village Park was \$31,724, substantially higher than that for Waipahu, Central Oahu, or even the island as a whole. The basis of the higher family incomes was due primarily to two-income households rather than higher paying jobs.

Impact

Population Size. The existing Village Park community is tentatively scheduled to be built out by the end of 1988, at which time it will have an estimated population of 5,600 people. The proposed expansion would result in an additional 10,000 persons. There have been important amenities which the existing Village Park residents have been denied thus far due to an inadequate population base-- e.g., development of commercial

facilities and a school. The additional population would justify the provision of such facilities.

The projected islandwide population for the year 2005 is 954,500 people, an increase of 149,200 people over the 1984 estimated population. The Village Park Expansion population of 10,000 people would represent 6.7% of the incremental population growth from 1984 to 2005, and 1.1% of the 2005 population of 954,500.

Population Distribution. Central Oahu has more potential to locate needed housing for the projected population growth than previously anticipated by the General Plan. If all four of the proposed projects in Central Oahu (Waikele, Waiawa, Mililani Expansion, Village Park Expansion) are developed at the rate assumed in Table 2-4, then 46.8% of the incremental population increase on Oahu could be directed to Central Oahu. As a result, in the year 2005, 19.4% of Oahu's population would reside in Central Oahu, a slight increase from the 13% in 1980.

These figures would of course rise if the combined areas of Ewa and Central Oahu were considered. The existing and approved projects alone in Ewa and Central Oahu would comprise about 50% of the incremental growth on Oahu from 1984 to 2005. If all proposed projects are included, 93.1% of the incremental growth on Oahu would be directed to the Ewa and Central Oahu areas, resulting in 30.3% of the year 2005 population on Oahu residing in Ewa and Central Oahu.

Population Characteristics. Overall purchasers of the Village Park Expansion units would be basically similar to current Village Park residents. Because it is anticipated that the Village Park Expansion sales prices would remain somewhat below those of the other proposed projects, the population would be a younger, more family-oriented, comparatively more working-class community.

Mitigation Measures

None necessary since the projected population characteristics harmonize with nearby communities. The projected population size will cause minimal secondary impacts, as discussed in sections on public facilities (section 2.3) and fiscal impact (section 2.4).

2.2.2. HOUSING (see Appendix C)

Existing Conditions

Both Ewa and Central Oahu areas were sites of major housing construction efforts during the 1970's. In Central Oahu, such additions to the housing stock inventory have been continuing in the 1980's with ongoing build-out of communities such as Village Park, Waipio, and Mililani. In Ewa, however, there has been

Table 2-4.
PROJECTED POPULATION IN THE YEAR 2005
FOR CENTRAL OAHU AND EWA

CENTRAL OAHU		Existing	Additional Capacity	Potential Year 2005	% Islandwide (954,000)	% Islandwide Increment 1985 - 2005 (149,200)
<u>Existing/Approved</u>						
Maipahu	29,300	2,200	31,500			
Village Park	2,400	3,200 1/	5,600 1/			
Crestview/Maipio	9,800	3,200	13,000			
Waikale	0	8,100	8,100			
Mililani	23,700	5,900	29,600			
Melemanu	0	2,200	2,200			
Whitmore	3,500	900	4,400			
Whitmore Exp.	0	1,200	1,200			
Wahiawa	17,200	700	17,900			
Remainder	28,900	0	28,900			
Subtotal	114,800	27,600	142,400	14.9%	18.5%	
<u>Proposed</u>						
Waiawa	0	31,000	10,300 2/	4.4%	28.3%	
Mililani (mauka)	0	20,700	20,700 2/			
Mililani (makai)	0	1,300	1,300 2/			
Village Park Exp.	0	10,000	10,000			
Subtotal	0	63,000	42,300	4.4%	28.3%	
Total	114,800	90,600	184,700	19.3%	46.8%	
<u>EWA</u>						
<u>Existing/Approved</u>						
Ewa Beach	14,400	200	14,600			
Ewa Marina	0	13,000	13,000			
Ewa Village	0	10,000	10,000			
Makakilo	8,700	10,200	18,400			
Makakilo Exp.	0	2,400	2,400			
West Beach	0	10,400	10,400			
Remainder	13,400	1,100	14,500			
Subtotal	36,000	47,300	83,300	8.7%	31.7%	
<u>Proposed</u>						
West Beach Exp.	0	13,300	13,300 3/			
Ewa City Center	0	91,400	8,400 3/			
Subtotal	0	104,700	21,700	2.3%	14.5%	
Total	36,000	152,000	105,000	11.0%	46.2%	
GRAND TOTAL	150,800	242,600	289,700	30.3%	93.0%	

Notes
 1/ Estimated by Community Resources (see Appendix C, Table 4)
 2/ Year 2005 figures assume one-third of total Waiawa population and 100% of total Mililani population by that year, based on market analysis by Kusao, 1984)
 3/ Year 2005 figures assume 100% of potential West Beach Expansion population and about 9% of total Ewa City Center population by that year.

little additional net gain to the housing inventory during the past five years, although preliminary approvals have recently been obtained for a number of major new projects.

With most of the new housing developments aimed at the owner-occupant rather than the rental market, homeownership rates increased dramatically in both areas during the 1970's. They had been below the islandwide average in 1970 but were slightly greater than the islandwide average in 1980.

The incidence of substandard units dropped as new units comprised an increased proportion of the total, but pockets of crowding remain in the region, especially in the Waipahu area. Waipahu's average household size in 1980 (4.20) was greatly in excess of the norms for either Oahu (3.31) or the overall Central Oahu area (3.86).

The rental costs in 1980 for the Central Oahu and Ewa areas were fairly consistent with islandwide costs, but the median value of owner-occupied units were generally lower than the islandwide median. Since the region's housing stock is relatively young, this lower value would support the notion that developers in the area aimed for the "middle" and "lower" ends of the ownership market during the 1970's.

Impact

Housing Supply. The proposed Village Park Expansion would increase the number and variety of fee simple and rental units. Given the already mobilized Village Park development, construction, and sales team, the proposed Expansion would provide an uninterrupted supply of new housing inventory throughout the 1980's and into the early 1990's.

This affordably priced housing inventory would produce the following results:

- o higher homeownership rate;
- o less crowding as existing residents living in extended family situations "undouble" to take advantage of greater choices within the area;
- o slight increase in overall proportion of single-family units.

Housing Quality. The number of substandard housing units (as indicated by the lack of some or all plumbing) is very small in the Ewa area (0.6%) and Central Oahu area (1.2%). The rental units proposed for the Village Park Expansion would provide opportunities for lower income households to improve their housing conditions.

Speculation in Land and Housing. Speculation is unlikely since most of the proposed units (75% of the 3000 units) are moderately priced and targeted to the first-time buyer. About

87% of such moderately priced units at the existing Village Park were owner-occupied. The median value of such owner-occupied units were generally lower than the islandwide median. Since the housing stock in the existing Village Park is young, this would support the notion that developers aimed for the "middle" and "lower" ends of the ownership market.

The units in the proposed project would be sold in fee simple, in contrast to the leasehold interest in the existing Village Park. The proposed project may stimulate more interest among existing Village Park residents in lease-fee conversions. However, the residents seeking such conversions are more interested in homeownership and community values than selling for speculative purposes and moving elsewhere.

Property Values of Existing Homes. Property values of the existing Village Park would be maintained or enhanced as a result of the proposed golf course and other amenities. Current Village Park residents with homes near the proposed low-density apartment project have expressed concern about possible negative impacts on their property values, and the petitioner has pledged to take a strong negotiating stance with the City to assure both adequate design controls and tight management of the rental project in order to protect nearby property values.

Mitigation Measures

None necessary since housing impacts will be beneficial.

2.2.3. EMPLOYMENT (see Appendix C)

Existing Conditions

The types of employment in the existing Village Park community include construction (about 310 full-time construction workers) and a small sales staff. Because the existing Village Park population is not yet sufficiently large to attract anchor clients to the planned commercial area, there is not currently any retail-related employment.

About one-half of the recent Village Park residents work in Honolulu, one-third in the Pearl City/Waipahu/Central Oahu area, 13% in the Airport area, and 7% in Waipahu.

Impact

Availability and Diversity of Jobs. The proposed Village Park Expansion would provide construction-related and permanent employment. Construction-related employment would involve the continuation of the current average 310 full-time construction jobs from 1988 through most of the 1990's. Village Park's figure of 310 represents 2.1% of the approximately 14,700 construction jobs on Oahu, as of 1983.

Permanent employment in the Village Park Expansion would total about 710 jobs. About 68% of this total would be located within the commercial area, another 26% in the industrial area, and the remainder at the golf course.

The Waipahu Town labor force in 1980 had an above-average unemployment rate and civilian workers were employed disproportionately in service and trade occupations. The types of jobs that would be offered at the Village Park areas appear to be a good match between the existing Waipahu workforce and these future jobs.

The Expansion area would also create some indirect and induced employment in the Waipahu area through expenditures of residents, employees, and businesses. The extent of this impact is less easily measured, primarily because of difficulties in making assumptions about how much of the restaurant and retail demand generated by residents and employees would be met by the Expansion's own commercial area, and how many of the Expansion residents or businesses would still be located elsewhere in the Waipahu area even if the Expansion is not built.

Mitigation Measures

None necessary since the impacts are beneficial.

2.2.4. SOCIAL ISSUES (see Appendix C)

Existing Conditions

Hawaii State Plan surveys conducted during the 1980's showed Oahu residents placed a higher priority on affordable housing than on preserving agricultural land. A 1982 Waipahu survey showed equal priority for housing and protecting Oahu Sugar Company. It also showed most Waipahu residents welcome growth so long as it is well-planned. In addition, a sampling of the community concerns was obtained through interviews held in July and August 1985 with 26 "key informants" (primarily persons active in community organizations) in Village Park and Waipahu. General results of the key informant interviews were as follows:

- o Overall attitude toward proposed project. The overall attitude at this time was generally positive toward the project as a whole. Project components which seemed most responsible for this positive attitude were (for Waipahu) the continued provision of housing which can be afforded by young people and (for Village Park) the proposed golf course.
- o Most frequently raised concern. The most frequently raised concern (especially in Waipahu) involved public infrastructure capability, particularly traffic impacts. Usually, these concerns were expressed as

questions about how the problems can be solved rather than as a basis for opposing the project. Other concerns included: a) apartment rental project (desire for compatible design and careful management); b) Department of Education's recommended deletion of a school site within the proposed expansion; and c) the original park acreage distribution (which has been subsequently reallocated to meet residents' concerns).

- o Most emotional issue. The issues which usually generated the strongest emotional response (especially below the freeway) had to do with whether Village Park and the Expansion would become well-integrated into the larger Waipahu community or would become a distinct, possibly even "competitor" community. For example, there was concern about possible deterioration of Waipahu schools if Village Park and Waikele students are bussed elsewhere.

Mitigation Measures

- o Integration of the Expansion Area with the Existing Village Park. Parks in the Expansion area should be sited to achieve a better geographical distribution. For example, an Expansion park in the southeastern portion of the project area would provide needed open space for existing residents in the eastern portion of the existing Village Park. Although the petitioner is willing to locate the park in the southeastern area, the City Department of Parks and Recreation must approve. Another means to integrate the existing Village Park with the new residents in the expansion area is to establish a loose "umbrella" organization encompassing the homeowners' association of the Expansion area and the existing Village Park.
- o Integration of Expansion Area and Existing Village Park with Waipahu. Encourage the integration of the Village Park community into the Waipahu community by pursuing current plans to have Village Park's older students attend Waipahu Intermediate and Waipahu High School. Maintain a dialogue between the petitioner and such Waipahu community groups as the Waipahu Community Association, the Waipahu 2000 Community Council, the Waipahu Business Association, and the Waipahu Neighborhood Board. The petitioner has already committed to several activities to improve relations with the Waipahu community including the funding of a "Welcome to Waipahu" sign at the Kunia Road end of Farrington Highway, preparing a master plan for beautifying Kunia Road, providing in-kind support to the Waipahu Cultural Garden Park and the Waipahu 2000 Community Council, and participating in a number of other community projects.
- o Community Awareness of Proposed Plans. Maintain an ongoing dialogue between the petitioner and the community through presentations and newsletters.

- o Cumulative Impacts of Major Proposals in Leeward Oahu. Encourage the responsible public agencies to establish a joint task force comprising City and State representatives, developers, and community representatives to investigate the cumulative impacts of the major proposals.
- o Design and Management Control of City Apartment Project. The petitioner is currently seeking some degree of input on the physical design and management of the proposed City rental project to ensure both physical and social compatibility with surrounding residences. However, the extent and nature of developer controls are still a matter of negotiation with the City Department of Housing and Community Development.

2.2.5. ECONOMIC DEVELOPMENT (see Appendix D)

2.2.5.1. Impact on Oahu Sugar Company

Existing Conditions

Scale of Production. Amfac's Oahu Sugar Company is the fourth largest sugar operation in the State. It cultivates about 14,200 acres of sugarcane land, and produces about 90,000 to 95,000 tons of raw sugar, or nearly 10 percent of Hawaii's total sugar production. Its lands cover portions of Central Oahu on each side of Kunia Road above Pearl Harbor, and portions of the Ewa Plain to the west of Pearl Harbor.

Another 4,200 acres were in production until 1982. These fallow lands are mostly mauka lands with high pumping costs, and lands close to the seashore where soils tend to be inferior, yields low, and hauling costs high because of the distance to the mill.

Because of favorable growing conditions, good farming practices, and drip irrigation, sugar yields at OSCO are very high, about 15 to 16 tons per acre, versus a 1984 Statewide average of 11.86 tons per acre. In fact, OSCO holds the world record for the highest yield per acre.

Lease Rents. Nearly all of the land which OSCO cultivates is leased, principally from Campbell Estate with a lease expiration date of 1995, and Robinson estate with a lease expiration date of 1996. The lease rents on these lands are the highest in the State for sugarcane acreage, and are adjusted as a function of the revenues from sugar operations. Both leases allow partial withdrawal of lands for urbanization. The Campbell Estate lands above H-1 Freeway and west of Kunia Road have been dedicated to agricultural use in order to obtain special property tax assessments.

Water Use. OSCO is one of the major water users on Oahu, pumping 92.5 mgd of groundwater, and diverting in normal

rainfall-years 28 to 30 mgd from the Windward side via Waiahole Ditch.

Impacts

Economies of Scale. The proposed Village Park Expansion is one of several proposed projects that will consume sugarcane lands. However, the Village Park expansion, individually or in combination with other major projects planned and proposed for Ewa and Central Oahu, will not adversely affect the economic viability of OSCO. Part of the reason for this is that the cost for relocating cane-haul roads, irrigation ditches and pipes, an earthen reservoir, and power poles will be absorbed by the petitioner. In addition, the reduction in sugarcane acreage is expected to be gradual and partially or completely compensated for by increasing yields.

OSCO currently runs two mills in parallel. In the long term, OSCO could accommodate a major reduction in acreage by operating one mill. Because of this, OSCO could reduce acreage and production substantially without losing economies of scale. Of significance, Amfac's Kekaha Sugar Company, Inc., which has climactic conditions similar to that of OSCO, is one of the most profitable sugar operations in the State. Yet this plantation has only about 8,000 acres under cultivation, and produces only about 55,000 tons of sugar per year versus 14,200 acres and 90,000 to 95,000 tons per year for OSCO.

Assuming that OSCO could be reduced to a level similar to that of Kekaha Sugar Company without losing its economies of scale, then about 6,200 acres could be freed. Therefore, nearly all of the major housing developments planned and proposed for the Ewa/Central Oahu area could be safely accommodated without having OSCO lose its economies of scale and be forced to close.

Employment. An important component of OSCO's cost reduction is a continued decline in the labor force. This is to be accomplished by attrition-- that is, employees who retire or leave OSCO for other voluntary reasons generally will not be replaced. According to Amfac, over at least the next decade (to the end of the major leases), the Village Park expansion or any combination of the major housing projects planned and proposed for the Ewa/Central Oahu area, and the resulting loss in sugarcane acreage, will not require layoffs of sugar workers. This is because of the expectation for relatively gradual reduction in sugarcane acreage, partial or complete compensation of this acreage loss by increasing yields, and rapid employment loss by attrition.

If OSCO were to cease operations for whatever reason (most likely because of low sugar prices), the loss of jobs would be less than 600 direct jobs and 650 indirect jobs, with the actual number dependent upon the reduced employment made possible by continuing productivity increases. The opening of just one or two major hotels at West Beach Resort will create as many new

jobs as all of OSCO and, when tip income and all indirect jobs are considered, will provide higher average wages. Other new jobs in the Ewa area will be provided by Barbers Point Harbor, expansion of Campbell Industrial Park, growth of diversified agriculture and aquaculture, and other economic activities which may be attracted to the area because of the availability of land and water, and home prices which should be less than that in most other areas on Oahu.

Long-term Outlook. In the long term, the survival of OSCO will depend primarily on the price of sugar, for which the outlook is pessimistic. In the world market, the average price of sugar is expected to remain well below the production costs for all countries. This is because sugar in excess of various trade agreements is dumped on the world market, particularly by the European Economic Community (EEC) which, because of generous price supports to local sugar-beet growers and generous trade agreements with former colonies, is a major sugar producer, importer, and exporter, even though the EEC is one of the highest-cost sugar producers in the world, is self-sufficient in sugar and has no need to import it, and must sell its excess sugar on the world market at enormous losses.

In the U.S., Federal legislation protects sugar from the low world prices by import quotas, tariffs, and import fees. However, U.S. sugar prices are managed so that they are fairly low in order to prevent accelerating the growth of high-fructose-corn syrup (HFCS), which costs less to produce than normal sugar. In addition, the new sweetener aspartame is capturing market share and putting additional downward pressure on U.S. sugar prices. For more detail on the outlook for sugar prices, see "Overview of the sugar and sweetener Market and Outlook for Prices" in Appendix D.

In view of the poor outlook for sugar prices, and combined with the fact that sugar plantations are in place with substantial infrastructure, but suitable replacement crops have yet to be identified, Amfac has developed a Master Agricultural Plan which includes a Survival Plan for OSCO. This plan amounts to a holding action to gain time to find as many replacement crops as possible before OSCO may be forced by outside economic factors to cease operations. Key components of the plan are:

- o Continue to improve the economic efficiency of OSCO by increasing sugar yields and reducing production costs (both of which have been improved substantially in the last few years);
- o Urbanize Waikele (the only land of OSCO owned by Amfac) in order to derive revenues to help support and justify continued sugar operations; and
- o Experiment with a variety of crops (papaya, sweetcorn, potatoes, forage and feed crops, etc.) in order to find profitable replacements to sugar.

Success of this plan will depend on continued Federal price supports for sugar sufficiently high to justify continued operations, union support to reduce costs, and an adequate allocation of water from the Pearl Harbor aquifer. After the major leases expire with Campbell Estate and Robinson Estate in 1995 and 1996, respectively, continued sugar operations will also depend on success in negotiating favorable lease terms.

Mitigation Measures

The petitioner will absorb the cost of relocating cane-haul roads, irrigation ditches and pipes, an earthen reservoir, and power poles. In addition, the phasing plan for the proposed project will allow OSCO to gradually reduce sugarcane acreage, rather than completely terminating cultivation at one time. Oahu Sugar Co. has no objections to the project (see letter, Appendix I).

2.2.5.2. Impact on Diversified Agriculture and Aquaculture

Existing Conditions

Land Supply. There is an enormous and growing supply of prime agricultural land which has been recently freed from sugar and pineapple production. On Oahu, OSCO freed about 4,200 acres of agricultural land from sugar production in 1982 and 1983, and Waiialua Sugar Co. on the north shore of Oahu recently released about 1,400 acres from sugar. On Kauai, Lihue Plantation Co. recently released 1,700 acres from sugar production. On the Big Island, 15,640 acres were released by the closing of Puna Sugar Co. Considerable land also was made available to diversified agriculture as a result of previous reductions in sugar acreage: 3,000 acres released on Oahu in 1971 with the closing of Kahuku Plantation Co.; 12,000 acres released on Kauai in 1971 with the closing of Kilauea Sugar Co.; 4,300 acres released in 1975 with the closing of Kohala Sugar Co.

Also, at least 33,600 acres of land have been freed from pineapple production over the last two decades: 11,800 on Oahu, 7,500 on Kauai, and over 20,000 on Molokai and Lanai.

Some of the land freed from sugar and pineapple production has or will be converted to urban, diversified agriculture, and aquaculture uses. Also, some of the land freed from pineapple use on Oahu was converted to sugar production. Making allowances for the various conversions, uncommitted acreage which remains available to diversified agriculture and aquaculture amounts to many tens of thousands of acres, with a large share of this on Oahu. Furthermore, this supply probably will increase given the unfavorable outlook for sugar prices. In addition, many acres of land are made available to diversified agriculture in government-sponsored agricultural parks throughout the State.

Land Demand. The market demand for diversified agriculture and aquaculture products consists of the local market (with the

goal to increase Hawaii's self-sufficiency) and the export market.

The acreage needed to support the local demand is estimated as follows:

- o Fresh produce-- At most, 1,200 acres of additional land would be required for all potentially feasible produce crops to increase Hawaii's self-sufficiency to a realistic level, and to accommodate resident-plus-visitor population growth to the year 2000. The potential would be much greater if potatoes, which Amfac has experimented with near Kunia, were to prove profitable. The most promising produce crops grown commercially in other parts of Hawaii with climate comparable to Kunia include Chinese bananas, broccoli, sweet corn, sweet peppers, Italian squash, and watermelon. However, the high ground rents in Kunia is a major constraint.
- o Feed crops-- A strong market exists for feed crops, but most of these crops are not commercially feasible for Hawaii. A possible exception is corn silage to feed cattle in feedlots. However, at most 2,600 acres would be needed Statewide to feed all cattle in feedlots, even with an increase in cattle operations. Amfac has experimented with corn silage and other feed crops in the Barbers Point area, but returns per acre were low.
- o Other-- Livestock operations are another possibility, but the returns are low from cattle grazing. The trends are not favorable for increased dairy, egg, and swine and pork operations. Only a small amount of land is required for poultry operations. Neither livestock nor poultry operations should be located near residences because of odor, dust, and fly problems.

Export products consist of crop exports and aquaculture delicacies. The outlook for these products is as follows:

- o Crop exports-- Papaya is a possibility being explored by Amfac, although the land requirement for increased production is relatively small. Total Statewide plantings are a little over 2,000 acres, primarily on the Big Island. Macadamia nuts offer the potential of absorbing a significant amount of agricultural land, but increasing competition indicates that this is a high-risk venture unable to compete in those areas where other activities offer higher land rents. Other export crops are not agronomically suited for the Kunia area and/or require very little land. Finally, efforts for over a century indicate that it is extremely difficult to identify new export crops and develop them into new and profitable industries. Nevertheless,

Amfac has been experimenting with a new tropical sweet corn for export to the mainland during the winter.

- o Aquaculture-- Problems with freshwater prawns include low profitability, a local market that is saturated, and an export market of doubtful potential. Other potential freshwater aquaculture activities suffer from low prices, stiff competition from the mainland, a small local market, unsuitable climate, and/or other problems. Brackish or saltwater aquaculture would be unsuited for Kunia because of elevation and location over the Pearl Harbor basal water lens. It is extremely important that this freshwater supply not be contaminated by seepage of brackish or saltwater.

Impact

It is extremely doubtful that the Village Park Expansion combined with other major housing developments in the Ewa/Central Oahu area will affect adversely the growth of diversified agriculture or aquaculture. This conclusion derives from the fact that there is a very large amount of prime agricultural land and water that has been freed from sugar and pineapple production in recent years, the very real possibility that additional sugarcane acreage and water will be freed given the outlook for low sugar prices, and the modest land requirements for diversified agriculture and aquaculture in the Kunia area given its particular climate, high lease rents, and high elevation pumping costs.

When and if OSCO should cease operations, then an enormous amount of land and water will be freed from sugar production--far more land and water than could be absorbed by urban development. At that time, land rents should drop considerably in order to accommodate what will then become the highest and best use for these lands. Low rents and proximity to Honolulu could result in rapid development of diversified agriculture and aquaculture in the Ewa/Central Oahu area-- development that probably will be at the expense of Neighbor Island farmers.

Mitigation Measures

None necessary since there are no significant adverse impacts.

2.3. ADEQUACY OF PUBLIC FACILITIES AND SERVICES

2.3.1. TRANSPORTATION (see Appendix F)

Existing Conditions

Highways. The existing Kunia Road runs along the frontage of the proposed development. It varies in width from two lanes along the frontage and widens to five lanes at the southern end

of the existing Village Park. Two intersections provide access to this existing residential area.

Kunia Road forms the Kunia Interchange with the Interstate Route H-1 at the southern end of the existing Village Park. This interchange provides all required movements to and from the freeway with ramps which provide connections to Pearl Harbor, Honolulu International Airport, Downtown Honolulu, Barbers Point Naval Air Station, Campbell Industrial Park, and Waianae. Three of the eight ramp movements require left turns across the Kunia Road through traffic. Two of those left turns are controlled by traffic signals.

Kunia Road continues past H-1 and is connected to Fort Weaver Road with an overpass over Farrington Highway. It also connects with Farrington Highway and makes partial connections (right turns only) with Honowai and Waipahu Streets. This leg of Kunia Road provides the development with circulation with Waipahu and Ewa.

The petitioner made improvements to Kunia Road and Kunia Interchange in conjunction with the existing Village Park development. Kunia Road was widened one lane in each direction and two of the ramps were widened from one to two lanes.

Public Transit. The existing Village Park is currently served by two express buses in conjunction with service to Makakilo. There are two runs in the morning to Downtown Honolulu (Village Park pick-up at 6:02 and 6:32) and two runs in the afternoon (depart Downtown at 4:15 and 4:45). The ridership as of July 1985 was approximately 25 persons from Village Park per run, which is about one-half the seating capacity and one-third the total capacity of a standard bus.

Impact

Highways. The number of trips generated from the development was based on a conservative factor of 0.8 vehicles per unit during the peak hours. The total number of units from the existing Village Park and the proposed expansion is 5,220 units, resulting in 4,180 vehicles upon full development of the proposed project. Directional distribution was assumed to be 80% outbound and 20% inbound for the morning peak hour and vice-versa for the afternoon peak hour.

The petitioner proposes the following improvements to ensure adequate capacity of Kunia Road and Kunia Interchange during peak hours at full development of the proposed project (see Fig. 2-2).

- o Collector Street No. 1 intersection-- Collector Street #1 will have 5 lanes. Three lanes would be for outbound traffic from the proposed project to Kunia Road: two inside lanes for left turns only (heading southbound along Kunia Road), and one outside lane for

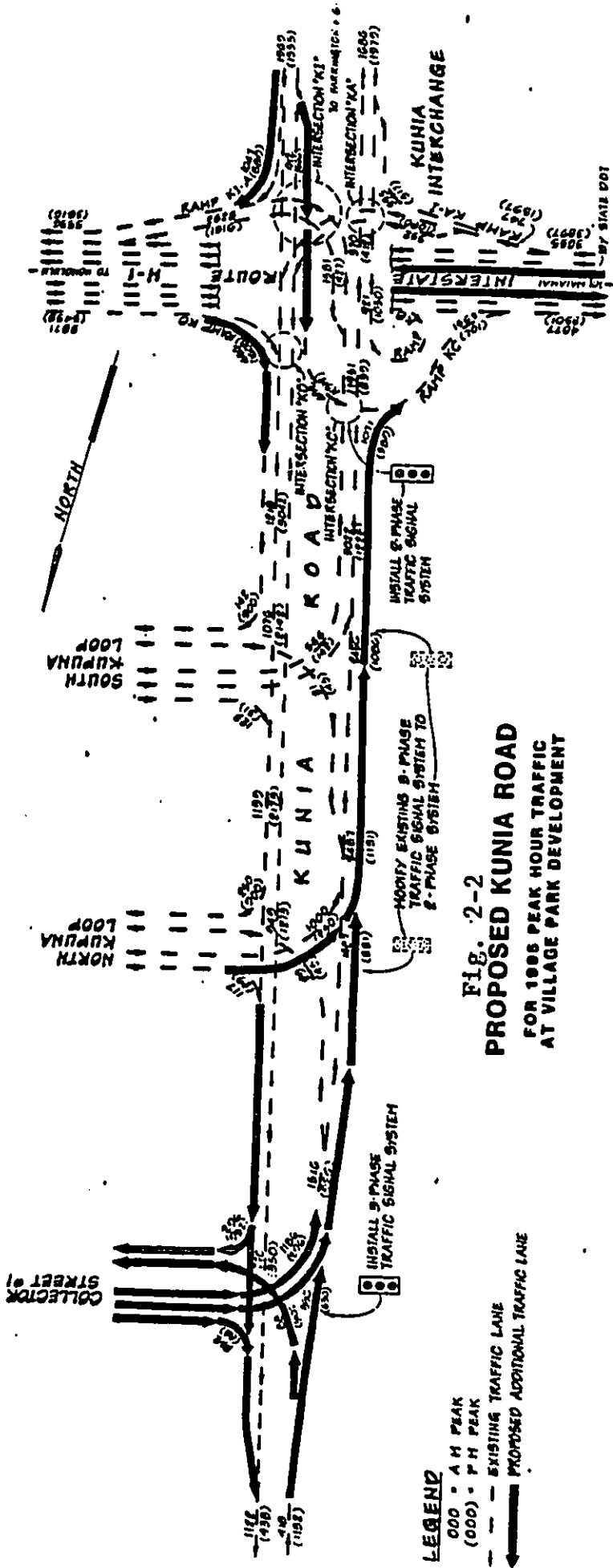


Fig. 2-2
PROPOSED KUNIA ROAD
 FOR 1988 PEAK HOUR TRAFFIC
 AT VILLAGE PARK DEVELOPMENT

LEGEND
 ○ ○ ○ - A M PEAK
 (○ ○ ○) - P M PEAK
 --- EXISTING TRAFFIC LANE
 - - - PROPOSED ADDITIONAL TRAFFIC LANE

right turns only (heading northbound along Kunia Road). For inbound traffic to the project area, one inside lane will be for left turns from Kunia Road southbound. The outside lane will be for right turns from Kunia Road northbound. Assuming that substantial traffic will be diverted to the North Kupuna Loop intersection, Collector Street #1 intersection would operate below capacity during peak hours.

- o Additional lanes on Kunia Road-- Kunia Road will be widened to accommodate the increased traffic generated by the proposed project and the normal growth of the through traffic on Kunia Road. The northbound lane will be widened to two lanes from North Kupuna Loop to the proposed Collector Street No. 1 intersection. From thence the widening will transition back to the existing roadway. The southbound lane will also be widened to two lanes from the proposed Collector Street No. 1 intersection all the way to Kunia Interchange. This additional southbound lane will increase the through capacity at the North and South Kupuna Loop intersections.
- o Traffic signal modifications-- A substantial portion of the traffic generated by the proposed project would be diverted to the existing North Kupuna Loop because of the congestion at the proposed Collector Street No. 1 intersection. To increase the capacity of the North and South Kupuna intersections, the traffic signals at these intersections will be converted from a three-phase system to two-phase. One phase will be for the movements on Kunia Road and the other for the movements out of North and South Kupuna Loops. This change would encourage left hand turns from Kunia Road southbound into North or South Kupuna Loops to be made at the Collector Street No. 1 intersection, where left turns will have a separate phase in a three phase system. The change would also increase the through traffic capacity along Kunia Road. The traffic signal modifications, coupled with the additional southbound lane, will upgrade the North and South Kupuna Loop intersections to operate at adequate capacity during peak hours.
- o Additional lanes to ramp intersections-- Additional lanes will be provided for two of the intersections that would experience congestion. At the off-ramp from H-1 westbound (intersection "KO"), which is congested during the afternoon, an additional lane along Kunia Road northbound from the ramp to South Kupuna Loop will be added. Further widening is constrained by the Board of Water Supply well site located adjacent to Kunia Road. Additional lanes will also be added to northbound Kunia for left turns into the on-ramp for H-1 westbound (intersection "KI") and for right turns

into the on-ramp for H-1 eastbound (ramp KI-A"). These latter improvements are primarily for Ewa traffic along Ft. Weaver Road feeding into H-1, rather than traffic generated from the proposed project.

- o Signalization of one ramp intersection-- One presently unsignalized intersection will be signalized (intersection "KC").

The State Department of Transportation has reviewed and approved these conceptual plans (see letter from DOT, Appendix I).

Public Transit. To serve the proposed development, the current express bus service would have to be extended 0.6 miles mauka on Kunia Road from North Kupuna Loop. The internal street network would extend one mile east of Kunia Road. These impacts are not significant.

Mitigation Measures

The proposed improvements will upgrade Kunia Road and Kunia Interchange to operate at adequate capacity during peak hours at full development of the proposed project. The developer is committed to assisting the mitigation of downstream traffic impact from the proposed project. Currently under consideration is a Park and Ride facility and a carpool coordinator subsidy.

2.3.2. WATER (see Appendix E)

Existing Conditions

Water for the existing Harbor View Subdivision and Village Park Subdivision is provided by Kunia Well II. Source and storage facilities at the Kunia Well II site, located about 0.8 miles above Village Park along Kunia Road, includes a 1.5 MG "440" reservoir and two deep wells. The petitioner has completed construction of a granular activated carbon water treatment facility at the Kunia Well II site for contaminant removal. This facility will be turned over to the Board of Water Supply (BWS). As an emergency measure until the treatment facilities are fully operational, the areas served by Kunia Wells II have been served by Hoaeae Wells.

Impact

Quantity. The project, which is located in the Pearl Harbor Ground Water Control Area (GWCA), will require 2.5 mgd (average flow) of water. The petitioner will provide one new well (0.852 mgd) to service the project; the balance of the water requirements can be served by existing water facilities. The Board of Land and Natural Resources (BLNR) recently reallocated 11 mgd in the Pearl Harbor GWCA to the BWS. The BWS has submitted a request to the DLNR to specifically increase the allocated withdrawal from Kunia Wells II well field from 0.96 mgd to 2.0 mgd.

The Board of Water Supply has accepted the water master plan for the Village Park Expansion. In order to meet the water requirements of the Village Park Expansion the Board of Water Supply has requested an additional 1.04 million gallons from the Department of Land and Natural Resources. The balance of the water necessary for the project will come from an internal Board of Water Supply reallocation. The water to be reallocated will become available as exports outside of the Pearl Harbor Basin by the Board are reduced due to source development projects in export areas which are currently planned or underway. The BWS has requested for additional permitted use for the Kunia Wells II. If the request is approved by the State Board of Land and Natural Resources, it would allow the full utilization of the Kunia Wells II and meet the future demands of the Village Park Expansion.

Compared to sugar cane irrigation, the proposed urban use will result in a net decrease in water consumption from the Pearl Harbor aquifer. Drip irrigation requires about 7500 gpad. About 20% infiltrates to recharge the aquifer, resulting in a net consumption of 6000 gpad. In contrast, the proposed project will be require 2.5 mgd, or about 3,600 gpad (2,500,000 gpd / 692 acres). Assuming negligible infiltration due to the paved surfaces, the net consumption of 3,600 is about 40% less than the amount required for drip irrigation.

Quality. Trace amounts of EDB have been detected at Kunia Wells II. The activated carbon treatment will reduce the concentrations to nearly non-detectable levels, as demonstrated by pilot-scale field tests.

Mitigation Measures

Water requirements for landscaping irrigation will be minimized by selecting drought-tolerate plant species. Alternative non-potable water sources to irrigate the golf course are being investigated.

2.3.3. WASTEWATER (see Appendix E)

Existing Conditions

Wastewater from the existing Village Park Subdivision is conveyed through a 12" and 18" trunk line to the Kunia Pump Station, Waipahu Pump Station and finally into the Honouliuli Wastewater Treatment Plant (WWTP). Honouliuli WWTP is an advance primary treatment facility. The effluent is discharged through a deep ocean outfall.

Impact

Average daily wastewater flow generated by the development will be approximately 1.3 mgd. The first 1000 units can be

accommodated by the existing facilities. The petitioner will provide a new trunk sewer, with a capacity of 2.7 mgd, that will convey the sewage to Waipahu Sewage Pump Station (SPS).

As discussed in section 2.3.3 (Wastewater), there is an additional 1,000 unit capacity at both the Honouliuli WWTP and the Waipahu WWPS. Approval of the Waitec Development in total would require the expansion of both the WWTP and the WWPS. If Federal funds are not available for the expansion then the additional capacity would have to be funded through additional County and State appropriations. It is anticipated that these appropriations would be based on requests from the City administration based on recommendations made by the Department of Public Works. The Department of Public Works is constantly monitoring the flows at its various pump stations and treatment plants as well as future development approvals in order to make funding requests of the City Council.

Mitigation Measures

None necessary, since expansions to the Waipahu SPS and Honouliuli WWTP could accommodate the projected wastewater flows.

2.3.4. SOLID WASTE (see Appendix E)

Existing Conditions

The City and County of Honolulu provides refuse collection service for the existing Village Park Subdivision. The refuse is disposed at the county-operated Waipahu Incinerator or at the privately operated Palailai Sanitary Landfill (SLF).

Impact

Fully developed, the proposed project would generate approximately 30 tons of mixed commercial, institutional, and residential solid waste per day. This quantity represents about one percent of the total solid waste generated on Oahu each day at the present time. The proposed light industrial activity is not anticipated to generate hazardous wastes.

Refuse collection services will be provided by both government and private work forces. The City and County services single family residences, while private collectors service commercial and business establishments. Apartment units can be served by either the City and County or private collectors.

Although the Palailai SLF is expected to be closed within two to three years, the Waipahu Incinerator will be kept in service indefinitely. Furthermore, the City and County and the private industry are both pursuing government approvals to establish sanitary landfills at Waimanalo Gulch and Makaiwa Gulch, respectively. These additional landfills would accommodate

future growth in Central and Leeward Oahu until the City and County's resource recovery plant at Campbell Industrial Park is constructed.

Mitigation Measures

If hazardous waste is generated, disposal methods will conform to strict standards established by the Department of Health and U.S. Environmental Protection Agency.

2.3.5. DRAINAGE (see Appendix E)

Existing Conditions

The proposed project site is within the Waikele Stream hydrological basin that has a total drainage area of about 29,000 acres. Waikele Stream originates in the western slopes of the Koolau range, courses through Central Oahu, and discharges with an annual average flow of 25 mgd into Pearl Harbor (Middle Loch).

The flood insurance hazard rating for this area is Zone C, areas of minimal flooding. Any proposed structures will not require special flood-proofing measures.

There is an existing ponding earth reservoir within the proposed development site that is being utilized for agricultural purposes. The incoming and outgoing flows are controlled by Oahu Sugar Co.

Impact

Approximately 60% of the storm runoff (1900 cfs) generated by the new development will discharge through the existing Village Park drainage system. The other 40% (1275 cfs) will drain into Waikele Stream.

Development of the project site is not expected to have any noticeable impact upon the flow levels or water quality of Waikele Stream. This conclusion is based on the relatively small area of that portion of the project site that drains into Waikele Gulch (275 acres) as compared to the large area of the Waikele Stream hydrological basin (29,000 acres). Water quality impacts from construction activities will be mitigated through erosion control measures in compliance with the county grading ordinance.

The existing earth reservoir will be filled and used as part of the golf course, thus eliminating any concerns.

Mitigation Measures

None necessary since existing and proposed facilities are adequate to serve the proposed project.

2.3.6. ELECTRIC AND TELEPHONE SYSTEMS (see Appendix E)

The electric and telephone services for the existing Village Park Subdivision are available from HECO and HECO facilities on Kunia Road.

Impact

HECO and HECO facilities must be improved.

HECO already owns a lot on Kunia Road of sufficient size to accommodate the improvements. HECO will need to construct a substation initially with one 10 MVA transformer to service the additional load. This, in turn, will require the new construction of two 46kv feeders on Kunia Road from existing lines makai and mauka. This total 46kv line construction of about three quarters of a mile length on Kunia Road will require prior approval from the State Department of Transportation.

HECO facilities are also inadequate to service the proposed project. HECO proposes to install a remote switching unit within the project site.

Mitigation Measures

Work for all HECO and HECO facilities, including the relocation of existing cables underground, will be planned to coincide with the Kunia Road widening.

2.3.7. POLICE PROTECTION

Existing Conditions

City and County police facilities are presently located at a substation in Pearl City on Waimano Home Road.

Impact

Adequate police service can be maintained in the Village Park area provided sufficient personnel and vehicles are added. The primary concern is the increased traffic and its impact on public safety (see letter from Police Chief, Appendix I). Traffic impacts will be mitigated as described below.

Mitigation Measures

Proposed traffic improvements are described in section 2.3.1 (adequacy of transportation facilities) and Appendix F (traffic engineering report).

The cost for additional police officers and vehicles will be offset by the tax revenues generated from the project. For more detail, see section 2.4.1 and Appendix G (fiscal impact analysis).

2.3.8. FIRE PROTECTION

Existing Conditions

A City and County fire station is located at 94-121 Leonui Street, Waipahu Industrial Park. A new fire station is being considered in the Waikele area to service the future Waikele development and Gentry Waipio. Additional fire stations in the region are located at Pearl City and Makakilo.

The Village Park area (including the proposed expansion) receives fire protection from the Waipahu Fire Station, housing an engine and ladder company. Secondary service is provided by an engine company at Pearl City Fire Station, and engine and ladder companies from the Waiiau Fire Station.

Existing fire protection for the Village Park area (including the proposed expansion) is considered marginal in terms of distance and response time. Future development, mauka of Village Park, will require an additional fire station housing an engine company in the Kunia area.

Impact

The two fire stations, located at Waipahu and Waikele, would be adequate to serve the proposed project. Waipahu Fire Station would be 3.5 miles from the furthest point of the proposed project. The proposed Waikele/Gentry Waipio Fire Station would be about the same distance as the Pearl City Fire Station because of the need to travel around Waikele Gulch. Pearl City and Makakilo Fire Stations would be 5 and 6 miles from the proposed project, respectively, and would provide adequate back-up service. Further development in the surrounding areas would eventually require an additional fire station in the upper Kunia area (see letter from the Fire Chief, Appendix I).

Mitigation Measures

None necessary, since existing and planned facilities are adequate to serve the proposed project.

2.3.9. SCHOOLS

The proposed project would become a part of the state's Waipahu educational complex. This complex consists of the following schools:

Grade levels (K-6): Ahrens, Honowai, Waipahu, Kanoelani
Intermediate (7-8): Waipahu Intermediate
High school (9-12): Waipahu High School

Students from the existing Village Park currently attend Kanoelani Elementary School (Crestview), Highlands Intermediate (Pearl City), and Pearl City High School.

Impact

The proposed project would generate sufficient students to justify the opening of a new elementary school at the existing Village Park school site. Grade school students from the existing Village Park would continue to attend Kanoelani Elementary School until the opening of the new school.

A second elementary school site will be reserved within the proposed project. If the need for another elementary school does not materialize, the site will be converted to residential use.

Waipahu Intermediate and Waipahu High School can be expanded to accommodate the new students from the proposed project (see letter from Department of Education, Appendix I).

Mitigation Measures

None necessary since a 6-acre school site has already been dedicated to the state for construction of a new elementary school within the existing Village Park Subdivision and a second 6-acre site has been reserved within the proposed project and necessary class room at intermediate and high school levels can be provided as part of the Department of Education overall development program.

2.3.10. PARKS

Existing Conditions

The Park Dedication Ordinance (Chap. 22, Article 7, Revised Ordinances of Honolulu) requires a developer to dedicate sufficient land or pay a fee in lieu of land in order to meet the recreational needs of the project's residents. The minimum standards require a dedication of 350 square feet of park per residential unit. These provisions are implemented through the subdivision approval process.

Impact

The developer proposes to dedicate a total of 21 acres to the city for three separate parks. The 21-acre dedication meets the standards of the Park Dedication Ordinance. Acceptance of the land by the city commits public funds for site improvements and maintenance.

Mitigation Measures

Additional public funds will be needed to improve and maintain the park sites. These impacts are acceptable since the tax revenues generated from the project will offset the costs. For more detail, see section 2.4.1 and Appendix G (fiscal impact analysis).

2.3.11. HEALTH CARE SERVICES

Health care facilities in the Waipahu region include the Waipahu Clinic and the Punawai Clinic (Kaiser Foundation). The Waipahu Clinic has a staff of about 70 doctors, nurses, and aides, 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, children's health services, leprosy clinics, and complete mental health services. The nearest hospital services are available at Wahiawa General Hospital.

Impact

The existing facilities would be adequate to serve the residents of the proposed project.

Mitigation Measures

None necessary.

2.4. FISCAL IMPACT AND BENEFIT-COST ANALYSIS

Fiscal impact analysis is concerned with the financial impact of private development on the public sector's capital improvement and operational budgets. Cost-benefit analysis examines both economic and non-economic impacts that may be conferred differentially on various groups in the community.

2.4.1. FISCAL IMPACT

Fiscal impact analysis is a projection of the direct public (state and county) costs and revenues associated with residential and nonresidential growth. Only direct impacts are considered because indirect impacts, such as increased property values of parcels adjacent to shopping centers, are impossible to predict accurately and may result in double counting. Only public costs and revenues are considered, as distinguished from private costs incurred by the developer and passed on to the consumers. Such private costs include dedication requirements for parks and infrastructure, as well as private services provided by homeowners' associations. All costs and revenues are expressed in 1985 dollars; the effects of inflation would not significantly change the relative relationship of costs and revenues.

Revenues. Revenues to the State will be generated during the construction and operational phases of the proposed project. During the construction phase, the project will generate an estimated \$29.9 million, or about \$4.3 million per year during the 7-year construction period. Revenue sources include a 4 percent excise tax on finished development, excise taxes on building materials, 0.05 percent conveyance tax, and State income taxes.

During the operational phase, the project will generate about \$6.8 million per year to the State. The sources of revenue include:

- o income taxes-- about \$4.0 million per year;
- o excise tax on retail sales (4%)-- about \$1.1 million per year;
- o excise tax on wholesale sales (0.5%)-- about \$0.1 million per year;
- o other (inheritance and estate taxes, conveyance taxes, licenses and permits, fines, forfeits, and penalties, charges for services)-- about \$177 per resident, or \$1.6 million per year.

Revenues to the County will be generated during the operational phase at about \$4.6 million per year. Revenue sources include:

- o Property taxes-- about \$2.9 million per year from residential and commercial/industrial property;
- o Other (license and fees for motor vehicles, bicycles,

relicensing, and animals; user charges for sewers, water, public transportation; motor fuel tax)-- about \$185 per resident, or \$1.7 million per year.

Expenditures. All major capital improvements for the project, with the possible exception of regional highway improvements, will be provided by the petitioner. The only government capital expenditures to serve the project will be the cost for an elementary school and for park development on land donated by the developer. The estimated cost to the county for the park improvements is \$ 1 million; the debt service is about \$0.1 million per year (assuming financing with an 8.5%, 30-year bond). The estimated cost to the state for the school improvements is \$1.7 million; the debt service is about \$0.2 million per year.

Operational expenditures to support residents of the proposed project will be about \$3.1 million for the County and \$5.7 million for the State. These expenditures are estimated at \$333 and \$615 per resident per year for the County and State, respectively, and are based on analysis of County and State finances, with appropriate adjustments for federal and State grants and transfers. The expenditures cover general government, public safety, health, sanitation, education, culture and recreation, water, highways and streets, and public transportation.

Net Impact. For the County, revenues are expected to exceed expenditures by about \$1.5 million per year. For the State, the \$29.9 million construction-generated revenue will more than offset the \$1.7 million expense to develop an elementary school. In addition, tax revenues generated during the operational phase of the project will exceed annual expenditures by about \$1.1 million per year if debt service on the school is included, or \$1.3 million per year if it is not (see Table 2-5).

2.4.2. BENEFIT-COST ANALYSIS (see Appendix H)

The principal benefit of the project will be its contribution to an improved housing market on Oahu-- an increased supply of homes, increased competition with other land owners and housing developers, a variety of homes at prices which range from affordable to moderately expensive, land to be provided to the City and County of Honolulu for low- to moderate-income rental housing, conveniently located homes, and timely development. Homebuyers throughout Oahu would benefit, particularly those in Ewa and Central Oahu.

Recreational benefits will include the addition of three parks, a private recreational area, and a golf course. Residents of the proposed project and the existing Village Park will benefit from the parks and golf course. Other Oahu residents will benefit indirectly in terms of reduced congestion at other parks and golf courses.

**PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES**

**Table 2-5. VILLAGE PARK EXPANSION, IMPACT ON STATE
AND COUNTY FINANCES: SUMMARY**
[In 1985 dollars.]

Item	Amount	Units
COUNTY, Full Operations:		
Revenues ¹	\$ 4.6	million per year
Expenditures:		
Debt Service	0.1	
O&M, and Services ²	<u>3.0</u>	million per year
Total County Expenditures	\$ 3.1	million per year
Net County Revenues	\$ 1.5	million per year
STATE:		
Construction Phase, Average Revenues	\$ 4.3	million per year
Full Operations:		
Revenues ¹	\$ 6.8	million per year
Expenditures:		
Debt Service	\$ 0.2	million per year
O&M, and Services ²	<u>5.5</u>	million per year
Total State Expenditures	\$ 5.7	million per year
Net State Revenues	\$ 1.1	million per year
STATE AND COUNTY, Full Operations:		
Revenues ¹	\$ 11.4	million per year
Expenditures ²	<u>8.8</u>	million per year
Net State and County Revenues	\$ 2.6	million per year

¹Excludes State and Federal transfers to the County, and Federal transfers to the State.

²Assumes the same level of per-capita government service as currently.

The increased population in the area will justify expanded government services (schools, police, and fire), with the proposed project residents paying their fair share for these services through State and County taxes. The additional population should justify constructing a new elementary school, with resulting safety and convenience benefits for parents and children of the existing Village Park who currently travel to distant schools. Furthermore, the additional population should also support the planned commercial area, providing neighborhood conveniences to the residents of the proposed project and the existing Village Park.

An additional benefit will be increased employment at the proposed commercial, business, and recreational areas. Construction employment will also benefit the construction labor force.

The proposed project, individually or in combination with major projects proposed for Ewa and Central Oahu, will not adversely affect the economic viability of Oahu Sugar Company, nor will it require layoffs of sugar workers. Similarly, it is extremely doubtful that the proposed project will adversely affect growth of diversified agriculture and aquaculture in Hawaii. Also, the greenery of sugarcane will be replaced by the lawns, trees, and shrubbery typical of suburban neighborhoods.

Potential Minor Variation in Benefit-Cost Analysis

As discussed in section 2.3.3 (Wastewater), there is an additional 1,000 unit capacity at both the Honouliuli WWTP and the Waipahu WWPS. Approval of the Waitec Development in total would require the expansion of both the WWTP and the WWPS. If Federal funds are not available for the expansion then the additional capacity would have to be funded through additional County and State appropriations. It is anticipated that these appropriations would be based on requests from the City administration based on recommendations made by the Department of Public Works. The Department of Public Works is constantly monitoring the flows at its various pump stations and treatment plants as well as future development approvals in order to make funding requests of the City Council.

There should be no impact on State and County Finances if this project triggers sewage facilities expansion beyond those considered in the State and County impact analysis. This is because the estimated expenses were increased to provide current levels of services and therefore should include the necessary debt service to handle capital costs.

However, even if this expenditure is in addition to projected expense, cost estimates provided in the Water Quality Management Plan for the City and County of Honolulu October 1978 inflated to 1986 dollars on a per person basis are \$144 for primary treatment and \$284 for secondary treatment. If the Village Park Expansion were to require that service for 10,000

persons be provided then even at the secondary level total cost would be \$2,840,000. Using the same financing estimates used in the Decision Analysts Hawaii Study (30 year 8 1/2% bond) indicates an average annual debt service of \$264,000 or a 10% reduction in the estimated \$2.6 million dollar positive impact of the development on State and County Finances.

The EIS consultant believes that this possible reduction in the positive benefits of the development on State and County finances is insignificant and doubtful in light of the fact that increases in debt service were already considered in the expense portion of the State and County Impact Analysis.

3.0 RELATIONSHIP TO LAND USE POLICIES AND REGULATIONS

State and county land use policies that are relevant to the proposed project are identified and analyzed in this chapter. State policies are expressed in the State Land Use Law (Chapter 205, HRS), State Plan (Chapter 226, HRS), and State Functional Plans. County policies are expressed in the General Plan, Development Plans, and zoning ordinance.

3.1 STATE LAND USE LAW

The 1985 Legislature replaced the Interim Land Use Guidance Policies (formerly Section 205-16.1, HRS) with a new set of criteria (Act 230/85 and codified as Section 205-17, HRS). The new criteria fall into three categories: (1) conformance with the State Plan, (2) conformance with the applicable district boundary standards contained in the Land Use Commission's (LUC) rules and regulations, and (3) impact on particular statewide concerns. This section will discuss the district boundary standards and the impact on statewide concerns. The State Plan is discussed in section 3.2.

A boundary change amendment request is pending before the Land Use Commission.

3.1.1. Conformance with the Urban District Boundary Standards (Section 205-17(2), HRS)

The applicable standards are found in the LUC District Boundary Regulations (Section 2-2).

Proximity to centers of trading and employment facilities except where the development would generate new centers of trading and employment.

The proposed site is in proximity to several employment centers, including Pearl Harbor/Airport, Ewa, and Schofield/Wahiawa. Existing Village Park residents work in Honolulu (50%), Pearl City (17%), airport (13%), central Oahu (10%), Waipahu (7%), and windward Oahu (3%). The project site is also conveniently located to the proposed secondary urban center at Ewa. In addition, the proposed commercial and industrial areas within the project site will generate new employment opportunities. For more detail, refer to section 2.2.3 (employment) and Appendix C (socio-economic study).

Substantiation of economic feasibility by the petitioner.

The proposed project is economically feasible, as demonstrated by the petitioner's finances (Appendix J), market projections (section 1.6 and Appendix A), and fiscal impact (section 2.4.1 and Appendix G).

Proximity to basic services such as sewers, water, sanitation, schools, parks, and police and fire protection.

The proposed project is in proximity to facilities and services that serve the existing Village Park and Waipahu Town. These facilities can be expanded at reasonable cost to adequately service the proposed project. For more detail, see sec. 2.3 (adequacy of public facilities and services), Appendix E (engineering study), and Appendix I (letters from agencies).

Sufficient reserve areas for urban growth in appropriate locations based on a ten (10) year projection.

Hawaii has been experiencing a housing shortage for the past 25 years. An annual shortfall of housing units on Oahu from 1983 to the year 2005 is estimated to be between 2,200 - 3,000 units. The market study (Appendix A) estimated that the market would absorb the proposed units at an average of 430 units per year based on the type of units being offered and the timing of the project relative to other proposed projects. The proposed project would contribute towards mitigating the chronic housing shortage problem. For more detail, see sec. 1.6 (feasibility analysis) and Appendix A (market study).

Lands included shall be those with satisfactory topography and drainage and reasonably free from the danger of floods, tsunami and unstable soil conditions and other adverse environmental effects.

The proposed site is highly suitable for urban development: its topography is relatively flat and non-stony, it is not prone to flooding or other natural hazards, and the soils are stable. For more detail, see sec. II.A (Physical environment).

In determining growth for the next ten years, or in amending the boundary, lands contiguous with existing urban areas shall be given more consideration than non-contiguous lands, and particularly when indicated for future urban use on State or County General Plans.

It shall include lands in appropriate locations for new urban concentrations and shall give consideration to areas of urban growth as shown on the State and County General Plans.

The proposed project site is contiguous with the existing Village Park. The petitioner has applied for an amendment to the county development plan to redesignate the proposed site from agriculture to urban use. The county administration favors increased urban growth in the area.

It shall not include lands, the urbanization of which will contribute towards scattered spot urban development, necessitating unreasonable investment in public supportive services.

The proposed site is contiguous to existing urban areas.

Supportive services will be provided by the petitioner or will be offset by tax revenues generated by the project. For more detail, see sec. 2.4.1. and Appendix G (fiscal impact).

It may include lands with a general slope of 20% or more which do not provide open space amenities and/or scenic values if the Commission finds that such lands are desirable and suitable for urban purposes and that official design and construction controls are adequate to protect the public health, welfare and safety, and the public's interests in the aesthetic quality of the landscape.

The only lands within the project site with slopes exceeding 20% are the two gulches. These lands will be left in open space (e.g., golf course, park). For more detail, see sec. 1.2.1 (land use plan) and 2.1.1 (topography).

3.1.2. Impact on Areas of Statewide Concern (sec. 205-17(3), HRS)

Preservation or maintenance of important natural systems or habitats.

There are no native or endangered species habitats within the vicinity of the proposed project site. The Waikele stream habitat will not be affected by the project. For more detail, see sec. 2.1.4. (flora/fauna) and 2.3.5. (drainage).

Maintenance of valued cultural, historical, or natural resources.

There are no valued cultural, historical, or scenic resources within the project site. For more detail, see sec. 2.1.1 (topography), 2.1.5 (archaeological/historical resources), and Appendix B (archaeological survey).

Maintenance of other natural resources relevant to Hawaii's economy, including, but not limited to, agricultural resources.

Although prime agricultural land will be lost, this acreage is not essential to maintain the viability of the sugar industry or diversified agriculture. For more detail, see sec. 2.2.5 (economic impacts), 3.2 (state plan), and Appendix D (impact on agriculture).

Commitment of state funds and resources.

The only state capital expenditures resulting from the proposed project will be the new elementary school located within the existing Village Park and possibly a second elementary school located within the proposed project. The cost to construct both schools will be more than offset by the \$29.9 million projected construction-generated tax revenues. The increased operational expenses for such public services as public safety, maintenance of streets and highways, education, culture and recreation will

be offset by income and excise tax revenues contributed by the project's residents and businesses. For more details, see section 2.4.1 and Appendix G (fiscal impact).

Provision for employment opportunities and economic development.

The proposed project will continue the full-time construction jobs connected with the existing Village Park (about 400 jobs). In addition, employment opportunities (about 800 jobs) would be generated by the proposed commercial-industrial area and the golf course. For more detail, see section 2.2.3 (employment) and Appendix C (socio-economic study).

Provision for housing opportunities for all income groups, particularly the low, low-moderate, and gap groups.

The project will offer a mix of housing types to attract a range of income groups. About 76% of the proposed fee simple units are targeted for moderate income groups. In addition, 30 acres will be dedicated to the county to construct about 480 rental units for the low-moderate income groups.

3.2. STATE PLAN AND FUNCTIONAL PLANS

The reclassification of land from agriculture to urban raises three major issues addressed by the State Plan: (1) reconciliation of competing policies between provision of affordable housing and preservation of prime agricultural land; (2) population distribution patterns; and (3) compatibility with facility plans. Conformance with the State Plan, Priority Guidelines, and Functional Plans is analyzed in terms of these policy issues.

Agriculture v. Housing

According to the ALISH classification, 691.5 acres of the proposed project site consists of prime agricultural land. The economic rationale for Hawaii's long-standing policies to protect prime agricultural land are two-fold: (1) to maintain the viability of sugar and pineapple industries, and (2) to encourage the growth of diversified agriculture. On the other hand, there is an acute need for affordable housing. Land use policies that protect prime agricultural land have the effect of limiting the supply of land for housing, thus contributing to the high urban land costs and the widely recognized high cost of housing.

The pertinent statements from the State Plan and functional plans are listed in Table 3-1. These statements are primarily from the State Plan sections on the "Economy-- Housing," "Socio-cultural Advancement-- Housing," the Agricultural Functional Plan, and the Housing Functional Plan. The factors discussed below were distilled from the policy statements in Table 3-1.

Table 3-1. PERTINENT OBJECTIVES AND POLICIES FROM THE STATE PLAN, PRIORITY DIRECTIONS, AND FUNCTIONAL PLANS

AGRICULTURE

Economy-- Agriculture (sec. 226-7)

OBJECTIVES (Sec. 226-7(a), HRS):

- (1) Increase viability in sugar and pineapple industries.
- (2) Continue growth and development of diversified agriculture throughout the State.

POLICIES (Sec. 226-7(b), HRS):

- (6) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.

HOUSING

Socio-Cultural Advancement-- Housing (226-19)

OBJECTIVES (Sec. 226-19(a), HRS):

- (1) Greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary, livable homes located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals.
- (2) The orderly development of residential areas sensitive to community needs and other land uses.

POLICIES (Sec. 226-19(b), HRS):

- (2) Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and upper group households.
- (3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.
- (5) Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.
- (6) Facilitate the use of available urban lands to accommodate the housing needs in various communities.

PRIORITY DIRECTIONS

Seek to protect prime agricultural and aquacultural lands through affirmative and comprehensive programs (sec. 226-103(d)(1)).

PRIORITY DIRECTIONS:

Seek to provide for adequate housing to meet the needs of Hawaii's people without encouraging an additional influx of people (226-104(a)(4)).

Encourage CIP expenditures, public services, and housing developments that recognize the needs and preferences of the counties (226-104(b)(5)).

Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures. Secondly, encourage urban growth away from areas where other important benefits are present, such as protection of valuable agricultural land or preservation of life styles [104(c)(2)].

AGRICULTURE

Agricultural Functional Plan

IMPLEMENTING ACTIONS:

Promote amendment to the State Land Use Law to provide standards and criteria to conserve and protect important agricultural lands. [B(5)(a), Agricultural Functional Plan].

Identify important agricultural lands to promote diversified agriculture, increase agricultural self-sufficiency, and assure the availability of agriculturally suitable lands. [B(5)(b), Agricultural Functional Plan]

Until standards and criteria to conserve and protect important agricultural lands are enacted by the Legislature, important agricultural lands should be classified in the State Agricultural District and zoned for agricultural use, except where, by the preponderance of the evidence presented, substantial injustice or inequity will result or overriding public interest exists to provide such lands for other economic or social objectives of the Hawaii State Plan. [B(5)(c), Agricultural Functional Plan]

HOUSING

IMPLEMENTING ACTION:

Assess and delineate lands suitable for future housing development [B(1)(e), Housing Functional Plan].

Comments: . . . Identification of lands suitable for future housing development would be made by the counties as a continuation of general and development plans and should specifically be made in consonance with important agricultural lands.

1. Water availability should be considered for future housing development with regard to designated important agricultural lands, and be made on an area-by-area basis.
2. The location of areas identified for future housing development should consider the proximity of existing and planned urban development in order to maximize energy conservation efforts by encouraging compact, concentrated developments.
3. Consideration should be given to the cost of building infrastructure, utilities and providing open space.
4. Consideration should be given to the feasibility of the use of existing urban lands for housing.
5. Development should avoid critical environmental areas, including but not limited to, watershed and recharge areas, important wildlife habitats, streams and water bodies, scenic or recreational shoreline, and historic and cultural sites. . .

Encourage the use of opportunities and incentives in the State land use redistricting process to provide lands or homes for affordable or assisted housing development. [A(2)(c), Housing Functional Plan]

- o Impact on the viability of sugar or pineapple (sec. 226-7(a)(1), HRS)

Although the proposed project will utilize land presently leased by Oahu Sugar Co., the project will not affect the viability of Oahu Sugar Company (see Appendix I). The petitioner will absorb costs to relocate cane-haul roads, irrigation ditches and pipes, an earthen reservoir, and power poles. The reduction in sugarcane acreage will be gradual and partially compensated for by increasing yields. Oahu Sugar Co. can maintain its economies of scale by running only one of two mills currently in operation. For more detail, see section 2.2.5.1 and Appendix D (impact on sugar industry).

- o Impact on the projected amount of land needed for diversified agriculture (sec. 226-7(a)(2), 226-7(b)(2), HRS)

The agricultural acreage in the project site is not needed by the diversified agriculture industry. The sugar and pineapple industries have been declining in Hawaii. As land and water are freed by plantation cutbacks, the only remaining rationale to preserve prime agricultural lands is if diversified agriculture is able to take the place of sugar and pineapple.

Primarily due to market limitations, diversified agriculture has not grown as fast as sugar and pineapple are declining. Generally, the export sector of diversified agriculture has more growth potential than the local market sector. This means that the demands of increased population and increased buying power are being met by increased imports. In other words, Hawaii has suffered a further loss of self-sufficiency.

The State projects that approximately 20,000 acres will be needed for diversified agriculture by the year 1990 (DPED, 1985). Because of reduced plantings in sugar cane and pineapple in the past and likely future, a surplus of prime agricultural land exists on the neighbor islands and on Oahu to more than meet the projected needs of diversified agriculture, even if the proposed site is converted to urban use. Thus, although the proposed site is considered prime agricultural land, it is not essential to the future growth of diversified agriculture. For more detail, see section 2.2.5.2 and Appendix D (impact on diversified agriculture).

- o Suitability for agriculture (sec. 226-7(b)(6), 226-104(c)(2), HRS; Implementing Actions B(5)(a), B(5)(b), B(5)(c), State Agricultural Functional Plan)

The proposed site has some constraints that limit its suitability for agriculture. The State Plan Priority Directions (sec. 226-104(c)(2), HRS) and Housing Functional Plan (B(1)(a)) indicate that if housing cannot be accommodated by existing urban areas, then urban growth should be preferably directed to marginal agricultural lands. The determination of "marginal"

quality is complex-- it must consider physical characteristics such as soil conditions, climate, and topography; it must also consider non-physical characteristics such as county policies, availability of irrigation water, distance from urban infrastructure systems, and compatibility with surrounding land uses. This difficult task has been delegated to the Land Evaluation Site Assessment (LESA) Commission (Act 273/83).

The LESA Commission developed preliminary criteria (LESA Commission, 1985). Based on this criteria, the project site is considered highly suitable for agriculture by the physical criteria. However, the site has the following non-physical constraints:

- 1) County policies-- The General Plan indicates that diversified agriculture is to occur primarily in the Windward and Waianae areas; agricultural lands in the Central Oahu area are to be preserved only as needed to maintain the viability of sugar or pineapple. Since Oahu Sugar Company has stated that no adverse impact on their operations would occur from withdrawing the project site from agriculture, withdrawing the project site from agricultural use would not be incompatible with the General Plan policies. The General Plan directs future urban growth substantially to the Ewa and Central Oahu areas.
- 2) Dependence on large amount of irrigation water-- Without irrigation, the project site would be classified as D or E by the LSB system, or III or IV by the SCS system. Sugar cane crops have a particularly high water demand, averaging about 7,500 gpad for drip irrigation. Lands in lower elevations with plentiful sunshine and inexpensive irrigation water are more desirable than higher elevation land with more expensive pumping costs.
- 3) Contiguity to urban areas-- Because of the contiguity to existing urban areas, the pressures to urbanize are greater due to the readily available infrastructure and higher land values.

The policies for protecting prime agricultural land have been in a state of transition. In surveys conducted for the State Plan Revision, the sentiment for protecting agricultural land has consistently lost support over the years when residents were asked to choose between more affordable housing or preserving prime agricultural land (DPED, 1985).

- o Delivery of a variety of affordable housing units (sec. 226-19(a)(1), 226-19(b)(2)(3), HRS);

The State Plan policies encourage development of existing urban areas in hopes of meeting the demand for affordable housing while relieving development pressures in the urban fringe areas.

However, the delivery of affordable housing in existing urban areas is constrained by high land costs, small parcels that require consolidation, and the social dislocation and additional demolition costs to clear away existing structures.

In comparison, the proposed project is better able to ensure the delivery of affordable housing prices because of the following characteristics:

- 1) Relatively low site preparation costs-- Mass grading of former agricultural lands is very cost-effective. The physical attributes that make the land suitable for agriculture (i.e., flat, rock-free, deep soil) are also the easiest to develop for urban use because of ease in installing underground utilities and constructing roads (LSB, 1969).
- 2) Available utilities-- Existing water and sewer facilities are available for the first 1000 units, and can be readily expanded to accommodate the balance of the proposed project.
- 3) Mobilized development team-- Since the proposed project will continue the existing Village Park project, the construction and sales teams are already assembled.

Besides providing affordable fee simple homes, affordable rental units will be provided through the combined efforts of the petitioner and the county. The petitioner will dedicate 30 acres of land to the county for the construction of about 480 units.

- o Suitable location relative to employment and public facilities (sec. 226-19(a)(2), 226-19(b)(5), HRS; Implementing Action B(1)(a), State Housing Functional Plan)

The proposed project site is conveniently located near to employment centers, including Honolulu/Pearl Harbor, the future secondary urban center at Ewa, and Schofield/Wahiawa. Access to the H-1 freeway by means of the Kunia Interchange is located one-third of a mile away.

Existing sewer and water facilities are adequate to accommodate the initial two years of the project. Additional facilities required to service the balance of the project can be reasonably provided by the petitioner.

- o Potential inducement for urbanization of surrounding agricultural lands (sec. 226-19(a)(2), 226-104(a)(2), HRS).

The potential for induced urbanization of surrounding agricultural lands is limited. The only agricultural land susceptible to urbanization is the acreage located adjacent to the northern boundary of the project site. Additional urbanization is constrained by gulches which serve as natural barriers to the north and east.

Population Distribution

Population distribution policies guide land use decisions by determining where future growth should occur. Pertinent State Plan policies and priority directions are excerpted in Table 3-2.

The primary determinants for locating future growth, as synthesized from the policy statements in Table 3-2, are discussed below.

- o Adequacy of urban rehabilitation efforts to meet housing needs (HRS sec. 104(c)(1) and (2))

Reliance on urban infilling and rehabilitation will not completely satisfy the need for affordable housing. Most of the population capacity projected for the Primary Urban Center and, to varying degrees, those projected in other areas come from plans for redevelopment and infilling of previously passed over sites. The projections for development in these areas are overly optimistic for the following reasons:

- 1) They ignore the public and special interest groups' awareness and propensity to use their ability through legal and political means to stop or delay projects which may have a negative impact either socially or economically on their property or the community.
- 2) They ignore the immense number of factors which must all come together to make a redevelopment physically and economically attractive, and the human constraints on undeveloped and underdeveloped properties.

For more detail, see section 1.6.1 and Appendix A (market analysis).

- o Presence of critical habitats on proposed site (HRS sec. 226-104(c)(2) and (4))

No critical resources will be irretrievably damaged by the project. There are no native or endangered species habitats or archaeological sites within the project site. For more detail, see section 2.1.4 (flora/fauna).

- o Adequacy of support services and facilities (HRS sec. 226-5(b)(3))

The petitioner will provide the necessary support facilities for sewer, water, roads, and drainage. Tax revenues generated by the project will exceed the costs of facilities and services that will be publicly funded. For more detail, see section 2.4.1 and Appendix G (fiscal impact analysis).

Table 3-2 . PERTINENT POLICY STATEMENTS FROM THE HAWAII STATE PLAN: POPULATION DISTRIBUTION

POPULATION

Objectives and Policies

Manage population growth statewide in a manner that provides increased opportunities for Hawaii's people to pursue their physical, social and economic aspirations while recognizing the unique needs of each county. (HRS sec. 226-5(b)(1)).

Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires. (HRS 226-5(b)(2)).

Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the state. (HRS 226-5(b)(3)).

Promote increased opportunities for Hawaii's people to pursue their socio-economic aspirations throughout the islands. (HRS sec. 226-5(b)(4)).

Priority Directions

Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area. (HRS sec. 226-104(b)(2)).

PHYSICAL ENVIRONMENT:

Objectives and Policies

Take into account the physical attributes of areas when planning and designing activities and facilities. (HRS sec. 226-11(b)(3)).

Encourage design and construction practices that enhance physical qualities of Hawaii's communities. (HRS sec. 226-13(b)(6)).

Encourage urban developments in close proximity to existing services and facilities. (HRS sec. 226-13(b)(7)).

Priority Directions

Pursue rehabilitation of appropriate urban areas. (HRS sec. 226-104(c)(1)).

Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures. Secondly, encourage urban growth away from areas where other important benefits are present, such as protection of valuable agricultural land or preservation of lifestyles. (HRS sec. 226-104(c)(2)).

Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimal. (HRS sec. 226-104(c)(4)).

- o Availability of water (HRS sec. 226-104(b)(2));

Sufficient water is available. Since the project site is within the Pearl Harbor Ground Water Control Area (GWCA), allocation of groundwater is controlled by DLNR. DLNR recently allocated about 11 mgd to the BWS. The BWS in turn will allocate this 11 mgd to proposed development projects in Central Oahu and Ewa. The BWS has informally reviewed the proposed project and has tentatively indicated that there is adequate water to serve the project with existing wells and one additional new well. For more detail, see section 2.3.2 (adequacy of water facilities) and Appendix E (preliminary engineering report).

- o Sensitivity of design and construction to the environment (HRS sec. 226-13(b)(6))

The site plan will consider climate, topography, wind direction, views and other environmental factors.

- o Proximity to existing services and facilities (HRS sec. 226-13(b)(7)).

The existing Village Park borders the proposed project site to the south.

Facility Planning

Land use decisions and facility planning should be coordinated to ensure that facilities have adequate capacity, as well as to ensure that facilities do not stimulate undesirable urban growth. The applicable State Plan and functional plan policies are excerpted in Table 3-3 and discussed in terms of the following factors.

- o The provision of public facilities should complement urban growth policies (HRS sec. 226-15(b)(1), 226-17(b)(2), Transportation Functional Plan Implementing Action E(1)(a)).

The proposed project conforms with urban growth policies in the State plan (see previous sections on "Agriculture v. Housing" and "Population Distribution"), the County General Plan (see section 3.3), and the County Development Plan for Central Oahu (see section 3.4). Therefore, expanding the capacity for such public facilities as highways, sewer, and water to serve the proposed project would be consistent with the state plan and other plans.

- o The provision of public facilities should not exceed resource limitations (HRS sec. 226-16(b)(1), Water Resources Functional Plan Implementing Action D(1)(a), HRS sec. 226-18(b)(5)).

The resource limits for water and energy will not be exceeded (see sections 2.3.2 and 2.3.6).

Table 3-3. PERTINENT POLICY STATEMENTS FROM THE HAWAII STATE PLAN AND FUNCTIONAL PLANS: FACILITY PLANNING

Sewerage

Encourage the adequate development of sewer systems that complement planned growth. (HRS sec. 226-15(b)(1)).

Water

Relate growth activities to existing and potential water supply. (HRS sec. 226-16(b)(1)).

Expand State exploration program for new sources of surface and ground water supply, with emphasis on areas experiencing critical water problems. (State Water Resources Functional Plan, Implementing Action D(1)(a)).

Transportation

Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives. (HRS sec. 226-17(b)(2)).

Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawaii's natural environment. (HRS sec. 226-17(b)(10)).

Support land use management policies which encourage development within urban areas by developing land transportation plans which complement that land use. (State Transportation Functional Plan, Implementing Action E(1)(a)).

Power and Communications

Ensure that the development or expansion of power systems and sources adequately consider environmental, public health, and safety concerns, and resource limitations. (HRS sec. 226-18(b)(5)).

- o The provision of public facilities should not adversely affect the environmental and neighborhoods (HRS Section 226-17(b)(10), 226-18(b)(5)).

The proposed facilities for water, sewage, drainage, transportation, electrical, or telephone will not cause any adverse environmental or social impacts (see section 2.3).

3.3. GENERAL PLAN

During the 1985-1986 Development Plan Review the Waitec Development proposal was granted partial approval. (Approximately 100 acres and 500 units were approved.) Development Plan changes can only be granted if they are in compliance with existing General Plan Requirements. Therefore, at least the portion of the project covered by the DP change is in compliance with the General Plan.

Further, the City's Chief Planning Officer recommended a General Plan change in 1986 and further recommended approval of the entire 691.5 acre contingent on the general plan change.

The General Plan five-year review will take place in 1987. It is the applicant's contention that the proposed development complies with the existing General Plan.

3.3.1. Population

The City & County of Honolulu General Plan was adopted eight years ago with a primary aim to alleviate the housing shortage. The policies focus on the development of Ewa as a major urban center second in importance to the Waikiki-Honolulu-Pearl City area and more controlled growth in urban fringe areas such as Central Oahu.

The proposed development being planned for Central Oahu strongly emphasizes residential use and the petitioner is willing to work with the City in providing for the housing needs of low, moderate, and gap group income households. Furthermore, in terms of locational considerations, Central Oahu enjoys many of the same advantages as Ewa in terms of accessibility to the transportation system and proximity to major job centers which originally led to the selection of Ewa for a secondary urban center.

It should be noted that the foregoing development opportunities are complemented by a diminished need for agricultural land in Central Oahu. Due in part to improved production practices such as the use of drip irrigation, the amounts of land needed to maintain viable sugar and pineapple operations have been significantly reduced. For example, since 1982 the Oahu Sugar Company has reduced the amount of land under cultivation for sugar cane from 18,500 to 14,200 acres resulting in a crop size reduction of only 10 percent from 100,000 to 90,000 tons.

3.3.2. Housing

Objective A, Policy 3: Encourage innovative residential development which will result in lower costs, add convenience and privacy, and the more efficient use of streets and utilities.

Objective A, Policy 8: Encourage and participate in joint public-private development of low and moderate income housing.

Objective A, Policy 11: Encourage the construction of affordable homes within established low density communities by such means as "ohana" units, duplex dwellings, and cluster development.

Objective A, Policy 12: Encourage the production and maintenance of affordable housing.

Objective C, Policy 1: Encourage residential developments that offer a variety of homes to people of different income levels and to families of various sizes.

Objective C, Policy 3: Encourage residential development near employment centers.

Objective C, Policy 4: Encourage residential development in areas where existing roads, utilities, and other community facilities are not being used to capacity.

The proposed project will offer a mix of housing types to attract people of different income levels and families of various sizes. Although a few of the units will be custom units, about 76% of the 3,000 fee simple units will be affordably priced units. The county will construct an additional 480 rental units for low-income households on land dedicated by the developer to the county. The project is conveniently located near to several employment centers.

3.3.3. Economic Activity

Objective C, Policy 4: Provide sufficient agricultural land in Ewa, Central Oahu, and the North Shore to encourage the continuation of sugar and pineapple as viable industries.

Objective C, Policy 5: Maintain agricultural land along the Windward, North Shore, and Waianae coasts for truck farming, flower growing, aquaculture, livestock production, and other types of diversified agriculture.

Although the proposed project will reduce sugar cane acreage, the viability of Oahu Sugar Co. will not be affected (see section 2.2.5.1). The major areas for diversified agriculture are the Windward, North Shore, and Waianae coasts; these are the rural areas of Oahu. The General Plan directs future growth away from those rural areas and instead focuses growth in the Primary Urban Center, Ewa, and Central Oahu.

3.3.4. Natural Environment

Objective A, Policy 4: Require development projects to give due consideration to natural features such as slope, flood and erosion hazards, water-recharge areas, distinctive land forms, and existing vegetation.

Objective B, Policy 2: Protect Oahu's scenic views, especially those seen from highly developed and heavily travelled areas.

The project design considered natural features of the site such as slope (see section 2.1.1), erosion hazards (see section 2.1.2), flood and other types of hazards (see section 2.1.6), flora/fauna (see section 2.1.4), distinctive landforms (see section 2.1.1), and scenic views identified in the Central Oahu Development Plan.

3.3.5. Recreation

Objective D, Policy 9: Require all new developments to provide their residents with adequate recreation space.

Objective D, Policy 10: Encourage the private provision of recreation and leisure-time facilities and services.

The petitioner will satisfy the requirements of the Park Dedication Ordinance by dedicating 21 acres to the county for public parks. An additional 6.9-acre private recreation facility will be constructed for the project's residents.

3.4. DEVELOPMENT PLAN

The proposed project site is within the Central Oahu planning district. The petitioner is presently seeking amendments to the land use and public facilities map. The existing land use designation is agriculture. The proposed designations are residential, low-density apartment, commercial, industrial, public, and golf course. The Waipahu Neighborhood Board No. 22, among other community groups, has expressed support for the proposed amendments (see letter, Appendix I).

During the 1985-1986 Development Plan Review the Waitec Development proposal was granted partial approval. (Approximately 100 acres and 500 units were approved.) It is the applicant's understanding that where a General Plan amendment is involved there may not be a 1986-1987 annual review. The next processing period would be the 1987 review. The Waitec Development Project has been submitted for processing during the 1987 review period and consists of 591.5 acres (the portion of the development not approved in the 1985-1986 review). The application has been filed and is under consideration by the Department of General Planning for processing.

3.5. ZONING AND SUBDIVISION

The existing zoning is AG-1. The proposed rezoning consists of the following designations: R-6 (or PD-H), A-1 (or PD-H), IMX (in anticipation of enactment of the proposed Land Use Ordinance), and P-1 (golf course and parks). A rezoning request cannot be approved unless it conforms with the General Plan and the applicable Development Plan (Revised City Charter, Section 5-412.3). Thus, rezoning will be sought upon approval of the proposed General Plan and Development Plan amendments.

To conform with the subdivision requirements, the petitioner will ensure that the public facilities provided by the petitioner are designed and built to county standards, the number and size of lots conform with the building code, the grading plans conform with erosion control guidelines, and park dedication requirements have been met.

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4.0 Probable Adverse Environmental Effects Which Cannot Be Avoided

The following adverse environmental effects, short and long run, cannot be avoided if the project is implemented as proposed:

<u>Environmental Effect</u>	<u>Mitigating Measure</u>
1. Loss of Agricultural Land	Other land is available for agricultural activities. The developer will bear the cost of relocating existing ag infrastructure.
2. Traffic: Local: Traffic congestion will increase on Kunia Road and at the Kunia Interchange. Regional: The capacity of H-1 is a regional problem shared by existing and proposed communities from Moanalua to Ewa.	The developer will improve Kunia Road and the Kunia Interchange to minimize the congestion. This problem is the subject of a Department of Transportation short and long range program that is being publicly discussed. The first phase of this program, adding additional lanes to portions of H-1, is being implemented now.
3. Clearing and construction work will result in temporary dust, noise and some traffic disruption.	The developer and its contractors will comply with local grading and subdivision ordinances which have provisions to minimize these impacts.
4. Increased need for utility services, including city supplied water and sewer.	Water consumption would be less than current agricultural use. Both the water and sewer plans must be approved by public agencies.
5. Increased need for public services such as police, fire, schools and recreational facilities.	A study of impact on state and local finances indicates that the project will generate revenues exceeding expenditures of \$2.6 million per year.

Countervailing policies are discussed in section 3 of this report. The reasons for proceeding with the proposed project in light of the adverse impacts are similarly discussed in section 3.

5.0 Alternatives to the Proposed Action

The purpose of this section 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. Six alternatives are identified within three main options:

- o Alternative land uses
 - o Industrial
 - o Commercial
 - o Agricultural
 - o Park/Recreational
- o Alternative Site Designs
- o "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 691.5 acres in terms of land use, intensity of development and building types.

ALTERNATE LAND USES

Industrial

Campbell Industrial Park, Gentry Business Park and Bougainville Commercial Center, all of which are within 10 miles of the subject property, still have industrial land available. In late 1985 six new industrial parks were being proposed at various locations on Oahu, including 40 acres in Halawa Valley and 60 acres in Sand Island.

The General Plan for Oahu and Development Plan for Central Oahu shows 250 acres for industrial use in Mililani. The first phase of the proposed development, Hawaii Technology Park, (150

acres) is in the Zoning process and is expected to be approved in 1986.

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

- o 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.
- o 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.
- o Access to the site is by the H-1 Freeway and Kunia Road, which connects Wahiawa to Waipahu.
- o Land on three sides of the site is compatible to industrial use. These areas include Waikele Gulch on the east, agricultural land to the north, highway/agricultural land use to the west. Residential use to the south could be buffered from the industrial use.
- o 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 fee, an industrial distribution center could provide needed space at economical and competitive prices.

Disadvantages of industrial use of the site include:

- o Air polluting industries would create adverse impacts.
- o Noise generation would raise complaints.
- o Implementation of this proposal may conflict with Campbell Industrial Park as a major industrial area.
- o The existence of several other industrial areas which, in combination, provide adequate facilities to meet the current demand.
- o 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.

The use being proposed includes only 28.7 acres of the site as an Industrial/Commercial Mixed Use area. The marketing study foresees 18.7 acres with industrial uses.

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. In addition the proposed Waikele Development, which is adjacent to the project on the East, contains 52 acres of Commercially designated land. Mililani is expected to commence development on a regional type commercial center within the next year.

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 land with accessible utilities and services comparable to the Village Park site are extremely limited in the Waipahu-Crestview area.

Village Park. All of the project site is currently under sugar cane production. The proposed project site is part of a land withdrawal program considered in the Oahu Sugar Company survival program. In recent years the company has voluntarily withdrawn over 4,000 acres from production--almost 25% of its acreage--while production has declined only slightly. Other lands are available for production should they be necessary.

The applicant in the EIS process is not the owner of the land and would not be able to purchase the land and then maintain it in its current use or another agricultural use at a reasonable economic rate of return.

Retaining this land in agricultural use will put pressure on other lands currently employed in agricultural uses to be converted to residential use to meet the demand for housing.

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 City and County 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:

- o 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.
- o Additionally, the DPR does not have the manpower or funds for operation and maintenance of a large scale regional park area.

The proposed development includes a privately funded golf course, recreation center and public parks which will increase the recreational amenities of the region at no cost to the public.

Alternative Site Designs

Since the Village Park Expansion was initiated a number of changes have been made.

The number of housing units, changes in land use, and other modifications are the result of input from various 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 the development plan.

The current site design is the result of over a year of planning and study with numerous changes made to the proposal based on governmental and community input.

"No Project" Alternative

Since the project site is presently in sugar production, the "no project" alternative is feasible at this time. Therefore, non-implementation would allow the land to remain in agricultural use as described in Chapter I. By allowing the agricultural use to continue, 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:

- o Selling the project site.
- o Allowing the project site to continue the current use until the demand for housing creates public or governmental pressure to utilize this area.
- o Pressure for urbanizing other agricultural lands of further development of existing urbanized areas to provide housing units that would have been provided by this project.
- o 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.

6.0 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 physical actions required to establish and develop this residential community. These actions include clearing, grubbing, installing infrastructure, constructing varied buildings and the developing of support facilities to sustain users at each stage of development.

Short-Term

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

Long-Term

- o The completed community of 3,480 residential units, infrastructure, recreational facilities, community facilities and a commercial and industrial 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.
- o The development of the project is a long-term commitment of prime agricultural land to a permanent residential community.

- o Maturing of plant materials and maintenance of the golf course and park areas and private yards will have the positive impact of increasing the livability for all occupants in the community.
- o 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. Air pollution will decrease from agricultural sources including cane burning, plowing, harvesting and transportation of harvested crops.
- o 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.
- o Job opportunities will change from short-term construction-oriented to those created by the service requirements of the intended residents. In addition, the golf course will offer employment in the recreation industry.

The urbanization of the land forecloses the land's future option for agriculture. Once the infrastructure 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 the City to make housing units available to low and moderate income families and individuals through its development of rental housing.

7.0 Irreversible and Irretrievable Commitments of Resources

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

- o Conversion of agricultural land to a long-term commitment of 30 to 50 years' urbanization would not be retrievable unless structures were demolished.
- o Building materials necessary to construct the Project will be irretrievably committed. There would be only limited salvage value.
- o Human resources and energy expended to construct, maintain, and service the project would be irretrievable.
- o Infrastructure and service consumption factors are essentially irreversible.
- o 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.
- o 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 placed on the site will result in a loss of views, vistas and existing open space.
- o Use of the land for urbanization illustrates the trend of growth in the Central Oahu area. Development will also irreversibly close another gap in the central corridor of the island.
- o The present shift in population distribution patterns towards the Ewa and urban-fringe areas will be irreversibly accommodated by implementation of the project.

8.0 An Indication of What Other Interest and Considerations of Governmental Policies are Thought to Offset the Adverse Environmental Effects of the Proposed Action

The proposed project was considered the best alternative use for the project site. The negative impacts generated by the proposed action are small when compared to the positive impacts of the project.

The project will provide needed housing, recreational benefits, convenient shopping facilities, industrial land for an employment base and an opportunity to provide housing for low and moderate income families in a desirable area through the City Department of Housing and Community Development's rental housing program.

The project is also expected to generate a 2.6 million dollar a year surplus in public revenue over public expenditure.

The project also conforms to State and City plans as discussed in section 3 of this report.

The combination of uses being proposed allows for the integration of a number of varying objectives sought by government and by the surrounding community. The alternatives considered and discussed achieve these ends to a lesser degree.

9:0 Summary of Permits and Approvals

The permits and approvals that must be obtained before construction can start are listed below. The status of these permits is also indicated. The project site is not located within the special management area; therefore, the shoreline protection ordinance and coastal zone management act are not applicable.

Necessary Permits and Approvals for the
Village Park Expansion

<u>Permit</u>	<u>Legal Reference</u>	<u>Status</u>
Land Use District Boundary Amendment	Chap. 205, HRS	Application filed 2/86
Development Plan Amendment	Central Oahu DP (Ord. No. 83-7, 84-59, 85-48)	Application filed on 1/85; decision expected by 6/86
Zoning Amendment	Chap. 21, R.O. of Honolulu	Will be filed after decision on DP amendment
EIS	Chap. 343, HRS	Notice of Preparation filed 10/86
Subdivision Approval	Chap. 22, R.O. of Honolulu	Will be filed during pendency of zoning amendment
Grading Permit	Chap. 23, R.O. of Honolulu	Processed concurrently with subdivision application
Groundwater Control Area Permit	Chap. 177, HRS	BWS applied for additional allocation

10.0 List of Consultants Involved in the Preparation of the EIS

<u>Consultant</u>	<u>Area of Participation</u>
William E. Wanket, Inc.	Consultant in charge of EIS preparation and coordination of other consultants
Roy Takeyama, Esq. Jan N. Sullivan, Esq.	Legal Consultants
Chaney, Brooks & Co. John Zapotocky, Consultant	Marketing Consultants
Chiniago	Archaeological/Historic Consultant
Community Resources	Socio-Economic Consultants
Decision Analysts	Agricultural Impact Fiscal Impact Cost-Benefit Analysis
Park Engineering	Preliminary Engineering Traffic Impact

11.0 Sent Copies of Notice of Preparation

City and County of Honolulu

Honolulu Fire Department
Dept. of General Planning
Dept. of Parks & Recreation
Board of Water Supply
Honolulu Police Dept.
Dept. of Public Works
Dept. of Transportation Services
Dept. of Housing & Community Development

State of Hawaii

Dept. of Agriculture
Dept. of Education
Dept. of Social Services & Housing (Hawaii Housing Authority)
Dept. of Transportation
Dept. of Planning & Economic Development
Dept. of Health
Dept. of Land & Natural Resources
Office of Environmental Quality Control

Federal

U.S. Army Corps of Engineers
U.S. Fish & Wildlife Service
U.S. Soil Conservation Service

University of Hawaii

Environmental Center
Water Resources Research Center

Community Organizations

The Sierra Club
Outdoor Circle
Life of the Land
American Lung Association of Hawaii
Mililani/Waipio/Melemanu Neighborhood Board
Waipahu Neighborhood Board
Wahiawa Neighborhood Board
Waipahu 2000 Association

Comments Received from Organizations and Agencies Consulted

<u>Organization/Agency</u>	<u>Date of Comment</u>	<u>Date Comment Received</u>	<u>Date of Response</u>
<u>State</u>			
Dept. of Agriculture	01/31/86	02/03/86	03/12/86
Dept. of Education	01/16/86	01/23/86	03/12/86
Dept. of Health	02/03/86	02/07/86	03/12/86
Dept. of Social Services & Housing (Hawaii Housing Authority)	*		
Dept. of Planning & Economic Development	01/29/86	02/03/86	03/12/86
Dept. of Land & Natural Resources	02/20/86	02/25/86	03/12/86
Dept. of Transportation	02/13/86	02/18/86	03/12/86
Office of Environmental Quality Control	01/24/86	01/28/86	03/12/86
University of Hawaii Water Resources Research Center	02/03/86	02/06/86	**
University of Hawaii Environmental Center	*		
<u>City and County</u>			
Board of Water Supply	02/06/86	02/10/86	03/12/86
Honolulu Fire Department	*		
Dept. of General Planning	*		
Dept. of Housing & Community Development	01/31/86	02/05/86	03/12/86
Dept. of Parks & Recreation	01/24/86	01/28/86	03/12/86
Honolulu Police Department	01/15/86	01/20/86	03/12/86
Dept. of Public Works	02/04/86	02/06/86	03/12/86
Dept. of Transportation Services	01/15/86	01/17/86	03/12/86
<u>Federal</u>			
U.S. Army Corps of Engineers	01/30/86	02/05/86	03/12/86
Dept. of Interior Fish & Wildlife Division	*		
Dept. of Interior Soil Conservation Service	01/27/86	01/30/86	**
Dept. of Housing & Urban Development	02/06/86	02/13/86	**

<u>Private Organizations and Agencies</u>	<u>Date of Comment</u>	<u>Date Comment Received</u>	<u>Date of Response</u>
American Lung Association	*		
Life of the Land	*		
Neighborhood Boards			
Mililani	*		
Wahiawa	*		
Waipahu	*		
The Outdoor Circle	*		
The Sierra Club	*		
Waipahu 2000 Association	*		

* Denotes that organization was sent an unsolicited copy of the EIS Preparation Notice on January 8, 1986 and did not respond during the 30-day period for consultation.

** Indicates that a response was received; however, it contained no significant comment and therefore did not require a response prior to filing of the draft EIS.

Note: The Waipahu Neighborhood Board and the Waipahu 2000 Community Association did not respond to the EIS Preparation Notice, however, have endorsed the project in other communications which are included in the Draft EIS.

GEORGE R. ARIYOSHI
GOVERNOR



JACK K. SUMA
CHAIRPERSON, BOARD OF AGRICULTURE
SUZANNE D. PETERSON
DEPUTY TO THE CHAIRPERSON

State of Hawaii
DEPARTMENT OF AGRICULTURE
1028 So. King Street
Honolulu, Hawaii 96814-2512
January 31, 1986

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

William E. Hanket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Hanket:

Subject: Environmental Impact Statement Preparation Notice
(EISP/N) for Rezoning Application; Waitec
Development, Inc.; Waikale and Hoosaa, Ewa, Oahu
TMK: 9-4-02: 30, por. 1 and 17

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

According to the EISP/N, the applicant will be seeking to rezone the subject parcels and develop a planned, multiple-activity community on the 691.5-acre site.

On December 18, 1985, we reviewed and submitted comment to the Department of Land Utilization on an application for a consolidation and resubdivision of TMK: 9-4-02: 1, 17, 30 and 9-4-03: 1, 9 (2,249.160 acres) into three lots of 191.477, 1,171.026, and 886.657 acres for conveyance purposes. The subject project site includes all of the 191.477-acre lot and approximately one-half of the 1,171.026-acre lot.

The subject site is entirely within the preliminary "Important Agricultural Land" (IAL) boundary as defined by the Land Evaluation and Site Assessment Commission ("A Draft Report of the State of Hawaii Land Evaluation and Site Assessment System", November 1985). These are lands capable of producing high agricultural yields, lands which produce commodities for export and local consumption, lands not currently in production but needed to attain desired projected levels of agricultural activities and income, and lands designated by public policies as important agricultural lands resulting from some unique quality, setting or use.

The subject parcels are classified "Prime" (approximately 620 acres), "Other Important" (65 acres), and a small residual not classified (10 acres) according to the Agricultural Lands of

January 31, 1986
Mr. William E. Hanket
Page -2-

Importance to the State of Hawaii (ALISH) system. The Soil Conservation Service Soil Survey identifies the predominant soils as (1) Lahaina silty clay (Lah) with 0 to 3 percent slopes which is used for sugarcane and pineapple, and (2) Molokai silty clay loam (MUA, MuB, MuC, MuD) with 0 to 25 percent slopes which are used for sugarcane and pineapple. The crop capability classifications for these soils range from I to IVe (soils with few limitations that restrict their use to soils with severe erosion hazard if cultivated and not protected). The less agriculturally suitable soils, Helemano silty clay (HLMG) and rock land (rRK), are found along the banks of Waikale Stream.

The project site has Land Study Bureau Overall Productivity Ratings of "A", "B", and "E" (within the gulches and stream). By this method of classification, the "A" and "B" soils have good to very good productivity potential for most agricultural use.

The draft EIS should include discussion on the following issues:

- the impact of the removal of productive lands from sugarcane production on Oahu Sugar Company's economic viability;
- the broader economic impact to the State attributable to the irrevocable loss of prime, irrigated agricultural lands;
- present source(s) and potential alternative uses of agricultural irrigation water at the project sites
- the potential of establishing viable alternative agricultural uses on the project site;
- how the proposed project conforms to the State Agriculture Functional Plan and its objectives and policies, in particular, Implementing Action B(5)(c);
- the impact on agriculture resulting from the withdrawal of 2.764 million gallons/day of water from the Pearl Harbor Groundwater Control area.

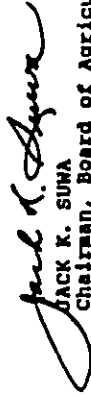
We appreciate the anticipatory nature of this EISP/N which provides us the opportunity to review the subject project at this early stage of the approval/development process. We continue to believe, however, that the submittal of an EIS should be required earlier in the development approval process

January 31, 1986
Mr. William E. Wanket
Page -3-

(at the time of General Plan, Development Plan, or Land Use Commission boundary amendments) rather than later (at the time of zoning or Special Management Area permit applications). The State Attorney General's opinion No. 85-30 (December 20, 1985) states that "...Chapter 143, Hawaii Revised Statutes, is applicable to non-county initiated actions which propose amendment or change to a county's planning documents, however denominated, as development plans or otherwise, and which would result in a land use designation other than agriculture, conservation, or preservation".

In our September 13, 1985, comments on the Department of General Planning's FY 1985-86 Development Plans Annual Review, we concluded that "The ongoing work of the LESA Commission to systematically identify important agricultural lands should not be pre-empted by the potential redesignation of large acreages of agricultural land to urban classification for which there is no immediate need, and for which the impacts of the proposed uses have not been assessed in accordance with State law. The proposed DP amendments to redesignate land from Agricultural to other uses, which are not fully consistent with the General Plan, should not be approved at this time".

Sincerely,


JACK K. SUWA
Chairman, Board of Agriculture

Attachments

cc: OEQC
DPED
DLU
DGP

WILLIAM
E
WANKET
INC.
LAW OFFICES

March 12, 1986

Mr. Jack K. Suwa, Chairman
Board of Agriculture
P.O. Box 22159
Honolulu, Hawaii 96822-0159

Re: DOA Comments to Waitec EIS Prep Notice

Dear Mr. Suwa:

Thank you for your comments of January 31, 1986 on the subject Prep Notice. We respond as follows:

A report titled "Proposed Village Park Expansion: Impact on Agriculture and Aquaculture" by Decision Analysts Hawaii, Inc., responds to the concerns raised in your comments. A summary of the information contained in this report which relates to your concerns will be included in the EIS. We will provide your department with a copy of the report in its entirety should you request it.

In addition, the EIS will discuss the relationship of the project to the State Plan, including Implementing Action B(5)(c) of the Agricultural Functional Plan.

It should be noted that this EIS is being submitted early (not during zoning or SMA as indicated in your letter) as we are still in the middle of obtaining a Development Plan amendment, and are still in the process of submitting our boundary amendment petition.

Again, thank you for your comments; we look forward to your review and further comment on the draft EIS.

Sincerely,


William E. Wanket

WEW:awp

FEB 3 1986

GEORGE B. ANTONIAN
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF EDUCATION

P. O. BOX 2700
HONOLULU, HAWAII 96813

January 16, 1986

OFFICE OF THE SUPERINTENDENT

EIS

FRANCIS M. HATANAKA
SUPERINTENDENT

William E. Manket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Manket:

SUBJECT: Environmental Impact Statement Preparation Notice
Haitec Development

We note that the draft EIS does not include any section on public schools. Although no schools will be located in the proposed Village Park Extension, it would be appropriate to include a section on public schools.

Elementary level students from the existing Village Park Subdivision and the Village Park Extension would attend Hooeae Elementary School which is located in the existing Village Park Subdivision. The school is projected to open around 1990, dependent on funding.

Secondary level students will attend Maipahu Intermediate and Maipahu High schools.

If there are any questions, please contact Mr. Howard Lau at 737-4743.

Sincerely,

Francis M. Hatanaka
Superintendent

FMH:J1

cc V. Honda, OBS
W. Araki, Leeward Dist.

JAN 23 1986

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

WILLIAM
E
WANKET
INC.

Leidene Company

March 12, 1986

Mr. Francis M. Hatanaka
Superintendent
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Re: EIS Prep Notice - Haitec Development

Dear Mr. Hatanaka:

We are in receipt of your comments of January 16, 1986 and respond as follows: The EIS will contain a section discussing public schools.

Thank you for your comments; we look forward to your review and further comment on the draft EIS.

Sincerely,

William E. Manket

WEH:rup

Page 104P
5-4 101C
NO. B-1-1-1-1-1
M. 1-1-1-1-1-1
P. 1-1-1-1-1-1
1825-531493

GEORGE A. MITCHELL
DIRECTOR OF HEALTH



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 2278
HONOLULU, HAWAII 96811

February 3, 1986

LESLIE S. MATSUOKA
DIRECTOR OF NOISE

In Reply, Please Refer to
EP7800

Mr. William E. Wanket
February 3, 1986
Page 2

quality. Potential contamination by the commercial and industrial establishments being proposed for this project must also be assessed with respect to potential groundwater contamination and cross connection with potable water.

Noise

1. Noise problems are anticipated due to the integration of various land uses within the project location. In preparation of the Environmental Impact Statement, these concerns must be addressed, including mitigative measures to control such noise impacts.
 - a. Noise from activities associated with commercial and industrial facilities can have an adverse effect on residents in the surrounding neighborhood. The proposed plan indicates low density apartments adjacent to commercial industrial mix-use areas. Increase in vehicular traffic, including vehicles utilized for deliveries and vehicles within off-street parking areas, may also create noise impacts on adjacent residential communities.
 - b. Noise from activities associated with the use of recreational facilities and sites can have adverse effects, in terms of annoyances, on residential areas. The proposed concept of situating residential units along the golf course may result in noise disturbances from ground maintenance and club activities. Other recreational areas, as public parks and recreation centers, may also create disturbances.
 - c. Plans should be initiated to locate areas discussed above away from adjacent residential communities. Areas utilized for such usage should be designed in such a way to minimize possible noise impacts.
2. Through facility design, noise from equipment such as air conditioning/ventilation units, generators, compressors, pumps and exhaust fans must be attenuated to meet the allowable noise levels of Title II, Administrative Rules Chapter 43, Community Noise Control for Oahu. Such designs must be especially directed toward building facilities in commercial, shopping center and industrial areas.
3. Should the proposed development utilize residential lots within structures in close proximity to each other, such as duplexes or zero lot line, these cluster homes should be designed so as to maximize the containment of noise.
4. Should the proposed project site include parking structures, effort should be directed toward control of noise from tire squeals and vehicular noise emissions.
5. Plans should be developed to locate residential units away from major highways, as noise impact from vehicular traffic may occur.
6. Activities associated with construction phase must comply with the provisions of Title II, Administrative Rules Chapter 43, Community Noise Control for Oahu.
 - a. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the regulations.

Mr. William E. Wanket
Pacific Tower, Suite 1010
1001 Bishop St.
Honolulu, Hawaii 96813

Dear Mr. Wanket:

Subject: EIS Preparation Notice for the Proposed Water Development Located at
Waikale and Hooeoe, Ewa, Oahu

Thank you for allowing us to comment on the subject EIS preparation notice. We provide the following comments:

Drinking Water

It is our understanding that the proposed project involves the development of 3,000 residential units, golf course, recreational center, shopping center, and a commercial/light industrial complex. The estimated water consumption for this project is 2.764 MGD. The developer is proposing to install a new well and additional water treatment facilities at the existing Kunia Well II site to support approximately 1,000 of the proposed units. In addition, plans are to construct two booster pump stations and a new Kunia "675" reservoir. One booster station is proposed at the Kunia Well I site to boost additional water to the Kunia "440" reservoir. A second booster station will be installed at the Kunia Well II site to boost approximately 2.076 MGD to the new Kunia "675" reservoir.

Section II-20-29 of Chapter 20 requires all new sources of potable water serving public water system to be approved by the Director of Health prior to their use to serve potable water. Such approval is based primarily upon the satisfactory submission of an engineering report which adequately addresses all concerns as set down in Section II-20-29. The engineering report must be prepared by a registered professional engineer and bear his or her seal upon submittal.

Section II-20-30 requires that new or substantially modified distribution systems for public water systems be approved by the Director of Health. Such approval depends on the submission of plans and specifications for the project prior to construction and the demonstration that the new or modified portions of the system are capable of delivering potable water in compliance to all maximum contaminant levels as set down in Chapter 20 once the distribution system or modification is completed. In the case of modifications to a Honolulu Board of Water supply system, approval authority has been delegated to the Honolulu Board of Water Supply.

The location of this project makes the question of water supply an extremely critical issue. The EIS should fully address all issues related to both water availability, demand, and

GEORGE R. ANTONIO
Department of Land and Natural Resources



SUSUMU OKO, CHAIRMAN
Board of Land and Natural Resources
EDGAR A. HALLIQUAN
Secretary to the Commission
DIVISIONS:
ARCHAEOLOGICAL DEVELOPMENT
PLANNING
AGRICULTURE
AMBIENT RESOURCES
CONSERVATION AND
RECREATION
COASTAL ZONE MANAGEMENT
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 831
HONOLULU HAWAII 96809

FEB 20 1986

William E. Wanket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Wanket:

Thank you for notifying us of the proposed golf course subdivision of 691 acres in the area between Waikale and Hoanua. We offer the following comments:

The development is situated within the Pearl Harbor Ground Water Control Area (PHGCA). Since the project calls for development of ground water within the PHGCA, the Board of Water Supply has applied for a water use permit for Kunia II well to serve this development. We are now reviewing that application for a water use permit.

Our records indicate that this project does not occur on historic properties listed on the Hawaii Register or the National Register of Historic Places, or eligible for inclusion on the National Register of Historic Places.

Due to the lack of archaeological surveys, we are unaware of significant resources in the project area. If previously unidentified sites or remains (such as artifacts, shell, bone, or charcoal deposits, human burials, rock or coral alignments, pavings or walls) are encountered, please advise your client to stop work and contact our historic sites office at 548-7460 immediately. Work in the immediate area should be stopped until the office is able to assess the impact and recommend mitigative measures.

Sincerely,

Susumu Oko
SUSUMU OKO
Chairperson

and
State Historic Preservation Officer

FEB 25 1986

WILLIAM
E
WANKET
INC

LAND AND NATURAL RESOURCES

March 12, 1986

Mr. Susumu Oko, Chairman
Board of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Re: Waitec Development Proposal - EIS Prep Notice

Dear Mr. Oko:

Thank you for your comments of February 20, 1986 to the Waitec EIS Prep Notice. We respond as follows:

We hope that the Board and the staff will be able to complete its review of the application for a water use permit so that the results of your review can be included in the Draft EIS due to be published in the near future.

The applicant commissioned a study of the archaeological resources of the site which included a field survey and historical research. The investigation confirmed the lack of any significant resources in the project area. The draft EIS will contain a summary of the conclusions of the report as well as any significant information.

The applicant is committed to working with the State Historic Preservation Officer to expand our knowledge of Hawaii's past. Our consultants and contractors will be advised of our commitment to this important activity. Of course, the applicant and their consultants and contractors will as a matter of course comply with all laws dealing with the preservation of archaeological sites.

Pacific Tower
Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813
Phone
(808) 533-1931

GEORGE A. ARTOSH
GOVERNOR

WAYNE J. YAMASAKI
DIRECTOR

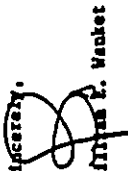


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
100 KUCIHOLOA STREET
HONOLULU, HAWAII 96813

Mr. Susumu Ono, Chairman
March 12, 1986
Page 2

Thank you again for your comments; we look forward to your review and further comment on the draft EIS.

Sincerely,


William E. Wanket
WEW:awp

February 13, 1986

Mr. William E. Wanket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

Gentlemen:

Environmental Impact Statement Preparation Notice for the
Proposed Waitec Development, Waikolea, Hoaaee, Ewa, Oahu

We have reviewed the subject preparation notice and offer the following comments for your consideration:

1. The proposed development has been previously coordinated with the Department of Transportation, Highways Division, and it is essential that this coordination be continued as the project is further developed.
2. In the EISP, it is stated that the development will further congest Interstate Route H-1; however, possible measures to mitigate this impact were not described. Because of conflicts with the large volume of right turners from Kunia Road to H-1, a portion of the 1,500 vehicles (turning left from Kunia Road to H-1) during the A.M. peak period may choose to utilize other facilities such as Farrington Highway. These effects should also be discussed.
3. Plans for improvements along Kunia Road must be reviewed and approved by the Department of Transportation, Highways Division, prior to actual construction.
4. All costs for highway and access improvements shall be borne by the developer.
5. The developer should be informed that we are greatly concerned about the effects of large developments on the

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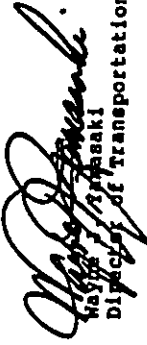
William E. Wanket, Inc.
Page 2

STP 8.1189

downstream sections of our highways. Consequently, we are presently considering methods requiring developers' participation in funding construction of needed improvements/mitigation measures.

We appreciate this opportunity to provide comments.

Very truly yours,


Wayne J. Yamasaki
Director of Transportation

GEORGE R. ANTOSH
Governor



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
155 PUNAHONA STREET
HONOLULU, HAWAII 96813

February 11, 1986

Mr. Clarence K. Tanonaha
Vice President/Treasurer
Park Engineering, Inc.
Kawaihāo Plaza, Suite 300
567 South King Street
Honolulu, Hawaii 96813

Dear Mr. Tanonaha:

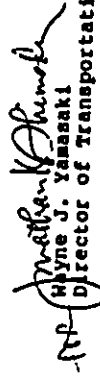
Village Park Expansion
Traffic Impact Report

We have reviewed the revised Traffic Impact Report which was submitted with your letter of January 28, 1986.

Our only comment refers to page 16, first sentence of the first paragraph, after item 3. We suggest that the sentence be changed to read: "It is the developer's intention to construct and fund the above-mentioned improvements." We feel this modification will more clearly state the developer's total responsibility for providing the proposed improvements. Otherwise, we found the report satisfactorily addressed our concerns and it should be included or referenced in the project's EIS.

Thank you for this opportunity to provide comments.

Very truly yours,


Wayne J. Yamasaki
Director of Transportation

WAYNE J. YAMASAKI
Director

SCOTT L. LEE, JR.
JOHN H. SAKUDA, Ph.D.
WALTER M. LEE
CHRISTOPHER L. LEE
ADAM W. WICKERT

WAYNE J. YAMASAKI
STP 8.1189

FEB 18 1986

WILLIAM
E
WANNET
INC

LAND USE CONSULTANTS

Mr. Wayne J. Yamasaki, Director
March 12, 1986
Page 2

March 12, 1986

Mr. Wayne J. Yamasaki, Director
Department of Transportation
869 Fuchsbowl Street
Honolulu, Hawaii 96813
Re: EIS Prep Notice for the Proposed Waitec
Development at Waikale, Moosie, Ewe, Oahu
DOT Reference No. STP 8.1189

Dear Mr. Yamasaki:

We are in receipt of your comments of February 13, 1986 and respond as follows:

1. Our staff and consultants will continue to coordinate the proposed development with the Department of Transportation.
2. The traffic study for the proposed project has discussed the impact of traffic from the development on the M-1 Interstate system. However, an assessment of the total impact must be made from inputs from all proposed developments in the region. This assessment must also consider the timing of the aggregate developments.

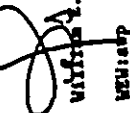
We therefore believe that proposing improvements on M-1 to mitigate the impact of the proposed Waitec Development is not the proper approach to the solution of the overall problem. Rather, we support the recommendations of the DOT report titled "Effects of Central and Leeward Oahu Developments Upon the State Highway System" dated February 1986. A flexible program responsive to the growing traffic demands of new developments as they are constructed and occupied is the only viable approach to the problem.

Alternate routes such as Farrington Highway are part of the overall flexible program. To make this highway an attractive alternative for the proposed Waitec Development, it would require a major improvement, especially in view of other larger proposed developments in close proximity.

3. Plans for improvements along Kunia Road will be submitted to DOT for review and approval when they are completed.
4. All cost for Kunia Road, including the interchange and access improvements as required, will be borne by the developer.
5. We are aware of the department's concern over the impact of large developments on downstream traffic. The developer is willing to work with the Department in developing methods which would enable the developer to participate in the mitigation of these items.

Thank you for your comments; we look forward to your review and further comment on the draft EIS.

Sincerely,


William E. Wannet
WEW:atp

Project No. 86-01
S. H. 1010
1001 Bishop Street
Honolulu, HI 96813
Phone
(808) 533-4937

GEORGE R. ANTONIANN
DIRECTOR



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

465 South King Street, Room 115

HONOLULU, HAWAII 96813

January 24, 1986

LETITIA M. UYEHARA
DIRECTOR
TELEPHONE NO.
348-8813

William E. Manket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Manket:

Subject: Preparation Notice for Waitec Development, Inc.,
Waikole and Hoese, Ewa, Oahu

We offer the following comments for consideration:

1. We understand that a request has been submitted to the Board of Water Supply and the Department of Land and Natural Resources to increase the allocation of water from the Pearl Harbor Basin. We would appreciate the inclusion of their response to your request in the EIS.
2. The impact of traffic generated by the project on H-1 and local roads should be discussed in the EIS.
3. The EIS should discuss the fact that 691.5 acres of prime agricultural lands are classified under the Agricultural Lands of Importance to the State (ALISH) system will be permanently converted to urban use.

Thank you for providing us the opportunity to review this preparation notice.

Sincerely,

Letitia M. Uyehara
Letitia M. Uyehara
Director

JAN 26 1986

WILLIAM
E.
MANKET
INC.
Land Use Consultant

March 12, 1986

Ms. Letitia M. Uyehara, Director
Office of Environmental Quality Control
465 South King Street, Room 115
Honolulu, Hawaii 96813

Re: EIS Prep Notice - Waitec Development

Dear Mrs. Uyehara:

We are in receipt of your comments dated January 24, 1986 and respond as follows:

1. The response of the Board of Water Supply and the Department of Land and Natural Resources to our request for an increase in water allocation from the Pearl Harbor Basin have not been received as of this date. We will include them in the EIS if they are received prior to the filing date. Our consultants, Park Engineering, will discuss the issue with both departments. The water allocation is necessary before the project can proceed.
2. A traffic report will be included as part of the EIS.
3. The permanent conversion of 691.5 acres of land classified prime under the Agricultural Lands of Importance to the State of Hawaii (ALISH) system, to urban use, will be discussed in the EIS.

Thank you for your comments. We look forward to your review and further comment on the draft EIS.

Sincerely,

William E. Manket
William E. Manket
WEM:avp

Pacific Tower
Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813
Phone
1808 533 0933



University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 203 • 2530 Duke Street
Honolulu, Hawaii 96822

3 February 1986

William E. Manhet, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

Gentlemen:

SUBJECT: Environmental Impact Statement Preparation Notice for the
Proposed Waitec Development at Waialeale and Hoanua, Ewa,
Oahu, Hawaii, January 8, 1986.

We have reviewed the subject EISP and have no comment to offer at
this time. Thank you for the opportunity to comment. This material was
reviewed by WTRC personnel.

Sincerely,

Edwin T. Murebayashi
Edwin T. Murebayashi
EIS Coordinator

ETH:jm

NO RESPONSE REQUIRED

FEB 6 1986

AN EQUAL OPPORTUNITY EMPLOYER



BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERTANHA STREET
HONOLULU, HAWAII 96813



February 6, 1986

FRANK FAS Mayo

ERNEST A. WATARI, Chairman
ANTHONY J. MOSELER, Vice Chairman
DONALD S. COYNE
RYOICHIRO HIGASHIMORIWA
PAUL A. RATH
RUSSELL L. SMITH, JR.
WAYNE J. YAMASAKI
KAZUO HAYASHIDA
Manager and Chief Engineer

William E. Manket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

Gentlemen:

Subject: Your Letter of January 8, 1986 for Comments to the Environmental Impact Statement (EIS) Preparation Notice for the Proposed Waitec Development.
THK: 9-4-2:30

Thank you for the opportunity to comment on the Waitec Development Environmental Impact Preparation.

We have the following comments on the proposed water system:

1. Existing Facilities: The granular activated carbon (GAC) treatment facility is anticipated to be operational very shortly. The construction has been completed and will be placed in operation when the facility is turned over to the Board by the developer, Waitec Development.
2. Water Requirements: We have submitted a request to the Board of Land and Natural Resources to increase the allocated withdrawal from Kunia II well field to 2.0 million gallons per day (MGD).
3. Water Master Plan: The new water facilities indicated in the EIS Preparation Notice were based on a master plan which is in the process of being revised by the developer's engineer.

If you have any questions, please contact Lawrence Whang at 527-6138.

Very truly yours,

Kazu Hayashida
KAZU HAYASHIDA
Manager and Chief Engineer

Per Title 19, Chapter 100, Section 100-10

FEB 10 1986

WILLIAM
E
MANKET
INC
Landscape Consultant

March 12, 1986

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
630 South Bertanaha Street
Honolulu, Hawaii 96813

Re: Comments to Waitec Development EIS Prep Notice

Dear Mr. Hayashida:

Thank you for your comments of February 6, 1986 on the subject Prep Notice. We respond as follows:

The EIS will contain a discussion of the water facilities necessary for the development of the project including the existing granular activated carbon treatment facility, the status of the Board of Water Supply's request to the Board of Land and Natural Resources to increase the allocated withdrawal from the Kunia II well field, and the latest revision of the Water Master Plan available.

Thank you again for your comments; we look forward to your review and further comment on the draft EIS.

Sincerely,

William E. Manket
William E. Manket
WEM:sup

Printed by
S.W. 100
400 Bishop Street
Honolulu, HI 96813
P.O. Box
808-533-993

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 521-1111



FRANK F. FASI
MAYOR

ALVIN K. H. PANG
DIRECTOR

January 31, 1986

William E. Wanket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement - Preparation Notice
Project: Waitec Development
TMK: 9-4-02: 30 and Portion of 1 and 17
Area: 691.52 Acres
Request: To rezone parcel from AG-1 Agricultural to various urban uses.

The Department of Housing and Community Development has reviewed the information provided regarding the Waitec development and found it to be consistent with the Housing Assistance Plan (Census Tract 89.02).

The Department is mandated to provide housing units for low- and moderate-income families on Oahu. We are happy to note that the developer has made a commitment to provide an estimated 480 rental housing units on lands to be dedicated by the developer.

If you have any questions, please contact Mr. James Miyagi of our Housing Division at 523-4264, who will assist the developer in formulating a program to provide these units.

Sincerely,

Alvin K. H. Pang
ALVIN K. H. PANG

March 12, 1986

Mr. Alvin Pang, Director
Department of Housing and
Community Development
650 South King Street
Honolulu, Hawaii 96813

Re: Response to Comments on Waitec EIS

Dear Mr. Pang:

Thank you for your comments of January 31, 1986. We respond as follows:

We will continue to work closely with your department to insure that our commitment to supply land to the City for low/moderate income housing units is met.

We look forward to your review and further comment on the draft EIS.

Sincerely,

William E. Wanket
William E. Wanket
WEW:dvp

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100% Built Street
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0.14
100% Built Street

120 5 1986

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
850 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK F. PASI
DIRECTOR

TOM T. MEKOTA
DIRECTOR

William E. Manhet, Inc.
Page 2
January 24, 1986

Thank you for allowing our department to review and comment on the Environmental Impact Statement Preparation Notice for the Maitec Development.

Sincerely,

Tom Nektota

TOM T. MEKOTA, Director

TIN:e1

January 24, 1986

William E. Manhet, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement Preparation Notice
Proposed Maitec Development - Hoesea
Tax Map Key 9-4-02: 30, por. 1 and 17

The size of the proposed Maitec Development would have a significant impact on our public parks in the subject area. Consequently, it is important that an effective park system be established to serve the project's recreational needs.

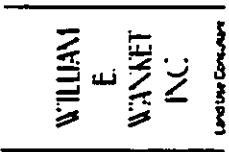
We have made an assessment of the project's recreational needs together with the existing Village Park area. We have determined that the existing Village Park, when fully developed, and the proposed Village Park Expansion Area would have a projected population of 5,100 and 9,000, respectively, or a total of 14,100. Based on our guidelines, two community type parks would be required to serve a population this size. Hoesea Community Park has already been established as one community park, with the other community park to be located in the Village Park Expansion Area.

Our guideline for a community park would be a park ten or more acres in size, serve an area of one mile radius, and a population of approximately 10,000. Facilities in the park would include children's play areas, outdoor basketball and volleyball courts, soccer and softball fields, parking area and a recreation building.

The development of a community park in the Expansion Area, together with Hoesea Community Park, will provide the Village Park residents with ample recreational facilities.

We recommend that the developer contact Mr. Jason Yuen of our Advance Planning Section at 527-6315 to discuss the project's recreational needs and park dedication requirements. The size and location of the community park to serve the Expansion Area must be established before detail planning of the proposed project is done.

JAN 28 1986



March 12, 1986

Mr. Tom Mekota, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Re: EIS Prep Notice - Waitec Development

Dear Mr. Mekota:

We are in receipt of your comments of January 24, 1986 and respond as follows:

We have been in contact with your staff and have provided for three park sites within the "Expansion Area". The location and site of the sites were selected with the input of your staff.

A discussion of the park system for the Village Park development will be contained in the EIS.

Thank you for commenting; we look forward to your review and further comment on the draft EIS.

Sincerely,


William E. Wanket
WEW:avp

Pacific Tower
Suite 1015
1001 Bishop Street
Honolulu, Hawaii 96813
Phone
(808) 533-4937

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

FRANK P. PASH
DEPUTY CHIEF OF POLICE



O.A. REFERENCE EC-JS

January 15, 1986

William E. Wanket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813


Gentlemen:

The Honolulu Police Department wishes to be consulted during the preparation of the Environmental Impact Statement for the Village Park development between Kunia Road and Waikole Gulch.

Our concerns are the traffic safety problems that will be created by a large number of vehicles being added to the already congested highways serving Honolulu proper and the large population increase that is envisaged in our police district III serviced by the Pearl City police station. This station is presently operating at near capacity and cannot adequately support the additional personnel and other resources that will be required.

Thank you for providing us the opportunity to become involved in planning for this development in its early stages.

Sincerely,
DOUGLAS G. GIBB
Chief of Police

BY 
DAVID HEUROUHANI
Assistant Chief of Police
Administrative Bureau

JAN 20 1986




WILLIAM
E
WANNET
INC.

Land Use Consultants

Douglas G. Gibb, Chief of Police
March 12, 1986
Page 2

Thank you for your comments; we look forward to your review and further comment on the draft EIS.

Sgt. Cerone

William E. Wannet
WEU:avp

March 12, 1986

Douglas G. Gibb, Chief of Police
City and County of Honolulu
1455 South Beretania Street
Honolulu, Hawaii 96814

Re: EIS Prep Notice - Waitec Development

Dear Chief Gibb:

We are in receipt of your comments of January 15, 1986 and respond as follows:

1. Traffic is a concern of the Waitec Developers as well as other City and State agencies. To evaluate the impact of the development on the traffic, the developer has commissioned a traffic impact study for the project. In addition, the developer and his consultants have been cooperating with the State Department of Transportation in its current review of the islandwide impact of future growth. The traffic impact study will be a part of the EIS.
2. Your concern over the adequacy of the Pearl City station to handle the proposed growth in the area will be noted in the EIS. Our staff will be happy to meet with your staff to expand on or clarify the phasing information contained in the Prep Notice and to be provided in the EIS. We would also be happy to provide your staff with any other information that might help the Police Department in planning its facilities or manpower requirements to meet the needs of future growth.

P.O. Box 1047
Suite 410
1001 Bishop Street
Honolulu, HI 96813
Phone
(808) 533-9317

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
630 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK P. CASE
DIRECTOR

RUSSELL L. SMITH, JR.
DIRECTOR AND CHIEF ENGINEER

14-0092

February 4, 1986

William E. Wanket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

Gentlemen:

Subject: Your Letter of January 9, 1986, Relating
Proposed WASTE Development
Hkt 9-4-02: 30, Pors. 1 & 17

We have the following comments to assist you in the preparation
of an Environmental Impact Statement for the above project:

Engineering:

The developer shall submit a drainage master plan and report
for our review and approval.

Refuse Collection:

Refuse collection for this large development will require
increases in personnel and trucks. Plans should be submitted
for review.

Sanitary Sewers:

Existing sewers are available for approximately 1,000 units
which were approved under the original master plan. The
Waipahu Sewage Pump Station will have to be expanded before
the entire development can be accommodated.

Very truly yours,

RUSSELL L. SMITH, JR.
Director and Chief Engineer

FEB 6 1986

WILLIAM
E
WANKET
INC.
LAND USE CONSULTANTS

March 12, 1986

Mr. Russell L. Smith, Jr.
Chief Engineer
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Re: Comments to Waitec EIS Prep Notice

Dear Mr. Smith:

Thank you for your comments of February 4, 1986. We respond as
follows:

Engineering: Our consultants, Park Engineering, will update the
existing drainage master plan and submit it for your review and
approval.

Refuse Collection: Refuse collection will be covered in the EIS.

Sanitary Sewers: Our consultants are working closely with your staff
to make sure that adequate improvements in offsite facilities are
included in the Public Facilities amendments to the Central Oahu
Development Plan.

Thank you for your comments; we look forward to your review and
further comment on the draft EIS.

Sincerely,

William E. Wanket
WEW:avp

Public Use
Suite 1010
460 Bishop Street
Honolulu, Hawaii 96813
Phone
(808) 533-4031

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK P. PASI
DIRECTOR

JOHN E. HIRTEEN
DIRECTOR
JOSEPH M. MACALINO, JR.
DEPUTY DIRECTOR

TE-135
PL1.0195

January 15, 1986

Mr. William E. Wanket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Wanket:

Subject: Waitec Development
Maikela/Hoanua, Ewa, Oahu
THS: 9-4-02; 30 and Por. 1 and 17

This is in response to your request of January 9, 1986.

We recommend that a traffic study be included in your Environmental Impact Statement for the above project.

The traffic study should address the following concerns:

1. The amount of vehicular traffic to be generated by the project and its impact on the surrounding streets. A capacity analysis for the critical intersections near the project should be included for the a.m. and p.m. peak hours.
2. The traffic impact of the project on the arterial system that will be affected.
3. The impact of the project on public bus service in the area.
4. The need for street improvements on the surrounding street system to support the proposed project.

If there are any questions, please contact Kenneth Hirata of my staff at 523-5009.

Sincerely,

JOHN E. HIRTEEN

JAN 17 1986

WILLIAM
E.
WANKET
INC.
Land Use Consultant

March 12, 1986

Mr. John Hirteen, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Re: EIS Prep Notice - Waitec Development

Dear Mr. Hirteen:

We are in receipt of your comments of January 15, 1986 and respond as follows:

A traffic study will be included in the EIS for the above-referenced project and will cover the areas of concern expressed in your letter.

1. Vehicular Traffic to be Generated and its Impact.
The estimated traffic volume to be generated by the subject project is covered in detail in the study. The proposed and existing intersections of the main collector streets and Kunia Road have been analyzed for capacity and evaluated from the standpoint of delays at the intersections for the a.m. and p.m. peak hours. These determinations are made using the methodology and criteria set forth in the new 1985 Highway Capacity Manual, published by the Transportation Research Board.
2. Traffic Impact of the Project on the Arterial System.
The impact on the existing intersections of the Kunia Interchange and on the ramp terminals at the east side of the interchange are analyzed and evaluated in conformance with the Highway Capacity Manual.

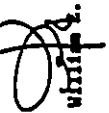
Pacific Tower
Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813
Phone
(808) 533-4937

Mr. John Hirtten, Director
March 12, 1986
Page 2

3. Public bus service as well as other public transportation modes are addressed. The existing express bus service is described and an extension of it is proposed. The study also summarizes the on-going work being done by the Mall 2000 Studies.
4. Wherever the study revealed inadequacies in the road system in the surrounding vicinity, improvements are proposed. However, improvements on the N-1 Freeway proper and other broad regional type projects will require more extensive studies. The State Highways Division has two improvement projects on N-1 under design and are developing conceptual plans of other improvements.

Thank you for your comments; we look forward to your review and further comment on the draft RIS.

Sincerely,


William L. Wanket
WLV:awp

03 10 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96808

January 30, 1986

Mr. William E. Wanket
William E. Wanket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Wanket:

Thank you for the opportunity to review and comment on the EIS Preparation Notice for Waitec Development, Waikale, Ewa, Oahu. The following comments are offered:

- a. A Department of the Army permit is not required since no fill is proposed in waters of the United States (Section 404 of the Clean Water Act).
- b. According to the Flood Insurance Study prepared by Federal Insurance Administration for the City and County of Honolulu, the proposed project is within an area of minimal flooding, designated Zone C.

Sincerely,

William E. Wanket
William E. Wanket
Chief, Engineering Division

WILLIAM
E.
WANKET
INC.
Land Use Consultant

March 12, 1986

Mr. Kieuk Cheung, Chief
Engineering Division
Department of the Army
U.S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96808

Re: Comments to Waitec EIS Prep Notice

Dear Mr. Cheung:

Thank you for your comments of January 30, 1986 on the subject Prep Notice. We respond as follows:

Although no Army permit is required, we will send you a copy of the draft EIS for further review and comment.

The flood designation of the subject area will be reported in the EIS.

Thank you for your comments; we look forward to your review and further comment on the draft EIS.

Sincerely,
William E. Wanket
William E. Wanket
WEW:rap

Page Four
S. 1000
1001 Bishop Street
Honolulu, Hawaii 96813
P. 11
187-23-200

187 5 188E

12.0. ORGANIZATION AND AGENCY COMMENTS TO DRAFT EIS AND
RESPONSES TO COMMENTS

<u>ORGANIZATION</u>	<u>DATE OF COMMENT</u>	<u>DATE OF RECEIPT</u>	<u>DATE OF RESPONSE</u>
<u>State</u>			
Department of Agriculture	06/23/86	06/24/86	07/07/86
Department of Defense	05/27/86	05/29/86	No response required
Department of Education	06/06/86	06/11/86	07/07/86
Department of Health	06/19/86	06/21/86	07/07/86
Department of Land and Natural Resources	06/05/86	06/11/86	No response required
Department of Planning and Economic Development	06/20/86	06/24/86	07/07/86
Department of Transportation	06/10/86	06/14/86	07/07/86
Additional comments*	06/30/86	07/02/86	07/07/86
UH Environmental Center*	06/25/86	06/27/86	07/07/86
UH Water Resources Center*	06/25/86	06/27/86	07/07/86
<u>County</u>			
Building Department	05/24/86	05/30/86	No response required
Fire Department	06/23/86	06/24/86	No response required
Department of Housing and Community Development	06/12/86	06/14/86	No response required
Department of Land Utilization	06/20/86	06/21/86	07/07/86
Department of Parks and Recreation	06/06/86	06/21/86	07/07/86
Police Department	06/02/86	06/04/86	No response required
Department of Public Works	05/30/86	06/03/86	07/07/86
Clarification Memo*	07/07/86	07/07/86	07/07/86
Department of Transportation Services	06/16/86	06/21/86	07/07/86
<u>U.S. Government</u>			
Department of Agriculture Soil Conservation	06/13/86	06/19/86	No response required
Department of Army Engineers	06/03/86	06/21/86	07/07/86
Department of Housing and Urban Development	06/20/86	06/26/86	No response required
Department of Interior Fish and Wildlife	06/20/86	06/21/86	No response required
Department of Navy	06/02/86	06/04/86	07/07/86
<u>Private Organizations</u>			
American Lung Association	06/20/86	06/24/86	07/07/86
Hawaiian Electric Co.	06/23/86	06/25/86	07/07/86

* Postmarked and received after 06/23/86 deadline for comments.

GEORGE B. ABIYISSIN
GOVERNOR



JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE
SUZANNE D. PETERSON
DEPUTY TO THE CHAIRMAN

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814
June 23, 1986

Mailing Address:
P. O. Box 21159
Honolulu, Hawaii 96822

Mr. John P. Whalen
June 23, 1986
Page -2-

MEMORANDUM

To: Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu

Subject: Draft Environmental Impact Statement (EIS) for
Waitec Development Proposal
Waitec Development, Inc.
TRK: 9-4-02; por. 1, 17, 30 Waialeale, Oahu
Acres: 691.5

The Department of Agriculture has reviewed the Draft EIS
and offers the following comments.

According to the Draft EIS, the applicant seeks to rezone
the subject parcels and develop a planned community.

We have reviewed and submitted comment on the EIS
Preparation Notice for the subject project on January 31, 1986.

We have also reviewed and submitted comment on a petition
for an amendment to the State Land Use Agricultural District
boundary for the subject project. The subject Draft EIS largely
duplicates the information found in the Preliminary Planning and
Environmental Assessment (prepared by Law Office of Roy Y.
Takeyama, Esq. and Jan N. Sullivan, Esq.; February 1986) and the
various Appendices for the project petition.

The Draft EIS inadequately addresses several of the
concerns found in our comments on the EIS Preparation Notice
(letter to Mr. William E. Wanket, dated January 31, 1986).
Since we have, in essence, already "reviewed" the Draft EIS in
its form as the State Land Use Agricultural District boundary
amendment (State Land Use Commission Docket No. A86-600) for the
subject project, the present comments reflect those made on the
boundary amendment petition.

ISSUES THAT NEED TO BE ADDRESSED

1. The impact of the removal of productive lands from
sugarcane production on Oahu Sugar Company's economic
viability.

According to the information found in Section 2.2.5. of the
Draft EIS and Appendix D ("Proposed Village Park Expansion:
Impact on Agriculture and Aquaculture"; prepared by Decision
Analysts Hawaii, Inc.; February 1986). "...the Village Park
Expansion, individually or in combination with other major
projects planned and proposed for Ewa and Central Oahu, will not
adversely affect the economic viability of OSCO (Oahu Sugar
Company)" (DEIS, page 39 and Appendix D, page IV). This
conclusion is based on four factors: (1) the developer will
absorb the costs to relocate sugarcane field infrastructure, (2)
increasing yields are expected to partially or completely
compensate for reduced sugarcane acreage, (3) OSC could operate
one mill, and (3) employment reductions will occur through
retirement and voluntary movement to other jobs.

To this, we offer the following:

- a. It is not clear to us how relocating various
facilities will be "...in support of continued sugar
operations...," especially in light of the statement
that "...plantings of new lands to compensate for lost
fields is no longer feasible..." (Appendix D, page 2).
Existing fields presumably have supporting
infrastructure. Compensation to OSC for losing the
use of the facilities should also be considered,
especially since most of the project site has drip
irrigation installed.
- b. Regarding the second factor, it should be noted that
(1) the expectation of increasing yields to compensate
for lost production acreage usually does not come
without additional costs (i.e., additional inputs of
research, chemicals, labor, etc.), and (2) per acre
yields on the subject property are already among the
highest in the State. The EIS should show how lost
yields from nearly 700 acres of very productive
sugarcane land can be economically replaced by further
improved yields in existing, possibly less productive,
fields.
- c. Finally, regarding the reduction in OSC operations to
a single mill, it should be explained why this would
justify removal of the most productive fields from
production rather than less productive fields. From

"Support Hawaiian Agricultural Products"

what we know of OSC's operations, it appears they have been able to reduce or maintain their variable costs at a viable level. The stated reason why sugarcane production is marginally profitable is high lease rent (DEIS, page 38 and Appendix D, page 2, et seq.). The EIS should include information on lease rents charged for the subject site and lease rents charged for comparable sites in sugarcane production elsewhere in the State. There should also be discussion on what portion of the subject parcels' lease rent is attributable to agricultural productivity as well as other non-agricultural considerations.

2. The broader economic impact on the State attributable to the irrevocable loss of prime, irrigated agricultural lands.

According to the Draft EIS (Section 2.2.5.2, page 43) and Appendix D (page 11), "it is extremely doubtful that the Village Park Expansion combined with other major housing developments in the Ewa/Central Oahu area will affect adversely the growth of diversified agriculture or aquaculture."

The Draft EIS bases this conclusion on (1) "...an enormous and growing supply of prime agricultural land which has been recently freed from sugar and pineapple production" (page 41), and (2) the acreage needed to support the local demand for diversified agricultural and aquacultural products is considerably less than the supply of prime agricultural land.

We see the two key issues in the position put forth by the applicant as (1) the definition of "prime" agricultural land, and (2) the relative importance of the affected parcels in meeting agricultural demands in the future.

The EIS should identify the elements that comprise the definition of "prime" agricultural land. The type of information required is provided or referred to in our letter of January 31, 1986, to William E. Hackett, but also includes issues such as elevation, temperature, degree of insolation, irrigation water availability and cost, distance to mill, etc.

The Draft EIS states that the "...uncommitted acreage which remains available to diversified agricultural and aquaculture amount to many tens of thousands of acres, with a large share of this on Oahu" (page 41). It can be reasonably inferred from this statement that, among other things, such lands (if they exist) would be relatively more affordable for diversified

agricultural use. The EIS should identify the location of these lands, their availability to farmers for sale or lease, and at what prices and terms. The EIS should also compare the findings to the sale prices or lease rents and terms that could be expected for lands within the Waitec project site if the lands were made available for agricultural use.

3. Present sources and potential alternative uses of agricultural irrigation water at the project site.

Everything else being equal, the ability to control moisture is one of the principal means to increase agricultural production. According to our information, more than one-half of the Waitec project site has drip irrigation installed on the various fields, and a substantial portion of the irrigation water for the site is obtained from the Waiahole Ditch at such lower cost than groundwater pumps. The EIS should include detailed information on current water consumption for sugarcane cultivation on the project site, water sources and the relative costs of supplying water from these sources, and how the cost and availability of water at the project site compares to other Oahu Sugar Company fields.

4. The potential of establishing viable alternative agricultural uses on the project site.

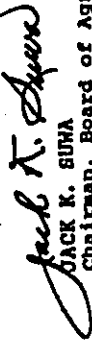
The Draft EIS (pages 42, 43) and Appendix D (pages B-1 to B-22) represent an effort to identify the role that the project site can play in meeting local consumption of produce at a level that is "realistically" self-sufficient, as well as producing export-oriented crops. The Draft EIS states that of the crops that are agronomically suited to the project site, 1,200 acres are needed to meet the demand for produce by the year 2000. However, Appendix D concludes that "...in order to have a significant amount of produce production occur in Kunia, agricultural ground rents would have to be reduced significantly..." (page B-9). The same is often said for the export crop agronomically suited to the project site. We agree that an important variable in determining the economic utilization of arable (or otherwise) land for agricultural use is the availability of land at lease rents that are supportive of agricultural activities.

5. How the proposed project conforms to the State Agriculture Functional Plan and its objectives and policies, in particular, implementing Action B(5)(c).

Mr. John P. Whalen
June 23, 1986
Page -5-

The Draft EIS should explain how the proposed project conforms with Implementing Action B(5)(c) and not simply mention it (page 63). On a related issue, the statement "The agricultural acreage in the project site is not needed by the diversified agricultural industry" (DEIS, page 64) should be deleted from the document until the concerns raised earlier in this memorandum are addressed. It would also be prudent to contact the Hawaii Farm Bureau Federation, an association comprised of many diversified farmers, and solicit their opinion.

Thank you for the opportunity to comment.


JACK K. SUWA
Chairman, Board of Agriculture

cc: Mr. William E. Wanket
OEQC
DGP
DPED

WILLIAM
E.
WANKET
INC.
Leather Consultants

July 7, 1986

Mr. Jack Suwa, Chairman
Board of Agriculture
Department of Agriculture
1428 S. King Street
Honolulu, Hawaii 96814

Re: Comments to Draft EIS Waitec Development Proposal
(Village Park Expansion)

Thank you for your comments of June 20, 1986 to the Draft EIS.
We respond as follows:

Comment 1: "... the Village Park Expansion, individually or in combination with other major projects planned and proposed for Ewa and Central Oahu, will not adversely affect the economic viability of OSCo."

For clarification, this conclusion is based on evaluations done by Amfac and OSCo.

Comment 2: "The stated reason why sugarcane production is marginally profitable is high lease rent (DEIS, page 38 and Appendix D, page 2, et seq.)."

For clarification and as stated in Appendix D, OSCo is marginally profitable ... The marginal profitability is measured before accounting for new capital investment needed to replace equipment. When this is accounted for, OSCo is unprofitable. Also as stated in the report, OSCo's financial difficulties are primarily because of low sugar prices.

The requested information on lease rents is irrelevant to the petition since it beyond the control of Waitec or OSCo.

Comment 3: Definition of "prime" agricultural lands.

For clarification, "prime" agricultural lands are defined to be those lands capable of producing high yields and profits from a variety of crops, assuming market expansion without adversely affecting prices.

Pacific
State
1986
1428 S. King St.
Honolulu, HI 96814
JUN 25 1986

Comment 4: "The EIS should identify the location of these lands (uncommitted acreage which remains available to diversified agriculture and aquaculture), their availability to farmers for sale or lease, and at what prices and terms."

As known by the Department of Agriculture, the large withdrawals of land from sugar operations which occurred since 1970 were the result of the closing of sugar plantations at Kilauea on Kauai, Kahuku on Oahu, and Kohala and Puna on the Big Island. For pineapple, major land withdrawals have occurred on Kauai, Oahu, Lanai and Molokai. In addition to this acreage, there is a very real possibility that additional lands will be freed from sugar given that nine of the thirteen sugar plantations in Hawaii are unprofitable and the Federal price support for sugar is scheduled to remain unchanged until at least 1991. Also, vast acreages of sugarcane lands are actually in a holding operation awaiting the discovery of profitable replacement crops.

As stated in Appendix D, page 8, the supply of agricultural lands to small farmers is limited because of subdivision regulations which require expensive infrastructure.

Regarding rents, agricultural and other land rents near Honolulu are higher than those far from town and these, in turn, are higher than land rents in rural Neighbor Island areas.

Comment 5:

Contrary to Department of Agriculture's information, Maimole Ditch water is not normally used on the project site, although it can be and sometimes is used. Normally, the supply of Maimole Ditch water is sufficient to irrigate only the fields at higher elevations. But when heavy rainfall decreases the water requirements on the higher elevation fields and increases the Ditch flow, then some lower elevation fields can be irrigated using Ditch water.

The relevant information on water is that the Village Park expansion will reduce OSCo's water requirements by about 6 MGD, while the project will require about 2.8 MGD. Thus, about 3.2 MGD of water will become available for other uses. In reducing its requirements by 6 MGD, OSCo will release ground water for other uses since this is the company's most expensive water.

Comment 6:

A very careful reading of the Hawaii State Plan and the State Agriculture Functional Plan reveals that their thrust is to

preserve the economic viability of plantation agriculture and to promote the growth of diversified agriculture. To accomplish this, an adequate supply of agriculturally suitable lands and water must be assured. When read in context, the thrust of these two plans is not to preserve prime agricultural lands for the sake of preservation--preservation is to occur only if there is a potential agricultural need for these lands.

Regarding Oahu Sugar Company, Ltd. (OSCo), Amfac has concluded that over at least the next decade (to the end of the major leases), no combination of the major housing projects planned and proposed for the Ewa/Central-Oahu area, and resulting loss in sugarcane acreage, will adversely affect the economic viability of OSCo or require layoffs of sugar workers. This is because of the expectation for relatively gradual reduction in sugarcane acreage, partial or complete compensation of this acreage loss by increasing yields, and rapid employment loss by attrition. In addition, Amfac is seriously exploring increased efficiencies through substantially reduced operations using just one rather than two processing lines. Reduced operations will free a very large amount of prime agricultural land--far more land than will be required for urbanization.

Regarding diversified agriculture, LESA projects a Statewide requirement of less than 9,000 additional acres for those crops which require prime agricultural lands. In contrast, the supply of prime agricultural lands consist of (1) a major portion of the 80,000 acres which has been freed from sugar and pineapple production since 1970--lands which are fallow or are in pasture or some other low-profit holding operation awaiting discovery of profitable crops; (2) lands which may be freed from sugar given that nine of the thirteen sugar plantations in Hawaii are unprofitable and the Federal price support for sugar is scheduled to remain unchanged until at least 1991; and (3) vast acreages of sugarcane lands which are actually in a holding operation awaiting discovery of profitable replacement crops. In summary, the amount of prime agricultural land required to accommodate growth of diversified agriculture is very small compared to the huge supply that is available for profitable crops. The Village Park expansion combined with the other major projects planned and proposed for the Ewa/Central-Oahu area require are too little land to materially affect this land demand/supply balance.

Regarding housing, the Village Park expansion is clearly in support of the Hawaii State Plan, particularly those policies, objectives, and priority directions which encourage development of reasonably priced, safe, sanitary, livable homes in suitable

Mr. Jack Suva, Chairman
July 7, 1986
Page 4

environments. Nevertheless, certain priority guidelines (but not objectives or policies) dealing with population growth and distribution (but not economic growth) do call for encouraging urban growth primarily to existing urban areas and marginal agricultural lands, and away from important agricultural lands. While this is desirable, it is unrealistic in terms of the supply of lands suitable for building reasonably priced housing, and unrealistic as to the agricultural market which could use the vast supply of prime agricultural lands profitably.

Since the Village Park expansion will not adversely affect the economic viability of OSCo, will not limit the growth of diversified agriculture, but will contribute to a healthier housing market, the project is consistent with the major thrust of the Hawaii State Plan and the State Agriculture Functional Plan.

Regarding Implementing Action B(5)(c), it should be noted that the Village Park Expansion will not adversely affect the economic viability of OSCo, nor the growth of diversified agriculture. However, the project will provide substantial housing benefits. Furthermore, the City and County has designated a portion of the project in its Central Oahu Development Plan.

It is the belief of the EIS consultant that the impact of the proposed project on agriculture has been adequately discussed in the Draft EIS, especially in light of the conclusion that agricultural land would be lost. We believe that the divergence of views between the Agricultural Impact Report prepared for the project and the comments made by the Department of Agriculture have served to provide an even more thorough review of the impacts of the proposed development.

We wish to thank the Department of Agriculture and its staff for its review and comments.

Sincerely,

William E. Manket

WEM:awp

cc: Dept. of Land Utilization

STATE OF HAWAII
DEPARTMENT OF LICENSE
OFFICE OF THE NOTARY PUBLIC
3949 DALYWOOD HEAD ROAD, HONOLULU, HAWAII 96818-1105

HIENG

MAY 27 1986

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Waftec Development Proposal (Village Park Expansion)
Koaee and Waikale, Ewa, Oahu

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

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

Yours truly,



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

Enclosure

cc: William E. Manket, Inc. ✓

NO RESPONSE REQUIRED

6.8 - MAY 29 1986

WILLIAM
E.
WANKET
INC.
Land Use Consultants

FRANCIS M. HATANAKA
SUPERINTENDENT

JUN 11 1986



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2284
HONOLULU, HAWAII 96813

June 6, 1986

GEORGE A. ARAKI
DIRECTOR

OFFICE OF THE SUPERINTENDENT

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 S. King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

SUBJECT: Waitec Development Proposal
(Village Park Expansion)

Our review of the subject development indicates that the following student enrollment may be generated:

SCHOOL	GRADE	APPROXIMATE ENROLLMENT
Hoaeae Elementary (Planned)	K-6	620 - 850
Waipahu Intermediate	7-8	170 - 230
Waipahu High	9-12	330 - 420

The subject development is expected to generate a severe impact on the need for additional classroom space at all grade levels. For the elementary level, the new school is scheduled to be completed for September, 1989 occupancy. The construction of additional classrooms are being scheduled to accommodate the anticipated growth at the secondary schools.

Please keep us informed of the development schedule so that classrooms can be provided on a timely basis.

Should you have any questions, please contact Mr. Richard Inouye at 737-4743.

Sincerely,

Francis M. Hatanaka
Francis M. Hatanaka
Superintendent

FMH:J] (MRI)
cc M. Araki, Leeward Dist.
M. Wanket, Mm. Wanket, Inc.
OBS

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

July 7, 1986

Mr. Francis M. Hatanaka
Superintendent
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Re: Comments to Draft EIS Waitec Development Proposal
(Village Park Expansion)

Dear Mr. Hatanaka:

Thank you for your comments of June 6, 1986. We respond as follows:

We will continue to keep your Department informed of the progress of our development through the planning process so that classrooms can be provided on a timely basis.

Sincerely,

William E. Wanket
William E. Wanket

WEW:awp
cc: Dept. of Land Utilization

Francis M.
Superintendent
Department of Education
Honolulu, Hawaii 96813

W H I T T I
W I N N I
P.

July 7, 1986

Mr. James K. Ikeda
Deputy Director for
Environmental Health
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801
Re: Comments to Draft EIS Waitec Development Proposal
(Village Park Expansion)

Dear Mr. Ikeda:

Thank you for your comments of June 19, 1986. We respond as follows:

No formal noise study is necessary as noise standards and mitigating measures are included in existing State laws and City ordinances. A mixture of land uses is the norm rather than an extraordinary occurrence. The proposed development poses no extraordinary circumstances that would suggest a formal noise study is necessary. The applicant will include these statements in the final EIS.

Commercial/Industrial Noise Impact on Residential Areas

There is a potential for noise generated in commercial and industrial areas to impact residential areas. The applicant believes that any impacts would be minimal because with the exception of two apartment designated parcels, all other residential areas are buffered from commercial/industrial activities by a golf course fairway. In addition, the new commercial industrial areas are a significant distance from any existing or planned development in the existing Village Park Development.

ISSUE 5, MATSUOKA
P.O. BOX 3378

COPY

IN REPLY, PLEASE REFER TO
EPMCD



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

June 19, 1986

MEMORANDUM

To: Mr. John P. Whalen, Director
Department of Land Utilization
City & County of Honolulu
From: Deputy Director for Environmental Health
Subject: Draft Environmental Impact Statement for Waitec Development
Proposal (Village Park Expansion), Hoesea and Waiale, Ewa, Oahu

Comments were made on February 3, 1986 to the "EIS Preparation Notice" concerning noise problems that are anticipated to be associated with the project. On page 28 in the Draft EIS, the applicant addresses the problems of noise associated with traffic and with aircraft, but does not address the concerns about noise from adjacent commercial/industrial facilities, and recreational activities, on the residential area within the project. The applicant must address these specific concerns, and should develop plans to mitigate these noise-related problems.

James K. Ikeda
JAMES K. IKEDA

cc: Mr. William E. Wanket ✓



DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

STATE OF HAWAII DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

Ref. No. P-4401

June 20, 1986

The Honorable John P. Mulaen, Director, Department of Land Utilization, City and County of Honolulu, 650 South King Street, Honolulu, Hawaii 96813

Dear Mr. Mulaen:

Subject: Draft EIS for Maitec Development Proposal (Village Park Expansion) Eaa, Oahu

We have reviewed the subject draft environmental impact statement (EIS) and have the following comments to offer.

- 1. The draft EIS should contain a discussion on the generation and disposal of industrial and hazardous wastes.
2. Mitigating measures should be identified in the draft EIS to reduce the erosion and pollution of Waikole Stream and to deal with the hazards of the Naval Magazine in Waikole Gulch.
3. The draft EIS should state the developer's commitment to assist the mitigation of downstream traffic impacts resulting from the proposed project.
4. The proposed project site is within the Waikole Stream hydrologic basin. Drainage from the site will flow into Waikole Stream (40%), the Village Park drainage system (60%), and finally into Pearl Harbor. While discharge in terms of quantity may only be a small part of the total basin drainage, the potential impact on receiving water quality should be addressed in the draft EIS. This is particularly relevant to the proposed golf course which compresses one-fourth of the total area proposed for development and the associated use of pesticides and other chemicals.
5. No study was conducted on the noise levels within the development area. In their letter to our agency dated April 8, 1986, the State Department of Health expressed reservations toward the proposed development because of noise levels from the mixture of land uses within the development. A noise study should be made.

The Honorable John P. Mulaen, Page 2, June 20, 1986

- 6. The draft EIS indicates that there will be a net increase in automobile carbon monoxide emissions. A study should be conducted to determine the air quality as a result of automobile emissions from existing and future projected traffic. The future projected traffic should include those resulting from the subject project and those from previously approved developments. The study should also propose mitigating actions.
7. The proposed development is not consistent with the Hawaii State Plan policies, objectives, and priority directions and those of the Agriculture Functional Plan relating to the preservation and prudent use of important agricultural lands, and ensuring the viability of agricultural activities.
8. The proposed development of agricultural land does not conform with the State Land Use District Regulations for determining Agricultural District boundaries.

Thank you for the opportunity to review and comment on the subject document.

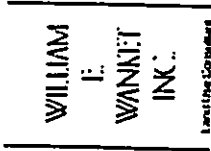
Very truly yours,

Handwritten signature: William E. Mantet

cc: William E. Mantet, Inc. Office of Environmental Quality Control

1986 JUN 24 PM 2 12
COUNTY OF HONOLULU

Vertical list of names: GEORGE H. ARAKAWA, KEIHI M. LEIHI, MERIAN S. ...



July 7, 1986

Mr. Kent H. Keith, Director
Department of Planning and
Economic Development
250 S. King Street
Honolulu, Hawaii 96813

Re: Village Park Expansion Draft EIS

Dear Mr. Keith:

Thank you for your comments of June 20, 1986 to the Waitec Draft EIS. We respond as follows:

Comment 1

Section 2.1.6, Hazards, of the Final EIS will include the following discussion on the generation and disposal of industrial and hazardous wastes.

Existing Conditions

Agricultural Operations (Sugar Cultivation) pose a potential hazard to the environment due to the potential for accumulation of toxic substances found in agricultural chemicals (fertilizers, pesticides and herbicides) in the environment. This hazard may be from accidents or from long run accumulation of "safer" applications.

Impact

The suburban planned community being proposed will contain an industrial/commercial area which has the potential to generate a hazard for such waste generation cannot be known because the potential for such waste generation users is unknown. The development will also contain a golf course which poses risks similar to the potential hazards from the existing agricultural operations.

Mr. Kent H. Keith, Director
July 7, 1986
Page 2

Mitigating Measures

There are State and Federal laws dealing with the generation and disposal of industrial and hazardous wastes. The EPA and the State Health Department enforce these laws and regulations which mandate mitigating measures in Industrial/Commercial areas. Golf course operations do pose a threat similar to other agricultural operations, however, the risks should be lessened by the fact that the area involved is only one-fourth the size of the area currently involved in agricultural production and that chemical application on golf courses is done in a more controllable fashion than the aerial spraying method prevalent in sugar operations.

Comment 2

The grading plan and the drainage plan for the proposed development is being reviewed by the Department of Public Works, the City agency charged with enforcing City requirements in regards to these areas. Waialeale Stream erosion and pollution control will be accomplished through coordination of design with the Department of Public Works. Downstream impacts is a standard concern of drainage system design. These standard concerns will be met with appropriate technical responses.

Attached please find a copy of the response to the Department of the Navy which addresses the hazards of the Naval Magazine in Waialeale Gulch.

Comment 3

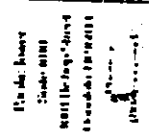
The Final EIS will contain a statement in section 2.3.1, Transportation, indicating the developer's commitment to assist the mitigation of downstream traffic impacts resulting from the proposed project. Currently under consideration is a Park and Ride facility and a carpool coordinator subsidy.

Comment 4

See response to Comments 1 and 2.

Comment 5

The discussion on noise impacts has been expanded (see attached response to the Department of Health regarding their noise concerns). The Final EIS will include this expanded discussion.



Mr. Kent H. Keith, Director
July 7, 1986
Page 3

A formal noise study is not necessary as noise standards and mitigating measures are included in existing State laws and City ordinances. A mixture of land uses is the norm rather than an extraordinary occurrence. The proposed development poses no extraordinary circumstances that would suggest a formal noise study is necessary.

Comment 6

Barry Root has been retained by the applicant to conduct the recommended study. The results of the study, including mitigating measures, will be included in the Final EIS.

Comment 7

A very careful reading of the Hawaii State Plan and the State Agriculture Functional Plan reveals that their thrust is to preserve the economic viability of plantation agriculture and to promote the growth of diversified agriculture. To accomplish this, an adequate supply of agriculturally suitable lands and water must be assured. When read in context, the thrust of these two plans is not to preserve prime agricultural lands for the sake of preservation--preservation is to occur only if there is a potential agricultural need for these lands.

Regarding Oahu Sugar Company, Ltd. (OSCo), Amfac has concluded that over at least the next decade (to the end of the major leases), no combination of the major housing projects planned and proposed for the Ewa/Central-Oahu area, and resulting loss in sugarcane acreage, will adversely affect the economic viability of OSCo or require layoffs of sugar workers. This is because of the expectation for relatively gradual reduction in sugarcane acreage, partial or complete compensation of this acreage loss by increasing yields, and rapid employment loss by attrition. In addition, Amfac is seriously exploring increased efficiencies through substantially reduced operations using just one rather than two processing lines. Reduced operations will free a very large amount of prime agricultural land--far more land than will be required for urbanization.

Regarding diversified agriculture, LESEA projects a Statewide requirement of less than 9,000 additional acres for those crops which require prime agricultural lands. In contrast, the supply of prime agricultural lands consist of (1) a major portion of the 80,000 acres which has been freed from sugar and pineapple production since 1970--lands which are fallow or are in pasture or some other low-profit holding operation awaiting discovery of

Mr. Kent H. Keith, Director
July 7, 1986
Page 4

profitable crops; (2) lands which may be freed from sugar given that nine of the thirteen sugar plantations in Hawaii are unprofitable and the Federal price support for sugar is scheduled to remain unchanged until at least 1991; and (3) vast acreages of sugarcane lands which are actually in a holding operation awaiting discovery of profitable replacement crops. In summary, the amount of prime agricultural land required to accommodate growth of diversified agriculture is very small compared to the huge supply that is available for profitable crops. The Village Park expansion combined with the other major projects planned and proposed for the Ewa/Central-Oahu area require too little land to materially affect this land demand/supply balance.

Regarding housing, the Village Park expansion is clearly in support of the Hawaii State Plan, particularly those policies, objectives, and priority directions which encourage development of reasonably priced, safe, sanitary, livable homes in suitable environments. Nevertheless, certain priority guidelines (but not objectives or policies) dealing with population growth and distribution (but not economic growth) do call for encouraging urban growth primarily to existing urban areas and marginal agricultural lands, and away from important agricultural lands. While this is desirable, it is unrealistic in terms of the supply of lands suitable for building reasonably priced housing, and unrealistic as to the agricultural market which could use the vast supply of prime agricultural lands profitably.

Since the Village Park expansion will not adversely affect the economic viability of OSCo, will not limit the growth of diversified agriculture, but will contribute to a healthier housing market, the project is consistent with the major thrust of the Hawaii State Plan and the State Agriculture Functional Plan.

The applicant believes that agricultural concerns have been responded to in a satisfactory manner by the Agricultural Impact Study included as Appendix D in the Draft EIS. Additional responses have been made to the Department of Agriculture's Comments (see attached).

Comment 8

Conformance with State Land Use Regulations is a determination made by the State Land Use Commission. The application is currently being reviewed by that body.

Mr. Kent M. Keith, Director
July 7, 1986
Page 5

At the local level the City Administration has gone on record as favoring a General Plan change and a Development Plan change supporting the project. In addition the City Council approved a portion of the project under the existing City General Plan.

In contrast to DPED's assertion, the Village Park expansion does conform to the State Land Use District Regulations for determining Agricultural District boundaries--the project will not adversely affect agriculture, is needed to house Oahu's growing population, is contiguous with the existing Village Park, is near jobs and services and, in part, is consistent with the City and County Development Plan for Central Oahu.

Thank you for your comments.

Sincerely,


William E. Manket

MEW:awp
cc: Dept. of Land Utilization

4263
STP 8.1389

June 10, 1986

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

EIS Review
Village Park Expansion
Koaee and Waikele, Ewa, Oahu

The proposed development has been extensively coordinated with our agency and the majority of our concerns have been satisfactorily addressed in the project's Traffic Impact Analysis Report.

For your information, we have also corresponded with the State Department of Planning and Economic Development regarding the land use boundary amendment petition for this development. We have indicated that Kunia Road should be designed and the right-of-way set aside by the developer/landowner in full consideration of accommodating future traffic demands.

Please contact us if you have any questions.

Very truly yours,


Wiyata J. Yamasaki
Director of Transportation

cc: DEP-B, HWY, HWY-P, STP(dt)

Mr. William E. Manket

JUL 14 1986

Mr. John Whalen
Page 2

STP 8.1410

4262
STP 8.1410

June 30, 1986

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

EIS Review
Village Park Expansion
Moaeae and Waikole, Ewa, Oahu

The following comments are in addition to those submitted to you earlier by our response dated June 10, 1986 (STP 8.1389):

1. Because of high traffic volumes, improvements should be planned for the ramp terminals for Ramps KI-A and KO; otherwise, Route H-1 will be adversely affected.
2. Adding a second lane to Ramp KI-A may create safety concerns due to the heavy volume of traffic expected. Therefore, alternative designs including extending Ramp KI-A further south to Sonowai Street should be considered.
3. Developer should consider an extension of Kunia Road's three northbound lanes across South Kupuna Loop intersection to allow the outside lane traffic to turn right or continue on northward.
4. It is suggested that there be a full three lanes for southbound Kunia Road traffic between North and South Kupuna Loop intersections.

5. Consideration should be given to prohibiting left turns into South Kupuna Loop and extending lanes through the intersection. The North Kupuna Loop intersection should then remain a 3-phase traffic signal system.
6. The section on impact to highways should reference the Traffic Impact Report in the Appendix.
7. Plans and specifications for highway improvements and work within the State highway right-of-way should be coordinated with and subject to approval by the State Highways Division.
8. It is expected that all improvements costs will be borne by the developer.

We realize the lateness of these comments but hope the developer will give them serious consideration.

Very truly yours,



Wayne J. Yamaaki
Director of Transportation

DT:ko

cc: DEP-H, HWY, STP(dt)
Mr. William E. Wankat

JUL 2 1986

WILLIAM
E.
WANKET
INC.
1000 Kalia Road, Suite 1000
Honolulu, Hawaii 96813



University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7201

July 7, 1986

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

Re: Comments to Draft EIS Waitec Development Proposal (Village Park
Expansion) dated June 10, 1986 and June 30, 1986

Dear Mr. Yamasaki:

Thank you for your comments of June 10 and June 30, 1986. We respond as follows:

Comment 6/10/86:

Kunia Road has been designated and the right-of-way set aside by the developer in full consideration of accommodating future traffic demands.

Comment 6/30/86:

Comments 1-7: These comments will be addressed during the design of the final plans and specifications which will be coordinated and approved by the State Highways Division.

Comment 8: All improvement costs will be borne by the developer.

Thank you for the assistance of your staff in coordinating the traffic needs of the development with the existing and future conditions. Our staff will continue to coordinate the traffic impacts of the development as the design phase matures.

Sincerely,

William E. Wanket
William E. Wanket

WEW:awp
cc: Dept. of Land Utilization

Page: _____
Date: _____
Project: _____
Program: _____
Department: _____

June 23, 1986
RE:0435

Mr. John Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Draft Environmental Impact Statement
Waitec Development Proposal
(Village Park Expansion)
Hoesea and Waikale, Eva, Oahu

We appreciate the opportunity to review the Draft EIS for the Waitec Development Proposal in Eva, Oahu. Due to faculty summer vacation and conference schedules, the Environmental Center has not been able to provide comments in all areas of possible concern. We have prepared the following comments with the assistance of Yu-Si Fok, Water Resources Research Center; and Scott Darrickson, Environmental Center.

The developer's proposed water supply plan and drainage plan appears to have adequately addressed our concerns regarding water related impacts. We would suggest, however, that the developer's arrangements with the Board of Water Supply and the County's Department of Public Works be disclosed in the Final EIS.

Yours truly,

Doak C. Cox
Doak C. Cox
for Jacquelin N. Miller
Acting Associate Director

cc: William Wanket
Patrick Takahashi
OEQC
Yu-Si Fok
Scott Derrickson

JUN 27 1986

AN EQUAL OPPORTUNITY EMPLOYER



University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 203 • 2540 Dole Street
Honolulu, Hawaii 96822

July 7, 1986

Ms. Jacquelin N. Miller
Acting Associate Director
UHI Environmental Center
2350 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Re: Comments to Waitec Development Inc. Draft EIS
(Village Park Expansion)

Dear Ms. Miller:

Thank you for your comments of June 23, 1986. We respond as follows:

The final EIS will contain a clarification on the status of Waitec's request for water from the Board of Water Supply. See attached response to Board of Water Supply comments to the EIS.

The Waitec development proposal is in a relatively early stage of the planning process. At the present time there is no arrangement with either the Board of Water Supply or the Department of Public Works. Currently the relationship between these agencies and Waitec is one of "applicant" and approving agency. Plans at the appropriate level of detail have been submitted to both BWS and DPW. Final approvals cannot be expected from either agency until the planning process has reached much later stages. Waitec expects to be granted final approvals once the appropriate processing has been completed.

Again, thank you for your comments.

Sincerely,

William E. Wanket

WEW:awp
cc: Dept. of Land Utilization

Project Name	
System No.	
Project Location	
Project Status	
Project Date	

20 June 1986

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

SUBJECT: Draft Environmental Impact Statement, Waitec Development Proposal, Hoese and Waikale, Ewa, Oahu, (Village Park Expansion) May 1986

We have reviewed the subject DEIS and offer the following comments. This site is in the recharge zone of the underlying potable basal aquifer. Consequently:

1. The 28.7 acres of commercial/industrial mix constitutes a potential hazard to that aquifer. Industrial use is the problem because even common cleaning solvents (such as those used by automotive repair shops) when spilled on the ground, can be leached into the water source.
2. Since impermeable pavement and buildings will reduce infiltration and recharge of the aquifer, while at the same time increase runoff, some provision for retaining runoff would be advantageous. Using the "roughs" of the golf course as ponding areas may be advantageous. While not all runoff can be retained in this manner, their use may also reduce peak flow while enhancing infiltration.

Thank you for the opportunity to comment. This material was reviewed by WRRRC personnel.

Sincerely,

Edwin T. Murabayashi
EIS Coordinator

ETM:jm

cc: W.E. Wanket

JUN 1986

AN EQUAL OPPORTUNITY EMPLOYER

CITY AND COUNTY OF HOLOLOLU
 FIRE DEPARTMENT
 1435 S. MERLEMAN STREET, ROOM 309
 HONOLULU, HAWAII 96814



FRANK K. KAWOONAHIAHO
 FIRE CHIEF
 LYONEL S. CAMARA
 DEPUTY FIRE CHIEF

June 23, 1986

TO : JOHN P. WHALEN, DIRECTOR
 DEPARTMENT OF LAND UTILIZATION
 FROM : FRANK K. KAWOONAHIAHO, FIRE CHIEF
 SUBJECT: VILLAGE PARK EXPANSION, EIS

We have reviewed the subject EIS and comment as follows:

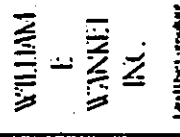
1. The Village Park area receives fire protection from the Waipahu Fire Station, housing an engine and ladder company. Secondary service is provided by an engine company at Pearl City Fire Station, and engine and ladder companies from the Maiau Fire Station.
2. Existing fire protection for the Village Park area is considered marginal in terms of distance and response time. Future development, mauka of Village Park, will require an additional fire station housing an engine company in the Kunia area.

Should you have any questions, please contact Battalion Chief Kenneth A. Word at 943-3838.

Frank K. Kawoonaiahao
 FRANK K. KAWOONAHIAHO
 Fire Chief

FKK:KAW:sd
 cc: Mr. William E. Wanket, President
 William E. Wanket, Inc.

JUN 24 1986



July 7, 1986

Mr. Edwin T. Murabayashi
 EIS Coordinator
 University of Hawaii at Manoa
 Water Resources Research Center
 2340 Dole Street, Holmes 283
 Honolulu, Hawaii 96822

Re: Comments to Draft EIS Waitec Development Proposal (Village Park Expansion)

Dear Mr. Murabayashi:

Thank you for your comments of June 20, 1986. We respond as follows:

Comment 1

We concur that industrial areas present a potential hazard to the aquifer if located in a recharge zone. This would be the case in any area where an industrial development were located within a recharge area. Waitec Development, Inc. will work with the various State and County agencies charged with the protection of the environment during the planning and approval phases of the project to minimize the environmental risks. Commercial and industrial developments are an integral part of master planned communities and should be included unless there is a special hazard in the location of such areas on this particular site. The Final EIS will include reference to the potential hazard of commercial/industrial development to the aquifer, in the Hazard Section 2.1.6.

Comment 2

Your comments regarding the incorporation of the golf course design into the drainage plan for the development have been forwarded to our civil consultants. Awareness of your comments may suggest some alternatives which may be advantageous.

Again, thank you for your comments.

Sincerely,
William E. Wanket
 William E. Wanket

WEW:awp
 cc: Dept. of Land Utilization

SEARCHED
 SERIALIZED
 INDEXED
 FILED



WILLIAM
E.
WANKET
INC.
Land Use Consultant

July 7, 1986

Chief Frank K. Kahoohanohano
Honolulu Fire Department
1455 S. Beretania Street, Room 305
Honolulu, Hawaii 96814

Re: Comments to Draft EIS for the Village Park Expansion
Dated June 23, 1986

Dear Chief Kahoohanohano:


We appreciate your review of the comments to the Draft EIS for the Village Park Expansion and respond as follows:

Comments 1 and 2 have been substituted for the last paragraph on page 31 of the Draft EIS. The new statement will appear in the Final EIS.

Subsequent to receipt of the comments dated June 23, 1986, Battalion Chief Kenneth A. Word (contact person at Fire Department) was contacted by telephone and reiterated that any development beyond the Village Park Expansion covered in the Draft EIS would require a new Kunia Fire Station.

We thank you for your response and for the assistance of your staff in outlining the fire protection impacts.

Sincerely,


William E. Wanket

WEW:awp

cc: Dept. of Land Utilization

Pacific Power
Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813
Phone
808-533-8477

DEPARTMENT OF HOUSING AND COMMUNITY DEV. SPHERENT
CITY AND COUNTY OF HONOLULU
510 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 533-8151



FRANK PANG
DIRECTOR

ALVIN K. H. PANG
DIRECTOR

June 12, 1986

MEMORANDUM

TO: John P. Whalen, Director
Department of Land Utilization

FROM: Alvin K. H. Pang

SUBJECT: EIS - Waftec Development Proposal (Village Park Expansion)
THK: 9-4-2: 30 and Portion of 1 and 17
Area: 691.5 Acres
Development Plan: Agriculture
Zoning Map: AG-1 Restricted Agriculture
State Land Use Map: Agriculture

Thank you for the opportunity to review and comment on the subject proposal.

The Department of Housing and Community Development is mandated to provide housing units for low- and moderate-income families on Oahu. The draft EIS report indicates that the developer has agreed to dedicate 30 acres of land to the City for the purpose of providing subsidized housing. It is estimated that approximately 450 units can be accommodated on the proposed two 15-acre sites.

If there are any questions, please call James Miyagi of our Department at X4264.


WILLIAM E. WANKET, President

Mr. William E. Wanket, President
William E. Wanket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

NO RESPONSE REQUIRED

JUN 14 1986

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
550 SOUTH KING STREET
HONOLULU, HAWAII 96813



June 20, 1986

Mr. William E. Manket
William E. Manket, Inc.
Pacific Tower, Suite 1010
Honolulu, Hawaii 96813

Dear Mr. Manket:

Draft Environmental Impact Statement (EIS)
Waitec Development Proposal
Hoaeae and Maikela, Ewa, Oahu
(Village Park Expansion)
Tax Map Key 9-4-02, Parcels 30 and
Portions of 01 and 17

We have reviewed the Draft EIS and have the following comments and questions:

A. Water

1. Is the 11 million gallons per day (mgd) already allocated by the Department of Land and Natural Resources (DLNR) to the Board of Water Supply (BWS) from the Pearl Harbor Groundwater Control Area (PHGCA) sufficient for the entire project or only the first 1000 units?
2. Will the additional 2 mgd requested of DLNR by BWS meet the projected demand for the entire project of 3438 units?
3. What is the current status of BWS's request to DLNR for the additional 2 mgd from the PHGCA?

B. Wastewater

1. We understand that there is no available capacity at both the Waipahu Wastewater Pump Station (WUPS) and the Honouliuli Wastewater Treatment Plant (HWTP) to serve the development. The EIS should be revised to reflect this situation.

Mr. William E. Manket
Page 2

COMP 444574

COMP 444574

2. We understand that there are no federal funds available for the expansion of the Honouliuli HWTP, and that there are no plans to expand the Waipahu WUPS. The EIS should be revised to describe how and when sewage facilities will be developed which are adequate to accommodate the development.

C. Agricultural Lands

The EIS should indicate the acreage of agricultural land which will be lost by "Agricultural Lands of Importance in the State of Hawaii" categories; i.e., "Prime Agricultural," "Other Important Agricultural," and "Other (not classified)."

D. Hazards

The EIS should show the location of the Naval Magazine Maikela Branch in relation to the project and describe its potential hazards.

E. Land Use Policies and Regulations

The EIS should be revised to indicate:

1. The current status of the boundary change request before the State Land Use Commission.
2. The current status of the General Plan in relation to the project.
3. That the Development Plan amendment has been rejected by the Chief Planning Officer for consideration in the '86 - '87 Annual Review.
4. The status of Development Plan Public Facilities Map with regard to improvements to the Waipahu WUPS, the proposed trunk sewer from the project area to the Waipahu WUPS, and the expansion of the Honouliuli HWTP.

F. Appendix G, Impact on State and County Finances

The analysis should be revised to describe the funding situation for improvements to Waipahu WUPS and Honouliuli HWTP.

COMP 444574

JUN 21 1986

Mr. William E. Manket
Page 3

G. Other Comments

Replace partially obliterated copies:

1. Department of Agriculture letter
2. Your letter to Department of Planning and Economic Development
3. Page 53 of Market Study

If you have any questions regarding these comments, please call Bennett Mark of the Environmental Affairs Branch at 527-5038.

Very truly yours,

John P. Whalen
JOHN P. WHALEN
Director of Land Utilization

JPM:s1
0234B

July 7, 1986

Mr. John Whalen, Director
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Re: Comments to Draft EIS Waitec Development Proposal
(Village Park Expansion)

Dear Mr. Whalen:

Thank you for your comments of June 20, 1986 to the Draft EIS. We respond as follows:

Comment A (Water)

1. The 11 million gallons per day allocated by DLNR does not include Village Park Expansion.
2. The 1.04 mgd requested for Kunia Wells II will serve only part of the Village Park Expansion.
3. The BWS request to DLNR for 1.04 mgd is still under consideration.

Comment B (Wastewater)

1. Attached please find a copy of the memorandum from Department of Public Works to Department of Land Utilization dated 7/7/86 which clarifies DPW's 5/30/86 memorandum. The most recent memorandum states that sewer capacity is available for 1,000 units of the proposed development.
2. As discussed above there is an additional 1,000 unit capacity at both the Honolulu WTP and the Waipahu WPS. Approval of the Waitec Development in total would require the expansion of both the WTP and the WPS. If Federal funds are not available for the expansion then the additional capacity would have to be funded through additional County and State appropriations. It is anticipated that these appropriations would be based on requests from the City administration based on recommendations made by the Department of Public Works. The Department of Public Works is constantly monitoring the flows at its various pump stations and treatment plants as well as future development approvals in order to make funding requests of the City Council.

The above information will be included in the Final EIS.

JUN 21 1986

Comment C

691.5 acres is considered "Prime Agricultural" Lands.

Comment D

The U.S. Navy has not transmitted to the petitioner its final "Blast Zone" map of Naval Magazine Waikale Branch. (See response to Navy letter.)

Comment E (Land Use Policies and Regulations)

1. The boundary change for the Waitec Development, Inc. proposal is pending before the land use commission.
2. During the 1985-1986 Development Plan Review the Waitec Development proposal was granted partial approval. (Approximately 100 acres and 300 units were approved.) Development Plan changes can only be granted if they are in compliance with existing General Plan Requirements. Therefore, at least the portion of the project covered by the DP change is in compliance with the General Plan.

Further, the City's Chief Planning Officer recommended a General Plan change in 1986 and further recommended approval of the entire 691.5 acre contingent on the General plan change.

The General Plan five-year review will take place in 1987. It is the applicant's contention that the proposed development complies with the existing General Plan.

3. It is the applicant's understanding that where a General Plan amendment is involved there may not be a 1986-1987 annual review. The next processing period would be the 1987 review. The Waitec Development Project has been submitted for processing during the 1987 review period and consists of 391.5 acres (the portion of the development not approved in the 1983-1986 review). The application has been filed and is under consideration by DGP for processing.

4. As stated above, since there is additional capacity at the Waipahu WWP and Honolulu WWP, no facilities maps have been prepared. Figure 3 of the facilities map for the Proposed Village Park Development Proposals show the trunk sewer alignment from the project to Waipahu WWP.

Comment F (Impact on State and County Finances)

There should be no impact on State and County Finances if the Waitec project triggers sewage facilities expansion beyond those considered in the State and County impact analysis. This is because the estimated expenses were increased to provide current levels of services and therefore should include the necessary debt service to handle capital costs.

However, even if this expenditure is in addition to projected expense, cost estimates provided in the Water Quality Management Plan for the City and County of Honolulu October 1978 initiated to 1986 dollars on a per person basis are \$149 for primary treatment and \$284 for secondary treatment. If the Village Park Expansion were to require that service for 10,000 persons be provided then even at the secondary level total cost would be \$2,800,000. Using the same financing estimates used in the Decision Analysis Hawaii Study (30 year 8 1/2% bond) indicates an average annual debt service of \$264,000 or a 10% reduction in the estimated \$2.6 million dollar positive impact of the development on State and County Finances.

The EIS consultant believes that this possible reduction in the positive benefits of the development on State and County finances is insignificant and doubtful in light of the fact that increases in debt service were already considered in the expense portion of the State and County Impact Analysis.

This information will be included in the Final EIS.

Comment G (Other Comments)

Obiterated pages noted in comments 1, 2 and 3 above have been replaced.

Thank you for your comments.

Sincerely,

William E. Wanket

WEW:awp

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

410 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 933-4451



ALVIN S. PANG
DIRECTOR

FRANK P. PASH
DIRECTOR

April 9, 1986

Ms. Jennie Wolfe
Ms. Barbara Maluo
Ms. Shirley Kim
c/o 94-662 Ka'aholo Street
Waipahu, HI 96797

Dear Ms. Wolfe, Maluo and Kim:

Subject: Park Area
Waitec Development (Village Park)

We are pleased to inform you that the Department of Parks and Recreation completed its review of your park requirements in the Waitec Development site and will recommend to the City Council to accept from the developer two public park sites as part of its proposed development. One park covers 10.3 acres and another 5.5 acres. In addition, a 5.2-acre park will be developed and maintained privately. The parks are indicated in red on the attached map.

The provision for three separate parks rather than a single 21-acre park in the proposed development is largely attributable to the timely suggestion made by you and the community association and is recognized by the developer as representative of the community's feelings on this matter.

Your continued participation in the future development of this area is appreciated by the developer and various City departments.

Sincerely,
[Signature]
ALVIN S. PANG, Director

Enclosure

cc: Department of Parks and Recreation

JUN 21 1986

JUN 10 AM 8 56
DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

March 3, 1986

Mr. Kenneth Makamura
c/o Herbert K. Horita Realty, Inc.
Kalihi Branch
2024 North King Street
Honolulu, Hawaii 96819

Dear Mr. Makamura:

Subject: Parks in Village Park Expansion Area

This is to confirm our discussion with you and Mr. Clarence Imanaka of Park Engineering, Inc. regarding public parks in the Village Park Expansion Area.

We will recommend to the City Council the acceptance of two public parks. One park will be a 10.3-acre area adjacent to the low-density apartments, as shown on the attached map. The park configuration will be changed to straighten the curvilinear property lines. The other park is a 5.5-acre area on the Muka, Koko Head side of the development.

In addition, a 5.2-acre park adjacent to the private recreation center, as shown on the map, will be developed and maintained privately.

I hope this is in accord with your understanding, as discussed at the meeting in our office on February 21, 1986.

Sincerely,
[Signature]
Tom J. Nekota

TOM J. NEKOTA, Director

TTM:el (Y. Taketa, Advance Planning)

Attach.

cc: Councilmember Patsy Mink
Councilmember Arnold Morgado

FILE COPY

MAR 4 1986

D. DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET
 HONOLULU, HAWAII 96813

106/86-3450



June 6, 1986

TO: JOHN P. WAHLEN, DIRECTOR
 DEPARTMENT OF LAND UTILIZATION

FROM: TOM T. HEKOTA, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT
 VILLAGE PARK EXPANSION - HOEAHE
 TAX MAP KEY 9-4-02: 30 AND POR. 1 & 17

We have reviewed the Environmental Impact Statement for the proposed Village Park Expansion and make the following comments and recommendations:

The land use plan for the locations of the proposed 21 acres of parks is conceptually acceptable. However, a recreational assessment was made with the applicant to determine the number and types of parks needed to serve the proposed project and also meet the park dedication requirements. It was concluded that two public parks and one private park will be developed, as shown on the attached map.

As part of the planning process, it will be necessary for the applicant to coordinate with our department to adjust the configuration and topography of the proposed public parks to fit our basic park facilities.

Please have the applicant contact Mr. Jason Yuen of our Advance Planning Section at 527-6315 to discuss the planning of the proposed parks.

Tom Hekota
 TOM T. HEKOTA, Director

TTH:el
 Attach.

1986 JUN 10 AM 8 56
 DEPT. OF LAND UTILIZATION
 CITY & COUNTY OF HONOLULU

TOM T. HEKOTA
 DIRECTOR

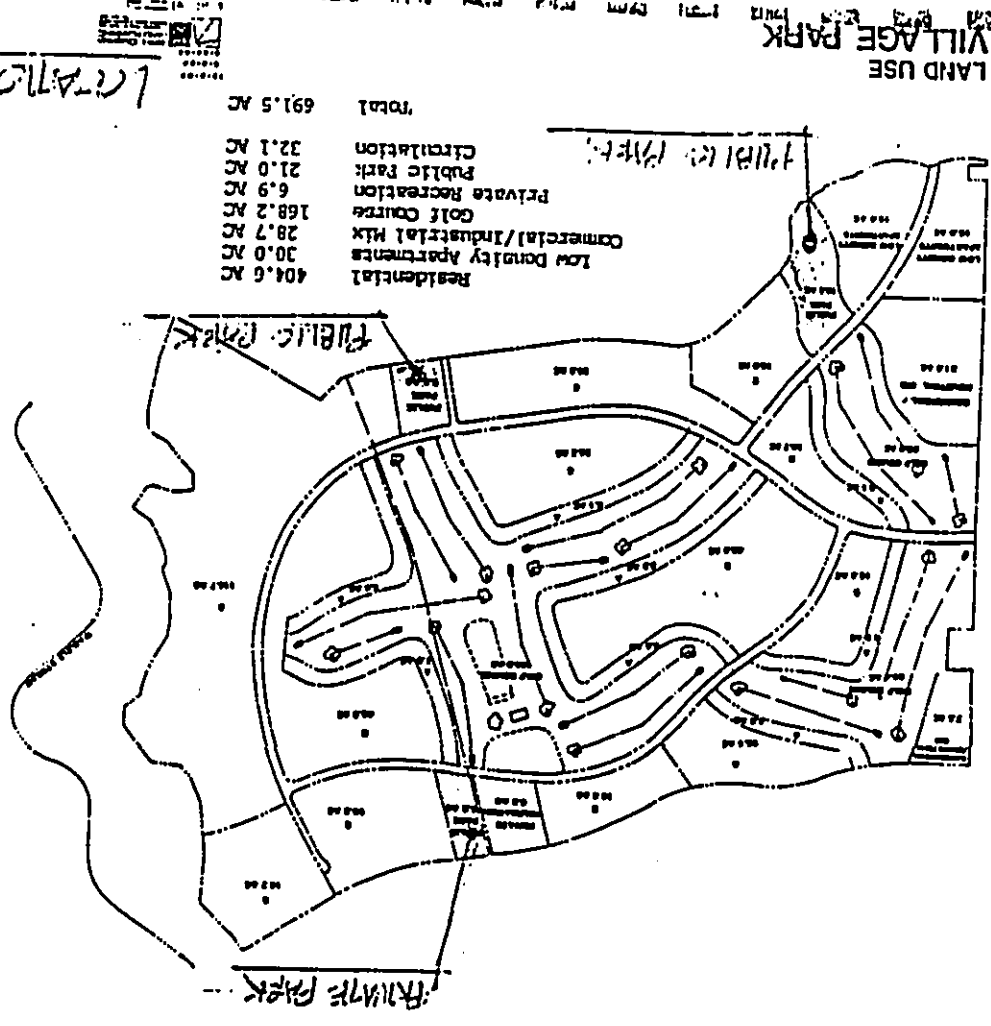


Figure 1-2

1986 JUN 10 AM 8 56
 DEPT. OF LAND UTILIZATION
 CITY & COUNTY OF HONOLULU

JUN 21 1986

JUN 21 1986

WILLIAM
E.
WANKET
INC.
Land Utilization

July 7, 1986

Mr. Tom Nekota, Director
Department of Parks & Recreation
650 S. King Street
Honolulu, Hawaii 96813

Re: Comments to Draft EIS Waitec Development Proposal
(Village Park Expansion)

Dear Mr. Nekota:

Thank you for your comments of June 6, 1986. We respond as follows:

The land use map included in the Draft EIS includes 21 acres of land for park use and 6.9 acres for a private recreation area. The 5.2 acre park adjacent to the private recreation center will be developed and maintained privately as outlined in your March 3, 1986 letter to Mr. Kenneth Nakamura of Waitec Development, Inc.

Waitec Development, Inc. will contact Mr. Jason Yuen of the Advance Planning Section to discuss the planning for the park, including adjustments in configuration and topography necessary to accommodate basic park facilities.

We appreciate your efforts as well as those of your staff in balancing the desires of the Parks Department with those of the Village Park residents.

Sincerely,

William E. Wanket
William E. Wanket

WEW:awp
cc: Dept. of Land Utilization

10-1-86
10-1-86
10-1-86
10-1-86

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1935 SOUTH BERKELEA STREET
HONOLULU, HAWAII 96813 - AREA CODE 1986 943-3111

FRANK P. PARR
MAYOR



DOUGLAS G. GIBB
CHIEF
WANKET DEVELOPMENT
DEPUTY CHIEF

OUR REFERENCE EC-JS

June 2, 1986

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: DOUGLAS G. GIBB, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

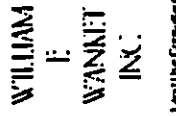
SUBJECT: WAITEC DEVELOPMENT (Village Park Expansion)

Thank you for providing us with a copy of the Environmental Impact Statement for the Waitec Development (Village Park Expansion). The Honolulu Police Department has no further comment in regard to this project.

Douglas G. Gibb
DOUGLAS G. GIBB
Chief of Police

cc: Mr. William E. Wanket, President
William E. Wanket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

NO RESPONSE REQUIRED



July 7, 1986

Mr. Russ Smith, Director
Department of Public Works
650 South King Street
Honolulu, Hawaii 96813

Re: Comments to Draft EIS Waitec Development Proposal
(Village Park Expansion)

Dear Mr. Smith:

Thank you for your comments of May 30, 1986 and June 7, 1986. We respond as follows:

Comment 1:

No response necessary.

Comment 2:

The information provided regarding the plans for expansion of the Honolulu WTP and the Waipahu WWS and the availability of Federal funding will be included in the final EIS.

Thank you for your letter of clarification of July 7, 1986 stating that there is availability of treatment capacity for 1,000 units of the proposed project.

Thank you again for your comments.

Sincerely,

William E. Wanket

WEW:awp

cc: Dept. of Land Utilization

File in Room
Suite 401J
1500 Ala Moana Blvd.
Honolulu, Hawaii 96813
11/11/86

FILE COPY

TF-2658
PL 1.0325

June 16, 1986

MEMORANDUM

TO: JOHN P. KHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: JOHN E. HIRTFEN, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT (EIS)
WAIITC DEVELOPMENT PROPOSAL (VILLAGE PARK EXPANSION)
TRK: 9-4-02: 30, Pgs. 1 and 17

This is in response to the State Office of Environmental Quality Control's request of May 20, 1986, to review and comment on the subject EIS.

We have reviewed the EIS and have the following comments:

1. Collector roads #1, #2, and #3 should be designed to have a 60 foot right-of-way in lieu of the 56 feet being proposed. This 60 foot right-of-way would provide a 44 foot curb-to-curb width with 8 foot sidewalks on both sides.
2. Collector road #4 should be designed to have a 44 foot right-of-way in lieu of the 40 feet being proposed. This would provide a 28 foot curb-to-curb width with 8 foot sidewalks on both sides.
3. The intersection of collector road #1 and Kunia Road should be designed similarly to the intersection of North Kupuua Road and Kunia Road. We recommend five lanes at this intersection. This will provide three outbound lanes (a right-turn and two left-turn lanes) and two inbound lanes.

COPY

June 17, 1986

John P. Whalen
Page 2

June 17, 1986

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR
WAITEC DEVELOPMENT PROPOSAL (VILLAGE PARK
EXPANSION) AT HOAHEA AND WAIKELE, TRK: 9-4-02: 30
AND POR. 01, 17

We appreciate the opportunity to review Waitec's proposed
planned residential community project and have the following
comments:

1. The proposed Village Park Expansion refers only to Phase I of the Village Park Water Master Plan dated February 10, 1986.
2. On Page 7, Line 1, the 3,000 residential units apply only to Phase I of the proposed expansion.
3. On Page 7, Lines 3 and 5, the acreage on the Water Master Plan for Commercial/Industrial use is 34.7 acres and for Parks/Schools is 27.9 acres.
4. On Page 7, Items a) and b), the data on the second phase improvements relating to the two booster pump stations should be consistent with the data in the Water Master Plan. The booster pumps have been sized at 3235 gallons per minute (gpm) (1.54 million gallons per day [mgd]) for the Kunia Well I site and 3370 gpm (1.862 mgd) for the Kunia Well II.
5. On Page 7, Item c), the transmission main between the Kunia 440' reservoir and the proposed Kunia 675' reservoir should indicate 4000 feet of 20-inch main and 3900 feet of 30-inch main instead of 5000 feet of 20-inch main.

6. On Page 7, the last paragraph on water should be revised to indicate that the improvements are in conformance with the Revised Board of Water Supply (BWS) Water System Standards. The Water Master Plan for the area, dated February 10, 1986, was approved by the BWS.
7. On Pages VI and 47, the statement that sufficient water is available from the increased allocation should be deleted. The BWS has requested for additional permitted use for the Kunia Wells II. If the request is approved by the State Board of Land and Natural Resources, it would allow the full utilization of the Kunia Wells II and meet the future demands of the Village Park expansion.

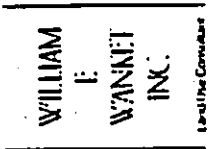
If you have any questions, please contact Lawrence Whang at 527-6138.

Kazu Hayashida

KAZU HAYASHIDA

cc: William E. Mantel

11/17/86



Mr. Kazu Hayashida
July 7, 1986
Page 2

July 7, 1986

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96813

Re: Comments to Draft EIS for Waitec Development Proposal
(Village Park Expansion)

Dear Mr. Hayashida:

We appreciate your review of and comments to the Draft EIS for the Village Park Expansion and respond as follows:

Comment 1

The following change will be made to the last paragraph relating to water on page 7: "The proposed improvements are in conformance with the Revised Board of Water Supply (BWS) Water System Standards. The Water Master Plan for the area, dated February 10, 1986, was approved by the BWS. The proposed Village Park Expansion refers only to Phase I of that plan."

Comment 2

Same as Comment 1 response.

Comment 3

Minor alterations have been made to the Village Park Expansion Land Use Plan during the planning phase of the proposal to accommodate the requests of reviewing agencies and community groups. Park Engineering, the water consultants for the Village Park development, will meet with your staff to review these changes and to provide revised information as necessary. The information contained in the Draft EIS is correct.

Park Tower
Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813
Phone
(808) 531-4937

Comment 4

The booster pump data will be revised to be consistent with the DWS Water Master Plan.

Comment 5

The transmission main pipe sizes and lengths will be changed to conform with the BWS Water Master Plan.

Comment 6

See response to Comment 1.

Comment 7

The statement that sufficient water is available from the increased allocation will be deleted on pages vi and 47; the following will be substituted in its place: "The BWS has requested for additional permitted use for the Kunia Wells II. If the request is approved by the State Board of Land and Natural Resources, it would allow the full utilization of the Kunia Wells II and meet the future demands of the Village Park Expansion."

Sincerely,

William E. Wanket

WEW:awp

cc: Dept. of Land Utilization



UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

P. O. BOX 50006
HONOLULU, HAWAII
96850

Wanket

June 13, 1986

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Whalen:

Subject: Draft EIS - Waitec Development Proposal, Moese and Waikale
Eva Oahu (Village Park Expansion)

We reviewed the subject draft environmental impact statement and have no
comments to make.

Thank you for the opportunity to review the document.

Sincerely,

Richard M. Wuncam
RICHARD M. WUNCAM
State Conservationist

cc: Mr. William E. Wanket, President
William E. Wanket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, HI 96813

NO RESPONSE REQUIRED

JUN 19 1986



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96838

June 3, 1986

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Thank you for the opportunity to review and comment
on the EIS for Waitec Development Proposal (Village Park
Expansion), Moese and Waikale, Oahu. The following
comments are offered:

a. The construction of any drainage improvements or
subdivision drainage outlet structures in Waikale Stream
will require a Department of the Army permit.

b. Flood hazards have been evaluated on page 49.
The proposed development is in a Zone C designation which
is an area of minimal flooding.

Sincerely,

Chauk Chang
Kisuk Chang
Chief, Engineering Division

JUN 21 1986

L06/86-3448

1986 JUN -9 AM 8:40
DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

LU 4/86-3668

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

86-186

1986 JUN 23 AM 9:14
DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU



June 20, 1986

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Whalen:

SUBJECT: Draft Environmental Impact Statement (DEIS)
Waitec Development Proposal
Hoesea and Maikela
Ewa, Oahu

Our office has reviewed the DEIS for the subject development that will provide for 3,000 single family units, 480 multi-family units; a commercial/industrial area; private and public park areas and a golf course on 691.5 acres. The project is located northwest and adjacent to the existing Village Park project that, when completed, will provide 1,745 housing units.

We find that the DEIS addresses the environmental issues in a satisfactory manner and should be acceptable to HUD pending review comments on the Draft Statement.

Should the applicant request HUD assistance in this development, he should contact our office after all governmental agencies have approved the project.

If you have any questions on environmental matters you may call Frank Johnson at 546-5570. Any questions concerning HUD subdivision processing should be directed to Henry Leong at 546-3174.

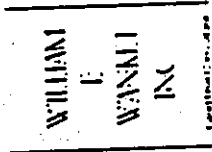
Sincerely,

James M. Wanket

James M. Wanket
Director
Community Planning and
Development Division, 9.2C

NO RESPONSE REQUIRED

JUN 26 1986



July 7, 1986

Mr. Kisuk Cheung, Chief
Engineering Division
Department of the Army
U.S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96838

Re: Comments to Draft EIS Waitec Development Proposal
(Village Park Expansion)

Dear Mr. Cheung:

Thank you for your comments of June 3, 1986. We respond as follows:

Comment A

The Department of the Army permit will be applied for if construction of any drainage improvements or subdivision drainage outlet structures are planned in Waikela Stream.

Comment B

No response required.

Thank you for your comments.

Sincerely,

William E. Wanket
William E. Wanket
WEW:awp

cc: Dept. of Land Utilization

Mr. Tolson	
Mr. Casper	
Mr. Callahan	
Mr. Felt	
Mr. Gale	
Mr. Rosen	
Mr. Sullivan	
Mr. Tavel	
Mr. Trotter	
Tele. Room	
Miss Holmes	
Miss Gandy	



United States Department of the Interior

FISII AND WILDLIFE SERVICE
390 A LA MOANA BOULEVARD
P. O. BOX 50157
HONOLULU, HAWAII 96810



DEPARTMENT OF THE NAVY
HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 118
PEARL HARBOR, HAWAII 96820-5000

ES
ROOM 6307
JUN 20 1986

REF: 11000
Ser 002B/3988
2 JUN 1986

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Re: EIS, Waitec Development Proposal, Village Park Expansion,
Hosasee and Maikela, Ewa, Oahu, Hawaii

MAITEC DEVELOPMENT PROPOSAL, HOSEASE AND MAIKELE, EWA, OAHU
(VILLAGE PARK EXPANSION) MAY 1986

Dear Mr. Whalen:

Dear Mr. Whalen:

We have reviewed the referenced material and find that due to its nature, the proposed project will have no significant deleterious impact on fish and wildlife resources. Please do not hesitate to call on us if we may be of further assistance.

The subject Draft EIS forwarded by the State of Hawaii Office of Environmental Quality Control on May 20, 1986 has been reviewed.

We appreciate this opportunity to comment.

We wish to reaffirm our position as stated in our enclosed letter to Mr. Verne Minquist of the Department of General Planning that the land bordering the Naval Magazine Maikela Branch be left in agriculture.

Please provide us with a copy of the Final EIS.

Sincerely yours,

Ernest Kosaka
Ernest Kosaka
Project Leader
Office of Environmental Services

Sincerely,

cc: NMFS - WPP0
HDFEW
William E. Manket, Inc.
EPA, San Francisco

F. O'CONNOR
Captain, U. S. Navy
Chief of Staff

Enclosure
(1) COMNAVBASE PEARL Itr Ser 002B/3914
of 20 May 1986

Copy to:
Mr. William E. Manket, President
William E. Manket, Inc.
Pacific Tower, Suite 1010
1001 Bishop Street
Honolulu, Hawaii 96813

NO RESPONSE REQUIRED



JUN 21 1986

Save Energy and You Serve America!



HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860

IN REPLY REFER TO:

11000
Ser 002B/3914

20 MAY 1986

Mr. Verne Minquist, Planner
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Minquist:

REQUEST FOR COMMENTS RELATING
TO STATE LAND USE COMMISSION PETITION A86-600

Your letter of March 18, 1986 to Admiral Sylvester R. Foley has been referred to this command for reply. The delay in our receiving your letter was caused by the improper address and inadvertent forwarding to Admiral Foley in Maryland.

We have reviewed the petition for a State Land Use District boundary amendment from the Agricultural District to the Urban District for property located at Waikole and Koneae, Ewa and recommend that the land bordering the Naval Magazine Waikole Branch be left in agriculture.

In the future, please forward all correspondence to:

Commander
Naval Base Pearl Harbor
Box 110
Pearl Harbor, HI 96860-5020

Attn: Facilities Engineer

Sincerely,

W. E. WANKET
Facilities Engineer

WILLIAM
E.
WANKET
IN.

Facilities Engineer

July 7, 1986

Captain P. O'Connor
Chief of Staff
Headquarters Naval Base Pearl Harbor
Box 110
Pearl Harbor, Hawaii 96860-5020

Re: Comments to Draft EIS Waitec Development Proposal
(Village Park Expansion)

Dear Captain O'Connor:

We thank you for your comments of June 2, 1986 and respond as follows:

Safety is a primary concern of the applicant. Section 2.1.6 of the Final Environmental Impact Statements, Hazards, will include a section dealing with the blast zone of the Naval Magazine Waikole Branch. The primary mitigating measure will be to make the following statement: "No residential development will take place in the area described by the Department of the Navy as being within the official blast zone for the Naval Magazine Waikole Branch."

Thank you again for your comments.

Sincerely,

William E. Wanket

WEW:awp
cc: Dept. of Land Utilization

Pacific Time
See 1010
1901 B-4431 Sheet
100000100011
Date:
10/15/1986

ENCLOSURE (1)

For Information

Mr. John P. Whalen
June 20, 1985
Page 2

AMERICAN LUNG ASSOCIATION OF HAWAII
245 North Kukui Street
Honolulu, Hawaii 96817

In light of the serious failure to quantify the air quality impacts associated with development of this project, we strongly urge you not to accept this EIS as presently written. It should be revised to include a proper quantitative analysis of those impacts.

June 20, 1985

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Sincerely yours,

James M. Morrow, M.S.
Director
Environmental Health

Dear Mr. Whalen:

Subject: Draft EIS for Waitec Development Proposal
(Village Park Expansion)

We have reviewed the subject EIS with particular attention to those sections addressing traffic and air quality impacts and have the following comments to offer.

The section on air quality (pp. 25-27) is inadequate because no effort has been made to quantify the project's impact on air quality. Only generalizations and qualitative assertions have been made by the EIS preparer. The magnitude of this project and the amount of additional motor vehicle activity it will generate clearly flag it as a significant "indirect" source of air pollution as defined in the Federal Clean Air Act. The traffic analysis (pp. 43 - 47 and Appendix F) identifies numerous traffic congestion problems in the vicinity of intersections and freeway ramps in the project area. There will most certainly be air quality impacts associated with the accompanying vehicle queues at those intersections and ramps. Even though some mitigative measures are being proposed for the traffic problems, one cannot determine what effect they will have on the air quality problems since no before-and-after analysis of air quality impact has been conducted.

The final statement in the air quality section (p. 27) that "...change in air quality is not expected to exceed existing Federal or State air quality standards" is simply a guess since no data whatsoever were presented to support it. "Guessing" at environmental impacts when human health is involved is simply not acceptable.

Because of Oahu's growing human and automobile population, we are seeing more predictions of violations of both state and federal air quality standards, especially in the vicinity of congested intersections. In addition, the exposure of the occupants of those queuing vehicles is substantially higher and may be presenting the greater health risk than that of people living near those same intersections.

JHM:ict

cc: W. E. Manket
DEDC
Environmental Center
DBH-EPB
Schweigert & Associates

JUN 24 1985

June 23, 1986



Bernie M. Agee Ph.D. PE
Environmental Department
(808) 548 6889

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Whalen:

Subject: Environmental Impact Statement for Waitec Development

We have reviewed the above subject EIS and have the following comments:

1. The developer must coordinate closely with HECO on the relocation of the existing lines on Kunia Road to ensure the integrity/reliability of the system is maintained.
2. Paragraph 2.3.6 to be found on Page 50 is much too broad. HECO does own a lot of 20,000 square foot on Kunia Road to be called Kunia Makai substation. We will need to construct this substation initially with one 10 MVA transformer to service the additional load. This, in turn, will require the new construction of two 46kv feeders on Kunia Road from existing lines makai and mauka as shown on the attached TMK 9-4-02 drawing. This total 46kv line construction of about three quarters of a mile length on Kunia Road will require prior approval from the State Department of Transportation.

Sincerely,

William E. Wanket

Attachment

cc: Mr. William E. Wanket, President
William E. Wanket, Inc.

JUN 25 1986

A Hawaiian Electric Industries Company

WILLIAM
E.
WANKET
INC.

Land Use Consultants

July 7, 1986

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

Re: Village Park Expansion Draft EIS

Dear Mr. Morrow:

We are in receipt of your June 20, 1986 comments on the Draft EIS and respond as follows:

Barry Root, Air Quality Consultant, has been retained to conduct an air quality study. The results of the study will be included in the Final EIS including the recommended mitigating measures.

Thank you for your comments.

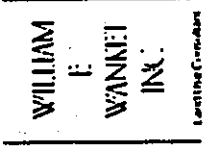
Sincerely,

William E. Wanket
William E. Wanket

WEN:awp

cc: Dept. of Land Utilization

Pacific Electric
State Office
1000 Ala Moana Blvd.
Honolulu, Hawaii 96813
JUN 11 1986



July 7, 1986

Mr. Brenner Munger
Manager
Environmental Department
Hawaiian Electric Company
P.O. Box 2730
Honolulu, Hawaii 96840

Re: Village Park Expansion Drafts EIS

Dear Mr. Munger:

We thank you for your comments of June 23, 1986 to the Draft EIS and respond as follows:

Comment 1


The developer will coordinate closely with HECO on the relocation of the existing lines on Kunia Road to ensure the integrity/reliability of the system is maintained.

Comment 2

Paragraph 2.3.6 will be modified to reflect the information provided in your comment and included in the Final EIS.

Thank you for your comments.

Sincerely,


William E. Wanket
WEW:awp

cc: Dept. of Land Utilization

PACIFIC POWER
SOUTH HAWAII
1001 BRIDGE STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-5100

APPENDICES

- A. Market Study (Chaney, Brooks, & Company)
- B. Archeological/Historic Impact (Chiniago)
- C. Socio-economic Study (Community Resources)
- D. Agricultural Impact (Decision Analysts Hawaii)
- E. Preliminary Engineering Study (Park Engineering)
- F. Traffic Impact Report (Park Engineering)
- G. Fiscal Impact Study (Decision Analysts Hawaii)
- H. Benefit-Cost Analysis (Decision Analysts Hawaii)
- I. Letters from Agencies (Prior to Prep Notice)
- J. State of Hawaii Department of Transportation Design Branch, Effects of Central and Leeward Oahu Developments upon the State Highway System, Summary and Recommendations, March 1986
- K. Air Quality Study for the Proposed Village Park Expansion, Oahu, Hawaii (Barry D. Root)

APPENDIX A

MARKET ANALYSIS FOR THE PROPOSED VILLAGE PARK EXPANSION

Chaney, Brooks, & Co.
October 1985

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MARKET ANALYSIS
FOR
THE PROPOSED VILLAGE PARK EXPANSION

June 1, 1985
Revised October 31, 1985

Prepared by Real Estate Consultants

Wendell Brooks, Jr.
John Zepotocky

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MARKET ANALYSIS FOR THE PROPOSED VILLAGE PARK EXPANSION

SECTION I. INTRODUCTION

Waitec Development, Inc., the developer of the existing Village Park Residential Community, proposes to extend the present 300-plus acre Village Park development by 691.5 acres and approximately 3,000 market units. It is expected that the City will develop 450+/- rental units on the 30 acres to be dedicated for that purpose. It is estimated that upon completion, the Waitec proposal will provide housing for approximately 10,000 people.

Chaney, Brooks & Company (CBC), prepared a market analysis dated June 1, 1985 based on the assumption of a product mix similar to the existing leasehold Village Park, with the exception that the expansion area will be sold in fee simple. It should be noted that this change is in keeping with, and responsive to, public pressures for fee simple land ownership.

After reviewing the market analysis, competitive factors, and the apparent gap in production of housing between 1986 and 1991, Waitec Development, Inc. asked Chaney, Brooks & Company to examine alternate strategies that might better fit market conditions. Waitec Development, Inc. authorized CBC to consider expanding the product line to meet the broader housing needs of the community, and concurrently widening the social and economic mix of Village Park by offering product in both a higher and lower price range.

Waitec Development, Inc. has also asked Chaney, Brooks & Company to expand the study to provide information necessary for a State Land Use Boundary change, as identified in the Land Use Commission Rules and Regulations Part VI, Amendments to District Boundaries. Further, Waitec Development, Inc. has asked Chaney, Brooks & Company to update its report in view of discussions between Waitec Development, Inc. and the City and County of Honolulu, Department of Housing and Community Development, which have led to an agreement in principle between Waitec and the City, that Waitec's commitment to provide low-income housing be satisfied by dedication of land to the City for rental housing. This report includes information developed in the June 1 report as well as alternate information and assumptions through October 30, 1985.

Specifically, the revised development plan (Figure 1) shows how the project is to be developed, and the time (Figure 2) needed to accomplish that development.

Further, this report is to provide the information required by the Land Use Commission, and to assess the impact of the above on the conclusions reached in the initial marketing analysis.

Summary of Previous Report

In April of 1985, Waitec Development Company contracted with Chaney, Brooks & Company to prepare a Market Analysis for the Proposed Village Park Expansion including information required by the City and County of Honolulu, Department of General Planning, to make a Development Plan Amendment. The report was submitted as part of Waitec's application to the City for a Development Plan amendment; the June 1, 1985 report as revised and updated to October 30, 1985 is included in this report commencing at Section II. A summary of the major conclusions of the report are as follows:

1. The demand for housing units on Oahu would exceed supply by a total of 48,635 units by the year 2005, if the full development capacity of the Development Plans as estimated by the Department of General Planning were achieved.
 2. That the development potential of the Primary Urban Center within the planning horizon is overestimated by 15,000 units.^{1/}
 3. That a total shortfall of 63,335 units or 2,892 units annually could be expected by 2005, unless the supply of suitably zoned land was increased.^{2/}
 4. That the Village Park Expansion and other major projects proposed for the Central Oahu and Ewa areas are necessary to meet the existing and projected demand for housing units.
 5. That the Village Park Expansion is the best choice for approval among all of the proposed developments because:
 - (a) Infrastructure exists which allow the developer to continue with the development of housing units while other proposed developments must develop basic services such as water, sewer and access.
 - (b) Waitec Development Company has a track record of developing the majority of its product for the first-time home buyer, the market segment which public policy seeks to service.
 - (c) Village Park has momentum in terms of market acceptance and a delivery system. It has demonstrated the capacity to market and produce substantial numbers of units and is already mobilized to continue (350 units will be delivered in 1985).
- ^{1/} Based on DGP publication published in August and October of 1984. At the time of the original report 1985 publications were not available.
- ^{2/} The Waitec Development containing an estimated 3,000 units was added to the Development Plan in May of 1985.

Low/Moderate Housing at the Village Park Expansion

Since initiating its program to expand the Village Park Project, Waitec Development, Inc. has worked closely with the City and County of Honolulu, Department of Housing and Community Development, to determine how Waitec could meet its commitment to provide low/moderate housing on-site in a manner compatible with the City's plans for such housing. Based on these discussions Waitec Development, Inc. submitted a proposal to the Department of Housing and Community Development on June 3, 1985 in which it proposed to dedicate twenty-four (24) acres (subsequently increased to 30 acres) of fee simple land to the City to satisfy this commitment.

A formal agreement was reached. In light of this information the following marketing related assumptions have been incorporated into this report.

1. The developer will not be marketing or building the units earmarked for the low/moderate housing. Therefore, these units will no longer be considered within Waitec's production timetable.
2. The units to be constructed will, in all likelihood, be rental units and therefore noncompetitive with other products being offered in the Village Park Expansion or other "for sale" products on Oahu.

However, even if the units are built for sale, they would not be competitive with "at market" products because of income qualifications and other restrictions placed on prospective buyers.

Expanded Product Line & Market Segmentation

The initial market study prepared by CBC for Waitec Development, Inc. was based on the assumption that the developer would continue to develop only the existing Village Park product type, and would additionally develop a small number of attached residential dwellings. Based on this assumption, the CBC study concluded that the absorption rates for these units would be limited to 350 per year and require 9.67 years to complete.

In light of the conclusions reached in the CBC study, and upon reevaluation of the plan, the developer has elected to expand the product line in order to appeal to other segments of the Oahu housing market. The use of market segmentation has been a fundamental marketing technique, used to increase volume in a wide range products from automobiles to electronic equipment and prepared foods. Simply stated, the concept is to offer the same product, in this case housing, but differentiating the product in terms of design, quality and price so that it will appeal to a wider spectrum of potential buyers. That is, offering the low cost unit and the higher priced unit with a number of optional features, as well as a number of products in between. With careful site planning the result can be visually attractive and socially sound.

In this revised marketing study CBC has prepared the recommended product mix as well as the estimated absorption rate for each unit type in each specific year. The marketing update is therefore based on new assumptions and on the concept of market segmentation. The following concerns have been incorporated into the revised development mix and schedule.

Product Mix

The product mix has been expanded from two products to five products. The additional products were chosen so that there would be a range of products from the low end attached units to the custom lot/home package. Two of the new products bracket the traditional Village Park unit, one a starter version of the home and the other an upgraded model.

Physical Constraints

In developing the actual product mix and timetable, CBC worked closely with planners and engineers to make sure that physical constraints such as topography, water and sewer would not preclude the achievement of the timetable. The project's prime contractor Pacific Construction an affiliate of the developer, will deliver 350 "traditional" Village Park units this year (1985) to Waitec. Pacific has reviewed the development schedule and feels that it is realistic from a construction standpoint even if Pacific were the sole contractor. However, the developer (Waitec) will remain flexible and consider the use of other contractors to meet near term demand, if appropriate. The ability to consider other contractors, primarily in the upper-middle income units which require different building techniques than the production oriented units, will permit parallel development. Ample production capacity exists on Oahu to implement this plan.

Oahu Real Estate Market

The Oahu real estate market is composed of a number of segments. Certain areas such as the Waiatae/Kahala and Diamond Head areas offer high priced properties for the upper end of the market. The Hawaii Kai area offers a wide range of product in the upper-middle income price range while the Pearl City area generally offers product in the middle income ranges.

The Ewa area offers product toward the lower-middle income range and the Leeward coast offers product generally lower priced than the rest of the island. In all of the areas mentioned, however, there is generally a wide range of product with sales prices substantially above and below the average price for the area. Thus, at any given time there is product available in most areas which meets a wide variety of housing needs.

It is not difficult to point to examples of the market segmentation concept. In the case of Mililani Town, Gentry Waipio, or Makakilo, experience demonstrates that the largest number of sales in any given year are achieved when there is a wide variety of product available from which to choose. At the Village Park Expansion this same concept will also apply.

The exact product mix and exact timing of the development of the various products will depend on market acceptance of the product and of prevailing economic conditions. By offering a wider range of products, the developer is able to segment the market into a number of different categories and, therefore, more closely tailor his product to individual buyers' desires and economic capabilities. The broadening of the market will allow the developer to increase and stabilize annual unit sales.

Waitec's primary commitment will remain to the first-time home buyer of moderate means as the product mix clearly shows (see Figures 1, 2 and 3). Waitec has projected over 75% of the proposed product mix in the average \$145,000 price range and below. A description of the product types being proposed, estimated absorption rates and the price ranges are as follows:

1. Prime Building Sites - The existence of golf course frontage in the proposed Village Park Expansion will give the developer an opportunity to provide a limited number of prime building sites for the Oahu market. The product to be developed will be custom and semi-custom built single family upper/middle income type homes on lots (pad area) of approximately 5,500 square feet with homes of 1,800 to 2,800 square feet. These units are expected to have an average absorption rate of four 4.5 per month during a five year period and have package sales prices from \$200,000 to \$295,000 with an average price of \$250,000. These units will have golf course frontages of 50 to 60 feet. Two hundred seventy units, nine percent (9%) of the Village Park Expansion's 3,000 market units will be prime sites.

2. Upgraded Single Family Housing - The availability of lands which are in close proximity to the golf course, or have "better views", provides the developer with choice building sites which will be developed into upgraded production of single-family housing. These homes would be on lots (pad area) averaging 4,750 square feet with homes ranging from 1,400 to 1,800 square feet and priced in the \$165,000 to \$195,000 range with an average price of \$185,000. These units would have an absorption rate of 9.25 per month during a four year period. It is estimated that a total of 445 or 15% of the 3,000 market units planned for the Village Park Expansion would be developed for this market range as upgraded single-family units.

3. Traditional Single Family Housing - This type of housing is very similar to the product produced at the existing Village Park Development. It consists of products ranging in size from 1,000 to 1,400 square feet on lots (pad area) averaging 3,600 square feet. The price for this product is expected to be in the \$125,000 to \$165,000 range with an average price of \$145,000. These units have experienced excellent market acceptance and are providing homes to first-time buyers. These units are expected to be marketed at an average rate of 12 per month for a total of 144 annually, however, production is expected to vary due to phasing of infrastructure. During the term of the project 1,055 of these units are expected to be developed accounting for 34% of units in the Village Park Expansion.

4. Starter Single Family Housing - These units are expected to be developed on lots (pad area) with an average size of 3,000 square feet with home sizes in the 800 to 1,200 square foot range. Sales prices are expected to be in the \$120,000 to \$140,000 range with average prices in the \$130,000 range. These products will offer lower priced single family residences on relatively small lot areas. Absorption rate for this type of product is expected to average 12 units per month or 144 per year, however, production is expected to vary due to phasing of infrastructure. This type of development is expected to account for 990 units or 33% of the units in the development of the Village Park Expansion.

5. Attached Units - The developer intends to develop approximately 240 units of this type of housing. Average selling price is expected to be in the \$100,000 range. These units are tentatively planned as a townhouse type development such as the Gentry at Waipio Rainbow Townhouses, The Lear Seigler's College Gardens or Gentry's Crosspoint. Product more experimental in nature may be considered as an alternate approach to attached housing. These units are expected to make up approximately 8% of the total 3,000 units to be developed in the Village Park Expansion. Absorption is expected to average 80 units per year for 3 three years. Eighty unit increments are deemed to be the proper size to achieve economies of scale at minimum risk.

6. Low/Moderate Income Housing

As noted earlier, the current plan is to dedicate land to the City and County of Honolulu for low/moderate income housing. Four hundred and eighty units are projected.

The expanded product line shown above should enable Waitec to meet the demand on Oahu during the gap period.

Opportunity for Increased Sales at Village Park in the Near Term

The Village Park Development can be expected to generate significant additional sales in the near term (1988 to 1990) because of two primary factors: First, economic factors which currently favor increased demand in the housing market, namely, favorable interest rates and low inflation. Second, the completion of the Gentry Waipio Planned Community and the completion of the development of the remaining parcels with significant potential for single family and low density residential units within the Pearl City/Aiea areas by the end of 1986 makes Village Park one of the few moderate priced projects in the market over the near term.

In reviewing the projects that will be able to fill the void in supply left by the completion of Gentry-Waipio and the Pearl City/Aiea developments, it is clear that Village Park and Millant will be the closest in location to the Primary Urban Center. New projects such as Ewa Marina, Ewa Villages will be located several miles further from the PUC. The West Beach project does not

SECTION II. METHODOLOGY

For over ten years, reams of material have been written about Oahu's housing needs. Government planning agencies, housing and social agencies, as well as private interests, have undertaken and/or commissioned numerous studies to define the quality, quantity, location and need for additional housing.

Similarly, volumes have been gathered regarding the population of Oahu and its characteristics.

This analysis attempts to compile the significant findings of recognized authorities on the subject matter and to present this material as it relates to the subject application and to add appropriate comments based on the consultants' experience and observation to place the data in perspective and to add additional information where such information is useful to understanding the justification for the applicant's requests. In addition, this report will address the distinction between the Village Park Expansion and numerous other projects which have been proposed to meet the housing needs of Oahu.

Principal Resources

Principal resources used in this report are:

State of Hawaii, 1984 Data Book

Bank of Hawaii Construction in Hawaii, 1984

Hawaii 1986, Bank of Hawaii Annual Economic Report

First Hawaiian Bank Economic Indicators

Daly & Associates Affordable Housing Paper 1981

Land Supply Review, July 1, 1984 published by the City & County of Honolulu.

Mr. Art Asher and Ms. Elaine Scholz, Economics Dept., Bank of Hawaii (telephone interview), May, 1985

Ms. Sharon Wishi, Economics Dept. Staff, Department of Planning and Economic Development (telephone interview), May, 1985

Hawaii Population and Economic Projection and Simulation Model, Department of Planning and Economic Development, July, 1984

1/ Consultants: Wendell Brooks, Jr., and John Zapotocky (see Exhibit II for additional information).

Population and Economic Projections for the State of Hawaii 1980-2005, Department of Planning and Economic Development

Population and Housing Unit Estimates for Oahu Census Tracts, 1980-1983, Hawaii State Census Statistical Areas Committee Report C/C-57

Annual Report July 1, 1983-June 30, 1984, Hawaii Housing Authority

1984 Proposed Amendments to the General Plan, Department of General Planning City and County of Honolulu, October 1984

Land Supply Review: Population Implications of the Development Plans, Department of General Planning City and County of Honolulu, August 1984

Quarterly Statistical and Economic Report State of Hawaii - Department of Planning and Economic Development - 4th Quarter 1984 and 1st Quarter 1985

Retail Trade in Hawaii Research Report 1985-1

It should be noted as of the date of this report most of the 1985 issues of these reports have not been published. In many cases, 1983 published data is the latest information available. Some data is no longer collected.

SECTION III. THE NEED FOR HOUSING - ISLAND OF OAHU

The need for housing is a composite of many factors. In its simplest form (the population) versus the number of housing units available, the shortfall being the need for housing. However, beyond basic shelter, the need for housing is a function of the location, type and character of housing, namely, owner vs. renter occupancies, vacancy factor, single-family vs. townhouse or multi-family use, fee simple vs. leasehold, cost to the owner, quality of the housing inventory, condition of community facilities, schools, parks, commercial facilities, and transportation. It is also a function of lifestyles, social mores, government policies and many other factors.

This analysis will attempt to correlate the key factors into a forecast of future housing needs for Oahu and the Village Park Expansion. Further, this analysis will describe how the proposed project fits into Oahu's forecasted growth pattern, thus demonstrating that there is both a need and a market for an expanded community at Village Park.

Population Trends - Oahu 1950 - 1984

Population trends provide one indication of future housing need.

The population has increased significantly since statehood (1959), an event generally recognized as a major turning point in the growth of post World War II Hawaii. Between 1970 and 1980, the population on Oahu grew from 630,528 to 762,565 persons for a 2.1 percent average per year increase. As of January, 1984 the Oahu population was estimated at 805,300 persons which represents a net estimated increase of 174,772 persons, a 21.7 percent change in the population from 1970.

The January 1985 population is estimated at 815,300 persons with an estimated 1.25 increase over 1984.

It appears that Oahu's population has and is currently growing at an annual rate of close to 1.5 percent. This rate has declined from the rate of growth in the 1950's and 1960's, however, it appears to represent a stabilized order of magnitude when economic cycles are placed in perspective.

Predictions are that the migration to the sunbelt will continue, with Texas, Florida and California being the most densely populated states in the country.^{2/}

^{2/} Megatrends, John Maisbitt.

SCHEDULE II

POPULATION TRENDS 1950 - 1985

	Population	Percent Change
1950 Census	353,020	--
1960 Census	500,409	4.7 percent (avg per yr)
1970 Census	630,528	2.6 percent
1980 Census	762,565	2.1 percent
1981 Estimate(1)	769,200	1.8 percent
1982 Estimate(1)	778,100	1.2 percent
1983 Estimate(1)	792,400	1.8 percent
1984 Estimate(1)	805,300	1.6 percent
1985 Estimate(2)	815,300	1.2 percent

(1) Provisional Estimates of the Population of Hawaii, 1980-1984.
Department of Planning and Economic Development (Statistical Memorandum 85-3)

(2) Hawaii Population and Economic Simulation Model, DPED July, 1984

It is reasonable to assume that Hawaii will continue to experience long-range population pressures both because of its growing importance in Pacific rim relations and spillover of the western migration. Alien migration from the western and southern Pacific can also be expected to continue.

Civilian in-migration has traditionally been greater than out-migration, ranging from a high in 1970-71 of plus 17,300, to minus 600 in 1981. The general economic conditions, high cost of housing and lack of available job opportunities at that time (1981) most likely contributed to this decline. The bulk of the out-migration consists of Armed Forces and their dependents. In-migration can be reasonably expected to increase as economic conditions improve. Particularly if tourism reaches the levels which have been projected.^{3/}

The military population will continue to be fairly stable, (Dr. Thomas Hitch, First Hawaiian Bank-1984) unless the proposed home porting of a battleship group at Pearl Harbor takes place in which case, demand for housing will be increased both in total and in the Village Park, Pearl City, and Waipahu areas.

^{3/} Population and Economic Projections for the State of Hawaii 1984-2005. Department of Planning and Economic Development July 1984

**SCHEDULE III 4/
RESIDENT POPULATION OF STATE, OAHU
AND DISTRICTS: 1960 TO 1980**

County & District	April 1, 1960	April 1, 1970	April 1, 1980	Percent Change 1960-1970	Percent Change 1970-1980
The State	632,772	769,913	964,691	21.7	25.3
Oahu	500,409	630,528	762,565	26.0	20.9
Honolulu	294,194	324,871	365,048	10.4	12.4
Koolau-poko	60,238	92,219	109,373	53.1	18.6
Koolauloa	8,043	10,562	14,195	31.3	34.9
Maialua	8,821	9,171	9,849	11.6	7.4
Mahiana	34,595	37,329	41,562	7.9	11.3
Mataneae	16,452	24,077	31,487	46.3	30.8
Ewa	78,666	132,299	191,051	68.2	44.4

Forecasted Population Trends - Oahu: 1985-2005

The Department of Planning and Economic Development, State of Hawaii, is presently utilizing the M-F Series projections as the official population projections for the State of Hawaii and the Island of Oahu. As shown on Schedule IV, the projected population for the Island of Oahu for the year 2005, the estimate is approximately 954,500 persons.

- (1) Including visitors present, but excluding residents temporarily absent. The estimates of visitors present and residents absent are annual averages.
 - (2) Including armed forces stationed or homeported in Hawaii and their dependents living in Hawaii, but excluding visitors present. Fractional disparities are a result of rounding.
- 4/ U.S. Bureau of the Census, 1980 Census Population, PC80-1-A13, Hawaii (October 1981), Table 4.

Analysis of Population Trends

As shown in Schedule III, the population of the Island of Oahu increased from 500,409 residents in 1960 to 630,528 residents in 1970, reflecting an increase of about 26.0 percent. Between 1960 and 1970, the resident population in Ewa increased from 78,666 to 132,299, reflecting an increase of about 68.2 percent or 53,633 persons on an average of 5,363 persons per year. Between April 1, 1970, and April 1, 1980, the resident population of Oahu increased from 630,528 to 762,565, reflecting an increase of about 20.9 percent over the 10-year period. During that same 10-year period, the resident population of the Ewa District increased from 132,299 to 191,051 or 58,752 or an average of 5,875 persons per year, reflecting an increase of about 44.4 percent between 1970 and 1980.

The Ewa District had the greatest growth rates in population for both of the previous two decades of any area on the Island of Oahu (see Schedule III). Of the 762,565 total resident population on Oahu in 1980, 47.9 percent lived in Honolulu (Tax Zones 1, 2, and 3), and 25 percent or 191,051 lived in Ewa (Tax Zone 9).

The decline of the percentage rate of growth in Ewa in the 1970's was due to the fact that the base had increased. However, in absolute terms, the total population growth in Ewa during the 1970's was actually larger than during the 1960's.

During the early 1980's growth in the Ewa District slowed considerably. This is understandable when one considers the condition of the national and local economy. The first indications of a decline appeared in late 1979 when price escalations started meeting consumer resistance and interest rates started increasing. Through 1980, 1981 and 1982, the recession devastated the real estate, construction and development industries. Interest rates soared, the rate of new construction dropped precipitously, and foreclosures hit levels never before experienced in Hawaii.

1983 and 1984 were years of national and local economic recovery. Housing and construction have followed, but at a modest pace. 1984 ended with a relatively high level of consumer confidence, and interest rates were trending down. Projects such as Milliani Town and Village Park reported brisk single-family home sales. In May, 1985, interest rates again declined which should act as a stimulus to home sales.

It is therefore reasonable to assume that the 1980 - 1982 lag in the development in the Ewa District was a function of short term economic conditions and not a change or reversal of a long term trend. The westward movement to Ewa is likely to continue because of the overall shortage of housing, the high price of housing close to the urban core, and "supply pull" based on availability in Ewa.

**SCHEDULE IV 5/
POPULATION PROJECTIONS: 1985-2005
State of Hawaii and Island of Oahu
(In thousands)**

Year	De Facto Population(1)		Resident Population(2)			
	State Total	Oahu	State Total	Oahu	Under 15 Yrs. Old	65 Yrs. Old & Over
1985	1,166.4	883.0	1,057.8	815.3	238.1	101.5
1990	1,277.5	941.1	1,138.4	859.3	250.9	124.1
1995	1,373.0	985.2	1,211.5	896.9	260.4	142.7
2000	1,447.2	1,018.2	1,267.8	925.7	265.1	159.5
2005	1,501.0	1,052.1	1,310.0	954.5	265.8	177.3

5/ Hawaii State Department of Planning and Economic Development July, 1984. Population and Economic Projections for the State of Hawaii 1980-2005. The data in this table is officially recommended by the Hawaii State Department of Planning and Economic Development for planning purposes.

SECTION IV. HOUSING INVENTORY - ISLAND OF OAHU

Current Housing Inventory

The total housing stock on Oahu had increased from 125,795 dwelling units in 1960 to 252,038 by the end of 1980. The net increase over this period was 126,243 dwelling units, or an average of approximately 6,300 per year. However, total starts for 1981, 1982 and 1983 were well below this average due to extremely high interest rates and a general economic recession. According to Construction in Hawaii, 1984, published by the Bank of Hawaii, there were an estimated 259,574 housing units on Oahu at the end of 1983, representing an increase of only 7,536 or an average of only 2,512 units per year for 1981, 1982 and 1983.

Housing Authorizations

Schedule V shows the Building Permit Trends for Oahu for the period 1961 through 1983. According to this schedule, there has been a general decline in the number of single-family housing authorizations and a significant decline in the proportion of single-family housing authorizations expressed as a percentage of total housing authorizations. In 1961, slightly more than 59 percent of the dwelling units authorized on Oahu were single-family. Conversely, slightly less than 41 percent were multi-family units.

In 1983, 55 percent of the total dwelling units authorized on Oahu were single-family, whereas only 45 percent were multi-family units.

However, over the twenty-three year period (1961 - 1983), slightly more than 38 percent of the units authorized were single-family dwellings, while approximately 62% were multi-family.

The long-term trend away from production of single family dwellings has been in part a function of land scarcity created by a government policy which placed the priority of preservation of agricultural lands above the need for more housing.

Demolitions and Substandard Housing

Schedule VI is the historic summary of Demolition Authorizations. The fifteen year average for the period 1970 through 1984 was 584 units per year.

6/ Census Data 1960, 1970, 1980

Historically, demolitions have occurred most frequently in areas of sub-standard housing for reasons of highway construction and/or urban renewal. In the latter case, there is frequently a significant time lag between the time units are vacated and demolished and the time new replacement programs are realized. The re-development programs in the areas adjacent to the Central Business District and Chinatown exemplify this problem where programs conceptualized in the '60's and '70's were ten years being redeveloped. A few of these areas still remain to be redeveloped.

Condition of Housing Inventory

One must also look at the existing housing inventory in terms of the standard of living that it seeks to satisfy. There is a conflict between the age of those portions of the population which are most rapidly growing, in absolute numbers, i.e., the 25 to 44 age groups, and the age of the existing housing inventory, i.e., older units.

Many of the units in the older categories do not provide the standard of living that young people of today want in terms of ease of ownership and maintenance, amenities, and perhaps most important - ability to buy.

SCHEDULE V 2/

BUILDING PERMIT TRENDS FOR OAHU

Year	Single-Family Housing Units		Multi-Family Units		Percent of Total
	Total	Percent of Total	Total	Percent of Total	
1961	3,412	59	2,362	41	5,774
1962	3,654	46	4,246	54	7,900
1963	3,354	52	3,081	48	6,435
1964	3,671	55	2,958	45	6,629
1965	4,512	44	5,687	56	10,199
1966	2,983	32	6,373	68	9,316
1967	3,005	48	3,205	52	6,210
1968	3,683	37	6,373	63	10,056
1969	3,569	32	7,563	68	11,132
1970	3,809	48	4,169	52	7,981
1971	3,771	48	4,087	52	7,858
1972	3,353	32	7,064	68	10,417
1973	3,008	23	10,056	77	13,064
1974	1,626	12	11,534	88	13,160
1975	1,078	20	4,352	80	5,430
1976	1,326	29	3,198	71	4,524
1977	2,210	47	2,473	53	4,683
1978	2,075	47	2,371	53	4,446
1979	3,046	61	1,989	39	5,034
1980	1,650	46	1,900	54	3,550
1981	768	29	1,915	71	2,683
1982	691	26	2,585	74	3,276
1983	1,562	55	1,280	45	2,842
TOTALS	61,976	38	100,621	62	162,799
Average/Year over 23 years	2,695		4,384		7,078

NOTE: Data for all of 1984 not available; 3rd quarter 1984 trend indicates 1,873 single-family dwellings and 547 multi-family units for a total of 2,420 units or a 77%-23% relative proportion. If this trend is extended for the full year, it would result in 3,226 units. However, there was a construction strike in the last part of 1984 which delayed both delivery of units under construction and new starts. Therefore, it is assumed that only 75% of the authorizations were completed or approximately 2,400 units.

2/ Bank of Hawaii, Construction in Hawaii, 1984
City and County of Honolulu Building Department

SCHEDULE VI B/

PRIVATE RESIDENTIAL DEMOLITION

AUTHORIZED BY PERMIT ON OAHU, 1970-1984

<u>Year</u>	<u>Demolition Permits Authorized</u>
Units Demolished:	
1970.	642
1971.	596
1972.	669
1973.	874
1974.	703
1975.	632
1976.	613
1977.	696
1978.	558
1979.	460
1980.	665
1981.	521
1982.	443
1983.	385
1984.	<u>307</u>

TOTAL

8,764

15 year average

584 per year

Older, good homes have appreciated to the point where young persons cannot generally afford to purchase them. Older homes which are in poor condition do not meet mortgage lender criteria for low down payment, high loan to value ratio, long-term mortgages. A mere count of the housing inventory is therefore only a partial measure of the ability to meet the housing needs and desires of the community.

There are still a large number of substandard housing units scattered throughout Oahu. Substandard is defined as units with more than 1.1 persons per room (sometimes called overcrowding) and/or those units lacking adequate indoor plumbing.^{9/}

In 1970, the number of substandard units not counting overcrowding, amounted to 19,258 or 11.1 percent of the inventory. By 1984, only 8,764 units have been demolished.^{10/} Not all units that were demolished were necessarily substandard.

At least 11,000 of the 1970 estimate of substandard units remain in the 1984 housing inventory. A number of additional units become dilapidated each year and should be added to the total to be replaced. On the other hand, some units were no doubt upgraded.

The number of housing units needed statewide to replace dilapidated units and to eliminate overcrowding was estimated by Daly & Associates at over 56,000 units for the period 1981 through 1988, or an average of 7,000 units per year.^{11/}

The 1980 Census identified approximately the same number of units as being substandard (see Housing Trends and Characteristics Section V).

It is difficult to calculate the exact number of substandard housing units except to say that it appears to be significant.

Correlation of Authorizations and Net Inventory

Schedule V demonstrates that an average of approximately 7,078 units have been authorized each year since 1961, and Schedule VI demonstrates that roughly 584 demolitions per year are authorized. It should be noted that the time frames for the two averages are different. The figures suggest that the net authorized additions to the housing inventory has been approximately 6,493 units per year.

^{8/} State of Hawaii, Data Book, 1983 and City & County of Honolulu Building Department. Physical review of permits issued, by the Consultants.

^{9/} Daly & Associates Affordable Housing Paper 1981
^{10/} See Schedule VI
^{11/} Daly & Associates Affordable Housing Paper 1981

However, it is recognized that building permit authorizations are not a totally accurate indication of the total increase of the housing stock. Permit data tends to overstate actual net growth in the housing inventory. Between 1960 and 1980, the official records of governmental agencies indicate an authorized increase of 146,101 units or 7,309 units per year, while the actual growth was approximately 126,246, approximately 86 percent of all authorizations, or a net increase of approximately 5,728 units per year after deducting demolitions of 584 units per year.

A partial explanation for the variance between authorizations and actual starts is as follows:

1. Failure to finalize financing is the largest single reason for projects not to commence construction.
2. Changing market conditions (lack of sales) frequently cause projects to be postponed. This occurs typically when an economic cycle has peaked before the project can be marketed successfully.
3. The marketplace can be quite selective and reject a product that is inappropriate as to location, design, amenities or pricing. Despite the overall housing shortage, the market will not absorb "any product" at "any price", a well learned lesson by both developers and lenders during the early 80's.

Many projects are designed without adequate market analysis. The result is the wrong product, in the wrong place at the wrong time.

Condominiums: A Major Portion of the Inventory

Schedule VII is a breakdown of the State of Hawaii condominium inventory, by type, for the period 1962 through 1982.

Schedule VIII is a comparison of condominium inventory and new multi-family authorizations for the State of Hawaii and the Island of Oahu for the period 1962 through 1982.

The two schedules demonstrate that in the 20-year time frame, approximately 98,000 condominium units were added statewide. Approximately 89 percent were new authorizations, and 11 percent were conversions.

SCHEDULE VII 12/

CONDOMINIUM INVENTORY - STATE OF HAWAII
1962 - 1982

Year	Annual Additions			Total	Cumulative Inventory
	High-rise	Town-house	Single-Family & Duplex		
1962	174	8	--	182	182
1963	41	--	--	41	223
1964	1,271	258	--	1,529	1,752
1965	626	147	73	846	2,598
1966	1,412	366	67	1,845	4,443
1967	1,261	284	--	1,545	5,988
1968	1,918	74	39	2,031	8,019
1969	1,117	453	32	1,602	9,621
1970	3,089	874	6	4,969	14,590
1971	2,874	382	--	3,256	17,846
1972	1,139	914	12	2,065	19,911
1973	3,490	1,596	36	5,122	25,033
1974	5,153	2,112	235	7,500	32,533
1975	6,048	2,922	68	9,038	41,571
1976	6,330	260	112	6,702	48,273
1977	1,456	883	40	2,379	50,652
1978	1,792	810	4	2,606	53,258
1979	4,116	1,447	97	5,660	58,918
1980	4,551	3,263	74	7,888	66,806
1981	2,067	4,825	67	6,959	73,765
1982	2,752	3,544	201	6,500	80,265
Totals	52,677	24,833	1,163	78,673	97,931

NOTE: Includes new and converted units. Conversions from 1963 thru 1981 totaled 10,547 units.

12/ Bank of Hawaii, Construction in Hawaii, 1983. Compiled from data in the Hawaii Condominium Guide, Pacific Business News and Monitor.

97,749 x 89% = 86,997 new condo authorizations
97,749 x 11% = 10,752 condo conversions

**SCHEDULE VIII 13/
COMPARISON OF CONDO INVENTORY AND NEW MULTI-FAMILY AUTHORIZATIONS
State of Hawaii and Island of Oahu
1962 - 1982**

Year	Total Condo Units Added	New Multi-Family Authorizations	
		State	Oahu
1962	182	4,384	4,246
1963	41	3,321	3,081
1964	1,557	3,029	2,958
1965	1,091	6,005	5,687
1966	2,061	6,629	6,373
1967	1,545	3,395	3,205
1968	2,181	7,202	6,373
1969	1,754	8,862	7,563
1970	4,908	5,241	4,172
1971	4,318	5,788	4,087
1972	2,835	9,356	7,265
1973	6,741	12,374	10,057
1974	9,275	15,474	11,534
1975	10,798	7,269	4,352
1976	7,357	3,198	3,198
1977	3,321	2,473	2,473
1978	3,210	4,657	2,371
1979	6,816	4,989	1,988
1980	10,441	6,758	3,411
1981	9,704	3,321	1,915
1982	7,795	4,594	4,109
Totals	97,931	129,401	100,416
Average/Year (20 Years)	4,896	6,470	5,021

76% of multi-family authorizations
76% of multi-family authorizations

NOTE: This data originally came from Bank of Hawaii - later data is not available.

13/ State of Hawaii, Data Book, 1983 (includes new and converted units).

Schedule VII demonstrates a high level of market acceptance of medium and high density condominiums in the past in that 54 percent of the units are designed as high-rise buildings, 25 percent in low-rise buildings and 20 percent in a townhouse configuration.

Between 1970 and 1980, the statewide condominium inventory increased from 15,320 units to 80,432 units. The total increase in condominium units over this 10-year period was 65,112 units, reflecting an average of 6,511 units per year.

There was an average of 4,469 new condominium units on Oahu annually during this time frame based on 89% of new multi-family authorizations being designated for condominium use.

Schedule VIII indicates that approximately 76 percent of all new Oahu multi-family authorizations have been condominium units. The majority of the remaining 24 percent are rental units, however, some Cooperative (ownership) apartments may also be in this group.

This is not to say, however, that all new condominium units are owner occupied. To the contrary, there is ample evidence that a very substantial number of condominium units are owned by investors and offered as rentals. Many are not suited to long-term/primary-home occupancy by virtue of design, size, facilities and/or location.

In some cases condominiums planned for primary residences have been converted to use as visitor facilities, and in several other cases the condominium ownership plan was merely a vehicle for financing a transient accommodation (condo-hotel or time-share project).

Another observation from the various schedules is that housing unit authorizations and completions follow the cyclical nature of the economy. For instance, the declines during the recessions of 1961-62, 1973-75 and 1979-82 are clear from the statistics. Other effects, such as the enactment (and pre-implementation lag) of the (new) Comprehensive Zoning Code in the late '60's brought about a surge of home and apartment building to "beat" the (new) regulations.

The swing in the relative proportion of single-family dwellings to a greater number of multi-family dwellings reflects changing housing characteristics. There are current market indications that there is an oversupply of condominium units in areas where condominium units were built for investment rather than for primary housing.

Military and Government Housing

Schedule IX provides an inventory of housing (other than barracks) owned by the various branches of the Federal Government.

Schedule X provides an inventory of housing owned by the State of Hawaii and various State and County agencies.

Military housing projects have, from time to time, added inventory to meet the need for housing. The majority of the new housing in these categories have been most effective in providing housing for those who would not otherwise be able to qualify for market priced housing.

New housing programs of the military have been relatively static for the last several years. Conversations with Mr. Uyeda of the Oahu Consolidated Family Housing Office (May, 1985) revealed no new major military housing projects underway or planned for at least three years. It appears that the current military policy is to make direct housing subsidies rather than provide housing units.

SCHEDULE IX 14/

INVENTORY OF FEDERAL GOVERNMENT HOUSING (OAHU)
1970 - 1983

	1970	1980	1983
Armed Forces			
Air Force	6	2,975	2,957
Army	6,086*	7,174	7,130
Coast Guard**	2	291	291
Navy & Marines	7,356	8,824	8,768
Subtotal	13,442	19,284	19,146
Other Agencies			
East-West Center	n/a	25	3
Fish & Wildlife Service	n/a	2	2
National Weather Service	n/a	5	5
All others	0	32	10
Grand Total	13,442	19,316	19,166

NOTE: On October 1, 1983, all Armed Forces housing came under the purview of the Oahu Consolidated Family Housing Office, administered by the U.S. Army (excludes Coast Guard and other federal housing).

* Combined Air Force, Army and Coast Guard totals.
** Officially a branch of the Department of Transportation.

14/ Compiled by DPED from listed agencies: Report CIC-53, August 12, 1983, and Statistical Report 162, August 15, 1983.

SCHEDULE X 15/

INVENTORY OF LOCAL AGENCY OWNED/OPERATED HOUSING (OAHU)
1970 - 1983

	1970	1980	1983
State Agencies			
Education	4,243	32	30
Hawaii Housing Authority		4,124	4,428(1)
Public		0	0
Teachers Act 105		277	(2)
Health		21	19
Land & Natural Resources		114	114
Social Services, except HHA		15	4
Transportation		4	3
University of Hawaii		107	107 (3)
Subtotal	4,243	4,694	4,705
County Agencies			
All	n/a	175	209
Grand Total	4,243	4,869	4,914

(1) Excludes 100 units on Oahu that are managed but not owned by HHA, includes Act 105. Differs from statistics provided in State of Hawaii, Data Book, 1982.

(2) Included in public total

(3) Excludes student dormitories

15/ Compiled by DPED from agencies listed. Statistical Report 162, August 15, 1983.

According to staff members, the City & County of Honolulu, Department of Community Development has developed or caused to be developed 5,599 units during its 34-year history since 1949, for an annual average of 165 units. Recently re-elected Mayor Fasi has proposed aggressive new City housing programs starting in 1985.

The impact of the State and City & County of Honolulu programs are included in the housing inventory statistics contained in this analysis.

As of December 31, 1983, the total public housing inventory on Oahu consisted of 24,080 units. Public housing units on Oahu account for about 9.3 percent of the islandwide 1983 public and private inventory of 259,574. This figure is down from 10.1 percent in 1970.

The Hawaii Housing Authority, a State agency, concerns itself with Oahu and the neighbor islands. During the thirteen year period from 1971 to 1983, HHA has developed or accommodated development of over 8,700 new housing units.

HHA has also contributed to housing through its Hula Mae program. Under Hula Mae, HHA sells bonds using the State's credit to attain a low interest rate. It then loans these funds at below mortgage market rates to qualified first-time homeowners. This program has helped to increase homeownership by nearly 2,000 units per year since its inception in 1980.^{15/}

Other government agencies have not made significant contributions to the housing inventory. The Hawaiian Homes Commission has embarked on a program to accelerate the development of its lands. A telephone interview in May, 1985, with Helen Luke of the department's application information section, indicated that the department's goal is to place 1,000 lots in the hands of applicants by the end of June, 1985, and 1,500 lots by June, 1986. Of the 1,000 lots for 1985, approximately 250 are located on Oahu (200 in Lualualei and 50 in Waimanalo). The remainder of the lots are on the other islands, the majority of them on Molokai and the Big Island. For Fiscal Year 1986, the location of the 1,500 lots is unknown at this time as the department must identify suitable lands and, in addition, is considering land swaps and other means of making land available. There are currently over 4,000 persons on the department's Oahu list. Reportedly, these sites will not all have complete infrastructure. It is not known how effective this program will be.

^{15/} Hawaii Housing Authority Annual Report June 30, 1984

Each of the government agencies has a waiting list for housing. Considerable overlap is believed to exist between each of these agencies as well as overlap with other rental and purchase programs. The cumulative total may not indicate the exact number of housing units needed, only that a substantial need exists.

Military families receive housing subsidies under a program called "Rent Plus." Under this plan, members of the military qualify for generous supplemental housing allowances to be used to rent private housing. This has, in part, had the effect of causing rents to increase significantly and vacancies to decline in West Honolulu, Central Oahu, and the Ewa District due to the proximity to military bases.

Since military personnel occupy less than 8% of the rental units on Oahu, some analysts blame inflated rental rates on heavy total demand. They assume that more tenants have entered the market than new rental units have been built in recent years thereby causing a shortage which has increased rents.

Hearings were conducted during 1984 and it was concluded that a problem did exist. However, it was generally agreed that only a portion of the problem could be blamed on abuses of the "Rent Plus Program".

There have been recent reports that the methods of providing these subsidies will be changing. It is not known at this time what the impact of these changes will be. It is assumed that the greatest impact will be on rental housing in West Honolulu.

SECTION V. HOUSING TRENDS AND CHARACTERISTICS

This section deals with the observed and statistically quantified trends in housing characteristics.

It is important to understand the unique market in Hawaii in which real estate has often continued to be in demand even though raw statistics would seem to contradict actual market conditions.

The unique nature of the Oahu housing environment has created market conditions and methods which have allowed some consumers to adapt.

1. Increase in the Number of Households and Decrease in Household Size

The number of households has increased because of a number of sociodemographic factors. These included changes in lifestyle, the decline in family size, extended life expectancies, increase in divorce rates, formation of nonconventional households, immigration, undoubling and a variety of other reasons.

Family sizes are decreasing. The Hall Street Journal published an article in its October 18, 1983 edition entitled, "Shrinking Families". It noted that household size (nationally) has declined steadily for as long as statistics have been kept. The first census, in 1790, put the average at 5.9 persons per household. In 1980, the figure was 2.75. In 1985, this figure reportedly had declined to 2.7 persons per unit nationally. The most recent statistics on household size for Hawaii in the State of Hawaii Data Book, 1983, indicate an average household size of 3.15 persons.

During the '70's and early '80's, the percent increase in the number of households in Hawaii was greater than the percentage increase in the total population. The average number of persons per dwelling unit dropped from 3.78 persons in 1970 to 3.15 persons per dwelling unit by 1980.^{16/}

In the Hawaii State Census Statistical Areas Committee Report CTC-57 published on July 16, 1984, it was estimated the population per unit for the City and County of Honolulu fell from 3.02 to 3.00 persons per unit from 1980-1983. This was due in part to rapid household formation as well as "the pill", new abortion laws, planned smaller families and an increase in the number of women working outside the home. This trend was true both on Oahu and on a statewide basis. Oahu appears to be following the national and statewide trend.

As the declining household size trend continues, more dwelling units will need to be built even if there is little or no net increase in population.

^{16/} Department of Planning and Economic Development, Data Book 1983

2. Change in Age Composition

In Hawaii, the 25 to 44-year old age group is growing faster, in absolute terms, than the population as a whole. The elderly is the fastest growing group on a percentage basis.^{17/} Elderly households typically consist of two person families, widows and widowers. These two trends have served to further increase the demand for new housing units, particularly, as the young "undouble" from parental households and established new households.

3. Consumer Preferences

Many of the trends are also indicative of a change in consumer preference. For example, as more women seek employment outside of the home, either as a result of the need for additional family income or the desire to pursue a career, the efficient lifestyle afforded by apartment living becomes extremely attractive.

The elderly frequently choose a less vigorous life than maintaining a single-family dwelling.

However, a reverse trend may be evidenced as stated in the following observation:

"Since 1982, condominium sales have been running only about 20-25 percent higher than single family sales. In the late 1970's the ratio was more like 2 to 1. We take this as further evidence of the market's shift to the end-users owner occupant".

(Michael A. Sklarz, Hawaii Real Estate Indicators, October 1984).

Mr. Sklarz's comments suggest less emphasis on multi-family development due to a decrease in the popularity of condominiums as an investment and an increased preference for single-family dwellings.

Ralph Cornuelle, Editor of the Monitor, a quarterly publication which tracks housing market activity, reports in the January 27, 1985 Star Bulletin/Advertiser that,

"the new single-family home market was the single segment showing some strength".

Cornuelle attributed the single-family home strength to stabilized inflation and a downward trend in interest rates. He also went on to say,

"This (1985) should be a good year for the single-family home market. With lower rates, new home sales rates should be as good or better than the 1983 experience. Resale prices, except in rural areas should move upward during the year".

^{17/} State of Hawaii, Data Book, 1984

Cornuelle forecasted that,

"the outlook for condominium sales activity is not as bright. The resale market is still well supplied with numerous listings at attractive prices. The level of prices for condominium apartments have not yet stabilized in most Oahu neighborhoods. New condominium housing projects, faced with tough competition from the resale market and healthy pre-sale quotas will be difficult to launch".

Cornuelle has accurately identified a period of adjustment in the marketplace toward a better balance between single-family homes and multi-family apartments. This is particularly true in the light of the current lack of interest by investors in speculative condominiums.

The pattern may not be clear for several years, however, the current over-supply of condominiums and the recent success of single-family projects on Oahu makes increased demand for single-family dwellings a strong and distinct possibility. It is likely that there will be a balance of say 60% multi-family to 40% single-family after one distills out condominiums used for hotel and vacation use only.

4. Increased Land Costs

Land costs have increased rapidly over the last 25 years, reflecting over and above inflation, a shortage of developable land with proper use and zoning designations. The case has been made from time to time by the DPED that there is ample land designated for urban development on the Island of Oahu. Much of this land, however, is not appropriately located, lacks adequate facilities, or, for one reason or another, is not available for development.

This is not to say that the major landowners have held land off the market to drive prices up. To the contrary, most have directly or indirectly (through developers) attempted to re-zone large areas for development against substantial resistance.

One of the most significant factors affecting the housing supply has been the highly restrictive governmental regulation brought on by mandates to preserve agricultural land and the efforts of groups to curb environmental abuses. In 1975, the DPED reported that

"the chronic Hawaiian housing problem, so extensively documented over the past third of a century, has not abated." 18/

18/ Housing Supply and Demand in Hawaii, 1985, Dept. of Planning and Economic Development, Statistical Report 107, March 4, 1975.

In the intervening 10 years, the policies of government have not corrected the problem. These policies, in some cases overly restrictive, combined with high and/or relative high rates of inflation during the last ten years have resulted in Honolulu being one of the highest housing cost areas in the United States.

5. Residential Movement Pattern

The residential movement pattern has been dictated, in part, by the location of the housing supply. The trend has been toward the Ewa District and Central Oahu. The low vacancy rate (discussed below) indicates not only a shortage of available housing units, but also a lack of adequate choice of location and type of housing.

6. Agreement of Sale Financing

Oner financing (Agreement of Sale) has been used extensively in Hawaii. This technique has made it possible for families who are not qualified for an institutional mortgage to purchase a home. The term of an Agreement of Sale has typically been three years to five years, depending upon the strength of the market. During the term of an Agreement of Sale, several factors have typically come into play:

- a. The cost of the dwelling was fixed at time of purchase.
- b. Inflation caused unearned equities to grow, in some cases, quite significantly.
- c. Personal income rose during the term.
- d. Income tax benefits (interest deductions) were realized.
- e. The buyers made other sacrifices that enabled them to make their monthly payments.

As a result, the purchasers were able to refinance at the end of the Agreement of Sale term. Even if the purchaser could not qualify for a new loan at the end of the Agreement of Sale, he was always able to sell at a price above his cost. In either event, he was in a stronger position to compete for housing.

Use of the Agreement of Sale has changed in the last five to seven years due to changing lender policies, e.g., Due-On-Sale provisions. The changes in lender policies have made sales of the existing inventory less "liquid" and have tended to contribute to the stabilization of prices which, while perhaps not desirable from an individual homeowner's point of view, is better for the overall economy as there has clearly been less speculation.

7. Ground Leases

Until the mid 70's, leasehold home values were generally less than comparable fee-simple homes and allowed many people to enter the market at a reasonably high standard of living with relatively lower housing expenses. Approximately 31 percent of the owner-occupied homes on Oahu are on leasehold land ^{19/}. This worked to an advantage in the past in the development of moderate or at least reasonable cost housing in a land-short environment. More recently, however (e.g., since the late '70's), leasehold premiums and higher leasehold rents have tended to negate this advantage. In many desirable areas (e.g., Waialae-Kahala), leasehold homes have sold for prices almost equal to their fee simple value. Fee owners perceived that lessees were receiving the benefit of prime locations and changed lease administration policy dramatically. Many homeowners were trapped after they had paid high premiums for leases with short-term known rents only to find that the fee owner wanted to receive a market rate of return on land value.

8. Substandard Housing

Demolition and subsequent redevelopment of areas containing a substantial number of substandard and/or dilapidated houses has been thwarted by local resistance to change. This resistance can be attributed to a number of factors: many people living in substandard homes do not have the economic wherewithal to compete for adequate housing in the open market; albeit that some people maintain the lifestyle by preference.

To others, the suggestion of leaving a substandard neighborhood is charged with emotion. Some of the issues range from freedom of choice to a breakdown in their mini-society of friends, acquaintances, living patterns and employment opportunity (e.g., China Town).

According to the 1980 census, approximately 3 percent of all dwelling units or approximately 7,600 units were considered dilapidated and beyond repair and should be demolished and/or replaced. This represented approximately 67 percent of the 11,300 units estimated to be substandard when overcrowding is included. Some should not be replaced in their present configuration or location as the configuration and/or location may no longer be appropriate; e.g., Kakaako planned for higher density development and Kalihi Kai trending to industrial use.

It must be recognized that there are people who choose to double up, and that the goal of no units of this type is probably unattainable and perhaps undesirable.

^{19/} State of Hawaii's Data Book 1984

9. Owner/Renter Ratio

Home ownership rates in Hawaii (State) are low when compared to the National average of 58.6 percent. In 1980, on an island-wide average 45 percent of the occupied dwelling units were owner-occupied according to census data. These figures are impacted to some degree by the number of military housing units counted in the census inventory.

There is no evidence to show that the State's unusually low percentage of home ownership has risen or will soon rise above the 45 percent level recorded in 1980 ^{20/} unless a change in policy takes place.

With a national average of close to 60% of all dwellings being owner-occupied, a ratio of 60 percent owner-occupied to 40 percent renter-occupied dwelling units should become a community goal. To achieve this, the relative cost of housing must be stabilized or reduced through increased supply.

10. Rents on Oahu Renter-Occupied Dwelling Units

In 1980, according to Census Data, 31 percent of the Oahu population paid under \$200 a month for rent, 30 percent paid between \$200 and \$299 a month, 20 percent paid between \$300 and \$399 a month, 10 percent paid between \$400 and \$499 a month, and 9 percent paid \$500 or more a month for rent, with the mean gross rent being \$308 per month. The rental market of 1982/83 was very "tight". It is estimated that rents have increased substantially since then.

On Oahu in 1970, there were 11,163 persons for which no contract rent was being charged, mostly military, some domestic help and some plantation workers. In 1980, that figure rose to 12,927. In addition, there were 2,701 persons paying under \$60 per month. ^{21/} The majority of these units were known military areas where, for purposes of census data, the units qualify as housing or a dwelling unit. The no-cash rent or under \$60 figure represents a subsidy on the part of the Federal Government of military families who live in these units. The military represents the majority of dwelling units for which no contract rent or under \$60 a month was noted. The hidden subsidies tend to underestimate the true level of rents. The military's "Rent Plus" program was mentioned in the preceding section. The pre-tax value of these types of hidden subsidies are not reflected as part of the income statistics for individuals or families.

^{20/} Bank of Hawaii, Construction in Hawaii, 1984
^{21/} Bank of Hawaii, Construction in Hawaii, 1983

Historically, rents have been low compared to sales prices, and remained that way through 1984. During 1982, 1983 and 1984, however, rents did increase significantly in large part due to the decline in new housing starts. Rents increased twenty percent or more in some areas. In some cases, this rate of increase was due to an over supply of high-rise condominiums in 1980 and '81 that were rented at low base rates. Rates escalated as the supply declined and demand increased. The rate of increase is also partly attributable in part to the "Rent Plus" program as landlords adjusted rents to the level of military allowances.

During the first five months of 1985, newspaper reports indicated that the "Rent Plus" program will be discontinued. There is an indication that existing recipients may be grand-fathered or that some alternative program will be provided. New military families will no doubt receive some type of subsidy, however, the form has not been defined as of May 1985.

Hawaii's Land Use policies must be regarded as a major reason why more of Hawaii's population must resort to renting than does the rest of the nation. Not only does Hawaii have one of the tightest rental markets in the nation (almost 99 percent occupancy), but it appears to have average rental rates that are at least 40 percent above the national average. According to the Bureau of Labor Statistics, Honolulu's rent for an average family in 1981 was slightly below that of only two other cities in the nation (San Francisco and Anchorage), but above all others by at least 33 percent. 22/

11. Vacancy Factor

National housing studies have cited vacancy rates of three to five percent in dwellings for sale and five to eight percent in dwellings for rent as the levels necessary to permit households an adequate choice of housing. This would allow sufficient mobility in order to take advantage of job opportunities, promote price competition, and provide a choice of unit type and location without creating hardship on landlords and developers. Oahu vacancy rates in both public and private housing have been traditionally inadequate and well below these standards. In 1983, the actual rates for Oahu were 0.6 percent for single family residences and 2.1 percent for apartments creating a blended average of 1.3 percent (see Schedule XI).

Postal vacancy surveys show similar trends. For example, the postal vacancy survey of Oahu in 1982 showed a 1.7 percent vacancy factor for new and used units on Oahu.

22/ Bank of Hawaii, Construction in Hawaii, 1984

Public housing is also classified as unavailable. The total placements for 1981-82 were 372 of 4,242 applications on file with the Hawaii Housing Authority.

Neither the increased production of new housing nor the economic recession of the past three years seems to have affected the vacancy rates appreciably, with the exception of high-rise condominium units which, during 1981/1982, appeared to be overbuilt. During 1983/1984, however, these units were absorbed by both purchasers and renters. This would tend to indicate that there is still a longterm need for additional housing in order to create a desirable vacancy factor.

Schedule XI is a seven year summary of housing vacancy rates on Oahu. Analysis of the data indicates that there has been a shortage of residential units on the island and that this condition persists.

The 1983 housing inventory is estimated to be roughly 260,000 dwelling units. 23/ In order to create, say a 3.3 percent increase in vacancy factor, from 1.7 percent to 5.0 percent, approximately 8,600 dwelling units would be required. Based on past averages, this is approximately equal to one and one half years average production. It should again be noted that this is (1) over and above housing requirements to meet the needs of the growing population; and (2) over and above units currently needed to reduce substandard housing, both previously discussed.

SCHEDULE XI 24/

Table 542. - HOUSING VACANCY SURVEYS OF OAHU: 1977-1983 RATES

Year and Month	Total units	Used and New Vacant Units		Used	New	Units under Construction
		Number	Percent			
1977: April	215,923	5,472	2.5	3,399	2,073	2,228
1978: March	226,103	5,178	2.3	3,312	1,866	4,820
1979: May	233,631	4,081	1.7	2,584	1,497	4,754
1980: March	238,028	5,104	2.1	3,039	2,065	3,980
1981: March	240,354	5,235	2.2	3,306	1,929	2,400
1982: March	244,077	4,130	1.7	2,665	1,465	1,087
1983: March	241,355	3,523	1.3	2,558	695	2,002

For survey data for 1955-1976, see Historical Statistics of Hawaii, p. 397.

23/ DPED's Report CIC-57, Population and Housing Unit Estimates for Oahu Census Tracts, 1980-1983

24/ Federal Home Loan Bank of Seattle, Honolulu Housing Vacancy Survey (and Data Book, State of Hawaii 1983).

During the last five years, with skyrocketing interest rates, it has been necessary for lending institutions to restructure their approach to long-term lending. This has resulted in numerous new lending vehicles such as the Adjustable Rate Mortgage, Variable Rate Mortgage, Negative Amortization, and other techniques. In addition, lenders have, to a large degree, disallowed assumption of mortgages (where the original rate was below the current market rate) and enforced Due-On-Sale provisions.

The impact of these and other changes in the lending industry has been to contribute to the stagnation of real estate sales. There has not been a sustained increase in sales and/or home ownership due to high interest rates. Sales, which started to improve in late 1982, declined again in mid '83 in response to upward movement in interest rates. Rates have improved during 1984 and in early 1985 and have had a stimulating effect on real estate sales and construction.

18. Inflation

Investment in real estate has historically been one of the best methods of hedging against inflation. To a large degree, the buildup in condominium units in the '60's and '70's was the result of hedging and, to some degree, accounts for the lopsided construction of multi-family units and owner/renter ratio. This was good for the construction industry in the short-run, but did not make as great a contribution to solving the housing problem as it might have, had design, price and location been more appropriate. As an investment vehicle, purchasers were willing to sustain negative cash flows for extended periods of time in order to realize capital gains at the time of sale. However, in 1982, inflation stabilized. Annual inflation amounted to approximately four percent according to the Consumer Price Index for 1984. Under these conditions, real estate is considered less desirable as a hedge against inflation.

It would appear that now (1985) is an excellent time to increase the inventory (supply) of housing as potential homeowners would not be forced to compete with investors and speculators as they were in past years.

19. Foreclosures

Hawaii has historically maintained one of the best (lowest) foreclosure records in the nation; however, commencing with the downturn in late 1979, Hawaii has experienced an unprecedented rate of foreclosure. This activity has been directly related to the decline in the economy and the inability of highly leveraged purchasers to maintain their payment schedules, or, in the alternative, to sell the property to another purchaser even at/or below cost. This was, in part, due to the inability to find suitable financing, high interest rates, Due-In-Sale enforcement, a lack of consumer confidence and an inability to qualify as credit underwriting criteria became more restrictive. The foreclosures, to a large degree, have focused on investment condominiums.

12. Economic Cycles

Since statehood, Hawaii has gone through three major economic cycles. Each has had a slightly different set of characteristics. Three major housing "boom" cycles occurred during this time frame. Housing was produced at an extremely high rate during each "boom" period, i.e. approximately 1-1/2 times the 1963 through 1982 average. The offsetting decline which followed the boom period resulted in production rates well below the average. Overall, even with housing "booms" the quantity of housing has not increased to a satisfactory level to meet the needs of population growth and its changing characteristics.

13. Housing Amenities

Advances in household appliances and convenient foods have allowed many of the lifestyle changes to occur.

14. Use of Housing Units for Other Purposes

It was previously noted that some multi-family housing units are located in areas which permit them to be used as visitor facilities, either on an all-year or part-time basis. The latter, in part, accounts for the large number of units being held for rental but not available as primary housing. Not all units in this class are suitable as primary residences. In addition, some units classified as residential apartments are used as office space due to their proximity to business and commercial centers. The impact of these practices on the housing inventory is not known.

15. Filtering Down

The natural filtering down process which occurs in many metropolitan areas (i.e., older housing filters down to lower income families), has not occurred in Honolulu because of the high overall demand for housing.

16. Fixer Uppers

Some individuals make a living and/or supplement their income by buying run-down properties, reconditioning them, and then re-selling them at a higher price. This reduces the opportunity for the filter down process to work as lower income families cannot compete with speculators.

17. Financing

One of the most dramatic new trends in housing during the last economic cycle (since 1979) has been the change in the fundamental structure of mortgage financing for single-family homes and condominiums.

Historically, purchasers were able to obtain 30-year fixed rate mortgages which had the effect of stabilizing the homeowner's cost of occupancy.

20. Price of Housing

Lenders, and vendors under Agreements of Sale, have or will be placing these units back on the market creating a moderate increase in availability. In many cases, these units are not designed or located to serve as primary homes. At the end of 1984, it appeared that foreclosures were trending downward. It is assumed that many of the marginal property owners have already been foreclosed upon, and that with a generally improving economy, the overall rate of foreclosure will continue to decline.

20. Price of Housing

In 1970, the average value of an owner-occupied dwelling unit on Oahu was \$40,605. Honolulu, (Tax Zones 1, 2, and 3), accounted for the highest value per owner-occupied dwelling unit \$45,690. The cost for new and used single-family dwellings available for purchase had increased to over \$125,100 in 1980. The average sales price for condominiums available for purchase was in excess of \$100,000.^{25/}

For 1984, the Honolulu Board of Realtors' Multiple Listing Service reported average condominium selling prices at \$96,500 and average single-family dwelling selling prices at \$182,000. It should be noted that foreclosures and private sales activity are not reported through the M.L.S. If these transactions were also reported, average prices may have been substantially lower.

SCHEDULE XII 26/

PROPERTY VALUES PRIMARY URBAN CENTER VS SECONDARY URBAN CENTER

Average Listing Prices for Single-Family Dwellings PUC vs Central Oahu and Ewa

PRIMARY URBAN CENTER	CENTRAL OAHU & EWA	VARIANCE	% OF PUC
\$383,000 (1)	\$162,000	\$221,000	42%
\$319,000 (2)	\$162,000	\$157,000	51%
\$256,000 (3)	\$162,000	\$ 94,000	63%

^{25/} Bank of Hawaii, Construction in Hawaii, 1983

^{26/} Honolulu Board of Realtors Multiple Listing Service January, 1985

- (1) Includes all 546 listings attributed to the PUC
- (2) Deletes the Kahala area from the analysis - average of 410 listings.
- (3) Deletes the Kahala and Diamond Head areas from analysis - average of 380 listings.

It should also be recognized that although the PUC has approximately four times the population (400K) and presumably four times the number of single-family housing units, the number of listings in the PUC is only 72% greater than the number of units listed in Central Oahu and Ewa. The tight supply in the PUC contributes to the higher prices in this area. Units in the Central and Ewa areas tend to be lower priced and in greater supply. Units built in this area tend to have the same characteristics as existing units, lower prices and more availability.

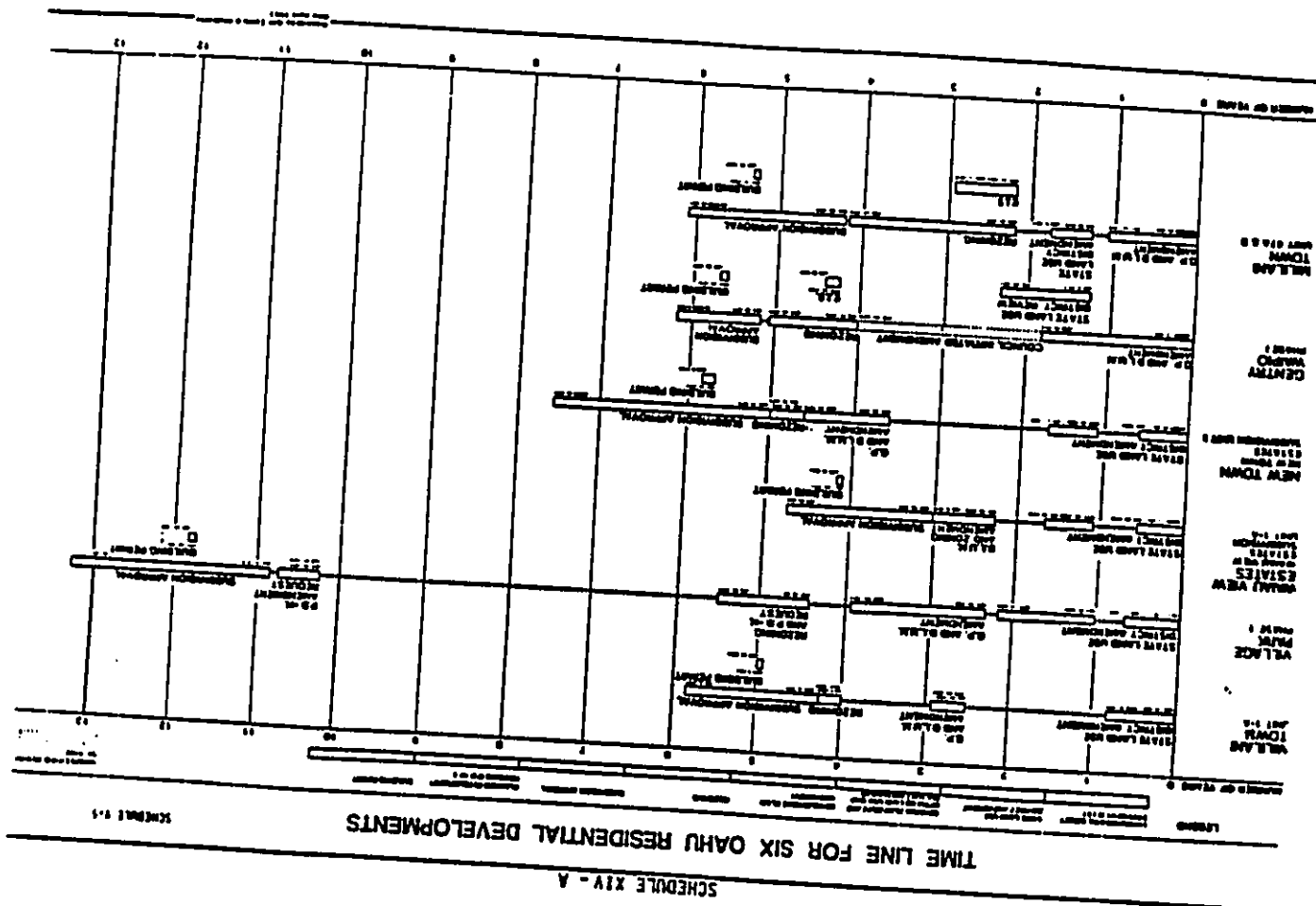
SCHEDULE XIII 27/

Average Listing Prices PUC vs Central Oahu and Ewa Condominiums

PRIMARY URBAN CENTER	CENTRAL OAHU AND EWA	VARIANCE	%
\$127,000 (1)	\$102,000	\$25,000	25
\$117,000 (2)	\$102,000	\$15,000	15

- (1) Includes all 3,149 listings in the PUC
- (2) Deletes the Diamond Head area from the analysis total listings of 3,049. Condominium units in the Central Oahu and Ewa areas sell for an average of 15% less than condominiums in the PUC and 25% less if the luxury units in the Diamond Head area are considered. This suggests that locational factors permit lower priced units to be developed in the Central Oahu and Ewa areas.

^{27/} Honolulu Board of Realtors M.L.S. January, 1985.



SCHEDULE XIV 2B/

Single-Family Dwellings
Average Prices in Village Park
1/1/85 - 4/15/85

Average New Sale 1985:	\$133,000
Average Listing Price 1985:	136,046
Average Resale of Listed Home 1985:	130,083

Schedule XIV shows the current range of activity at Village Park, a leasehold project.

21. Social Trends

Divorce rates, nationally and locally, have reached all-time historic highs. The result is a creation of one additional household for each divorce.^{28/} Some recent news reports indicate that this trend may have impact of a change may not be felt for many years.

There has been an increase in the number of non-traditional households typically composed of two individuals.^{30/}

Birth control and abortion have had a significant impact on family size.^{31/}

22. Lead Time Requirement

As noted earlier, one of the major deterrents to meeting housing demand is the time required to bring housing on line. Belt Collins & Associates, a Honolulu planning firm, conducted studies of various community scale residential projects on Oahu, and determined that projects have experienced anywhere from four to six years in the permit process prior to building their first dwelling in an increment. See Schedule XIV.

28/ Source Waitec Development Co., April 15, 1985 MLS Statistics
 29/ Consultants' observations based on reported data
 30/ 1870
 31/ 1810

This is not to suggest that the planning process should be indiscriminate. The need for housing however, should be given top priority, and the process of implementation should be expedited if the development proposals of the early 80's are to be realized during the latter half of the decade and through the 1990's.

23. Ohana Zoning

In 1982, the City and County of Honolulu adopted an Ohana Zoning Ordinance. The concept of Ohana Zoning is to permit a family to construct a second dwelling on a single family lot when the lot size and City services are sufficient to accommodate the increased density.

The results from inception in 1982 through December 31, 1984 are that the Ohana Zoning Ordinance has resulted in the issuing of a total of 706 permits. Only 185, however, of those permits were for new housing units. The remaining 521 permits were for legalization of existing structures, or to bring an existing structure up to code.^{32/}

The concept was intended to accommodate creation of an additional 5,226 dwelling units by the year 2000 for an average of 290 units per year. Since less than 100 new units have been produced per year through 1984, it can be concluded that Ohana Zoning has made only a minor contribution to the housing inventory.

In April of 1985, the City Land Utilization Director announced that the department was reassessing the Ohana Zoning Program in light of citizen complaints and re-evaluation of infrastructure adequacy.

Information provided at the zoning counter at the Department of Land Utilization on May 20, 1985, indicates that the department has eliminated most of the previously eligible areas for Ohana dwellings. When the Ohana program was initiated most of the developed areas on Oahu were eligible for Ohana units. Today, however, areas where Ohana units are permitted show up as small islands within the PUC, Central Oahu, Koolauoko and East Honolulu, development plans. It is the opinion of the consultants that, given past performance and the increasing concern about the adequacy of infrastructure on Oahu, it is likely that Ohana dwellings will have a negligible impact on the housing inventory on Oahu.

^{32/} Physical survey of permits by consultant

24. Inclusionary Zoning

Inclusionary zoning is a concept under which developers are required to provide a portion of new housing product as "affordable housing".

The concept singles out developers from the rest of the community to carry the burden of affordable housing on the theory that zoning approvals create value and that the requirement is a cost of creating that value. As of this writing (May, 1985), members of the City Council and a group of developers are struggling with the implementation of the concept and its inequities and vagaries.

25. Flexibility of Choice

Consumers want flexibility in the choice of housing. This applies not only to the type of housing (single-family, multi-family, townhouse, etc.) but also to price range and location.

Factors such as size of the household, age composition, the number of employed persons, distance to work and preferred recreational pursuits will affect the choice of housing.

26. Second Homes/Vacation Homes and Other Vacant Units

According to the 1980 Census more than three percent of all homes on the island of Oahu were vacation homes/second homes, or vacant for other personal reasons (not associated with either the rental or sales markets). Therefore, approximately 7,500 units owned by both local residents and absentee owners were unoccupied or occupied only a portion of the year and were not for sale or rent. New Federal tax legislation has been proposed by the Reagan administration which may eliminate most or all interest deductions on second home mortgages. If this change in the tax structure occurs, the effects may be to free up some of these units for primary housing although the impact on the housing shortage may be small. Other impacts may be significant.

SECTION VI. DISTRIBUTION OF HOUSING & ALTERNATIVE LOCATIONS TO MEET HOUSING NEEDS

The Department of General Planning (DGP) uses the State Department of Planning and Economic Development (DPED) population projections as the basis for housing demand for the General Plan (GP), and Development Plan (DP) population guides. The figures used in the original GP and DP (II-F Series) have been updated to reflect DPED's most current statistics (M-F Series). It should be noted DPED's M-F projections revised Oahu's population upward by 8,300 persons for the planning period. While statistically a small revision in the population (less than 1%), this translates into an increase in demand of between 2,500 to 3,000 housing units or an 3% - 4% increase. DPED has also prepared high and low forecasts which indicate population projections of 10% above and 15% below the M-F projections now being used by DGP.

The population guidelines which drive the GP and the DP and the respective housing unit demands could be significantly different from actual conditions. Past experience suggests that there has been an unsuccessful effort to closely match land availability with need. Past forecasts have proven conservatively low. The result has been a continued housing shortage characterized by high prices. This suggests that land availability should be on the generous side if the housing need is to be met. This approach would also accommodate the need for a vacancy factor (approximately 5%) and its economic and social benefits of competitive pricing and flexible housing selection.

According to information provided in DGP's Land Supply Review dated August, 1984, the development plan is expected to accommodate an increase in population of 175,800 persons between 1982 and 2005.

No summary was prepared of the number of units that will be required to service the projected increase in population. However, the figure can be determined by using information provided in DGP's analysis.

SCHEDULE XV 33/

CITY AND COUNTY OF HONOLULU ISLAND WIDE YEAR 1985 - 2005
HOUSING UNIT INCREASE
PROJECTED BY DEPARTMENT OF GENERAL PLANNING

<u>Special Method</u>	
Probable Units	4,527
Special Areas	20,329
Mixed Uses	5,500
O'hana	<u>5,200</u>
TOTAL	35,556
<u>Regular Method</u>	
TOTAL UNITS	<u>34,268</u>
	<u>69,824</u>

More important, however, is to assess the assumptions of the methodology which the DGP has used to arrive at DP capacity. There are two major concerns with the prior DGP methodology in calculating population. First, the assumption for occupants per dwelling unit (household size), and second, the assumptions used in determining the development capacity of existing zoned lands.

1. Household Size

DGP assumes that households are still declining but by only a conservative rate and without an analytical basis. The statistical trends of the past thirty years suggest a much lower household size should be adopted by DGP in its DP Capacity Analysis, if for no other reason than to err in favor of more housing.

Household size in the State of Hawaii declined from 4.14 persons per household in 1950 to 3.15 persons per household in 1980. Oahu also had 3.15 persons per household in 1980. If this trend continues household sizes will decline at an average of .033 persons per year. However, it is likely that the rate of decline will slow and reach stability on or before the year 2005. Twenty years hence household sizes should decline to 2.7 persons per unit.^{33/} If the projected population of 954,500 is divided by 2.7, one finds that the total housing inventory necessary by 2005 is 353,519.

2. Development and Redevelopment Potential of Existing Zoned Areas

Most of the population capacity projected for the PUC and, to varying degrees, those projected in other areas come from redevelopment and from infilling of previously passed over sites. The projections for development in these areas are overly optimistic for the following reasons:

- A. They ignore the public and special interest groups' awareness and propensity to use their ability through legal and political means, to stop or delay projects which have, or which they feel may have, a negative impact either economically or socially on their property or the community.
- B. They ignore the immense number of factors which must all come together to make a redevelopment physically and economically attractive, and the human constraints on undeveloped and underdeveloped properties.

33/ Estimates provided by DGP

Social and Political Awareness

The following discussion provides three recent examples of citizen groups which to various degrees have stopped, slowed or raised the cost and the uncertainties of projects. When combined with numerous other examples, both in and outside of the P.U.C., such as the Kukui Initiative on Kauai, the Mahole-Waikane resistance and the Admiral Thomas (condominium) litigation, one can see that the social impact of projects will play an increasingly important role in future redevelopment. Indications are that this role will be a negative one.

Date-Lau: Areas within the PUC currently estimated to provide certain future densities may not be able to be developed within the planning period as assumed by planners, because opposition groups may legally prohibit their development through the use of the initiative process to down-zone and/or down-designate properties providing the projected densities. In the case of the Date-Lau property, the five acres of property affected by the initiative initially provided an estimated future density of 450 units. This was later raised by council action to 700 units and then reduced by the initiative to 150 units. These changes, while changing the projected unit count within the PUC during the planning horizon, will not have a real impact due to the fact that long term leases on the properties to the existing unit owners do not expire until after 2005. Therefore, higher potential densities may be almost impossible to achieve within the planning period.

Huna Street - Kuuanu Park Place: Kuuanu Park Place is a condominium development of medium density in the Liliha area of Honolulu. It was constructed on zoned land and met all requirements for development. However, it is physically located on what can best be described as a "flag lot". Residents along the "pole" (which provides ingress and egress for both residents and utilities) protested what they considered to be inappropriate development on the parcel. The residents were successful in causing delays and increasing costs to the developer. Their protests were finally overruled by the court and construction was able to proceed. At a minimum the adversities of Huna Street will be a deterrent to full utilization of densities in the PUC, not to mention the adverse impact on sales of projects.

- 34/ Market Analysis Waiala, John Child Report May 27, 1980 Cowell & Company
Population Projection 1985-2000. The average family size in the United States as of 1985 is 2.7 persons.
35/ Based on the 3 year average 1980-1983 vacancy factor of 1.7% (see Section V Schedule XI).

Ironworks: During 1984 a well organized and highly publicized campaign was conducted by the small business people given notice to vacate the "Ironworks" industrial area to make way for the Stark development scheduled for that property. Through their efforts, they were able to acquire a pledge from the State government to provide alternate space for their businesses at the old Watson Warehouse, (next to Fort Armstrong) for a minimum of five years in order to give them more time to find other business locations. This same type of campaign can be expected by other developments to be proposed for the balance of the industrial Kakaako area. One wonders where other businesses displaced by new developments will go when the readily available State property has been committed. It seems likely that Kakaako will not develop as fast as the Hawaii Community Development authority would hope.

The preceding examples underscore the difficulty of achieving the densities projected within the PUC on properties designated for more intensive use, and with attracting developers interested in developing with these risks.

The following are additional reasons why certain properties within the PUC may not be developed to their allowed potential because the owners do not desire or are unable to do so.

Small Lot Sizes: Many of the areas the PUC designated for higher densities are composed of several existing small lots, therefore any existing owner wishing to develop his property, or any prospective developer wishing to develop, initially has the problem of consolidating a number of small properties before the maximum density projections can be achieved. There is always the possibility that the developer may never be able to achieve the desired consolidation due to holdouts from key property owners.

The Kakaako plan permits a Floor Area Ratio (FAR) of 1.5 on small lots, but permits a 3.5 FAR on lots 80,000 square feet or larger. Efforts will be made to cause consolidation, however, it is projected to be a long and slow process.

Development Economics: Numerous areas scheduled for medium and high density development already have low to medium density improvements on them. Much of this development has occurred within the past 30 years and is of concrete and masonry construction. Many of the existing structures have useful lives beyond the planning horizon of the Development Plan. In essence, the land owners will be faced with the option of giving up an income stream from properties in which they have a very low basis and carrying costs, and developing a larger but more costly new structure in the hopes of generating an even larger income in the future and many owners may not be financially capable of taking on such a project. Many owners may have no desire to accept the risk even if they are financially capable.

In addition, because of their low cost basis it may be economically impractical for either of the above type of owner to sell their properties to a developer willing and capable of developing the property to its potential density, and achieve the same or greater income than they currently enjoy because the gain on the sale of the property would be subject to capital gains taxes, thus lessening what is realized from the sale of the property. This will induce people to retain their properties. Leasehold alternatives are becoming less attractive to land owners due to social pressures for fee simple land ownership of one's residence. Legislation applicable to conversion of leasehold condominium apartment property to simple fee was introduced in the 1985 legislative session, and although it did not pass, it signaled land owners to be prepared for the future.

In developing the population potential of the PUC, the Department of General Planning makes several assumptions to account for the potential for increases in units within the DP area. The following discussion based on more recent information, questions the validity of some of the assumptions and argues that the proposed developments and redevelopments in the existing PUC boundaries are likely to produce far fewer units for residential occupancy than proposed in the DGP's "Land Supply Review: Population Implications of the Development Plans" dated August, 1984.

Kakaako: It is significant that not one major residential development has taken place in the Kakaako area in recent years. Additionally, although numerous projects have been announced, none have as yet reached the point of ground breaking. The residential portion of the Stark Development on the old "Ironworks" site has been delayed indefinitely. The bulk of the Kakaako redevelopment plan relies on an infrastructure improvement program. HCDA proposes that 70% of the cost be paid by government, 23% by property owners and 7% by the utility companies. A public hearing on the renewal plans and assessment was held in May, 1985. It would seem that the 16,500 person increase in population for the Kakaako area is an optimistic one for the time frame. It should also be noted that the new developments proposed for the Kakaako area, with the exception of mandated affordable housing requirements, will consist most likely of luxury, high-priced high-rise developments. The nature of high-rise construction cost and Kakaako improvement assessments support this contention.

Waikiki: The DGP projects the population growth in Waikiki to be 2,900 based on the redevelopment of 32 sites, assuming that consolidations occurred and that each site was developed into average 800 square foot units, and assuming densities permitted under the Waikiki Special Design district. The increase is really composed of two parts: (1) the demolition of 1,520 existing units and (2) their replacement with 2,985 new units. Thus DGP's analysis assumes that before this increase is achieved the occupants of the existing units (3,000 people), will have to be relocated so that the new units with capacity for 6,000 people can be constructed.

The most compelling argument against increases in resident population in Waikiki, however, lies not in the potential for new unit construction, but in the projected unmet demand for hotel rooms on Oahu during the planning period. An analysis prepared with the assistance of Pennell, Kerr, Forster to determine the Future Demand for Transient Accommodations prepared in late 1983, and submitted to the State Land Use Commission in support of the proposed West Beach Development's resort units, indicated that by the year 2000, Oahu would be faced with a hotel room shortage of between 4,500 to 7,500 units. This shortage includes the development of all of the 6,000 units allowed in the proposed development plans for areas outside of Waikiki. As noted earlier, such shortages if allowed to exist would encourage conversion of existing Waikiki units from residential to resort uses.

DPEP's - Hawaii Population and Economic Projection and Simulation Model updated State and County forecasts dated July, 1984 indicate a projected increase of 5.5% in visitor count over the figures used in the above cited report (Table # 15).

As the attractiveness of placing a unit into a resort rental pool increases, buildings in the area devoted primarily to residential use would be under pressure to convert to resort uses because of the high potential income. Restrictive zoning could be changed or ignored. If one assumes that there will be a 6,000 hotel unit shortfall by the year 2000 and that half of this demand is supplied by conversion of units from residential to resort use in Waikiki, then it is conceivable that the resident population of Waikiki would be reduced by 6,000 people, well below that anticipated by DGP. In fact, if such a shortage develops, it is not unlikely that more than 50% of the shortfall would be made up by the conversion of existing Waikiki units.

DGP on Page 27 of the Land Supply Review, dated August, 1984 states.

"It is important to ensure that the units are occupied by residents. This is not always the case, as many units are actually used to accommodate visitors - a phenomenon most prevalent in Waikiki."

yet no provision has been made for the impact of increased visitor use of this portion of the residential inventory.

Probably the greatest impediment to redevelopment of the PUC, as stated elsewhere in this report, is the dislocation and inconvenience that redevelopment causes to area residents. This social upheaval is not limited to the individuals or businesses who may have to relocate because of redevelopment, but also those in the immediate vicinity that may be impacted by the construction and/or demolition work or by the rehabilitation of infrastructure that the redevelopment may require. The widening of Kuhio Avenue is a current case in point.

SCHEDULE XVI 37/
SUMMARY OF HOUSING UNIT SHORTFALL 1983-2005
ISLAND OF OAHU

<u>Assumptions</u>	<u>Alt. I</u>	<u>Alt. II</u>	<u>Alt. III</u>
Total housing units required by 2005 (1)	378,033	378,033	378,033
Existing housing units 1983	259,574	259,574	259,574
New housing units permitted by 2005	118,459	118,459	118,459
<u>Subtotal</u>	<u>69,824</u>	<u>69,824</u>	<u>69,824</u>
DGP's projection of additional units permitted by 2005 under the existing GP & DP's	48,635	48,635	48,635
<u>Subtotal</u>	<u>15,000</u>	<u>15,000</u>	<u>15,000</u>
<u>Add</u>			
Inability of PUC to achieve DGP assumptions for redevelopment	-	-	-
<u>Add</u>			
Balance of projected unmet demand for hotel rooms met through conversion of Waikiki housing units to visitor accommodations (2)	4,500	4,500	4,500
<u>Total unmet housing demand</u>	<u>48,635</u>	<u>63,635</u>	<u>68,135</u>
<u>ANNUAL SHORTFALL OF HOUSING UNITS 1983-2005</u>	<u>2,210</u>	<u>2,892</u>	<u>3,097</u>

- (1) a. DPED M-F Population projections (954,500 in the year 2005)
b. Average 2.7 persons per household = 353,519 units
c. Replacement of demolitions = 12,848 units
d. 5% vacancy factor = 11,666 units. Total 378,033
(2) 3,000 units already included in 15,000 above

37/ Prepared by consultants

Still another factor inhibiting redevelopment is that infrastructure improvements necessary to permit higher densities within certain areas may not be in sync with developers' and landowners' intentions.

Mr. George Uyema, Chief of the City's Waste Water Management Division speaking of the McCully-Kaplan District, was quoted in the January 28, 1985 Pacific Business News as saying

"We're coming to a point where most of the areas are at capacity and we can't honor zoning requirements... We're in this position because we have been falling back each year because of budgeting".

More recently, there have been newspaper and television news coverage about the poor condition of the major sewer lines in Honolulu and the urgent need for a new system. Recent testimony before the City Council by the City's Chief Engineer, Russel Smith, Jr., on the deterioration of the City's sewer system has led the City Council to propose increasing the budget for sewer improvements from \$6 million in 1986 to \$60 million. According to Smith, the main sewer line between Kahala and Makiki is unsafe and could cease to function at any time. Mr. Smith also indicated that the main sewer system design of 50 years ago never envisioned the development which it is currently servicing. This recent development confirms the consultants contention that increases in the development of the Primary Urban Center are much less certain than the Department of General Planning's estimates would indicate.

This is understandable because public officials must make decisions on infrastructure construction based on allocation of limited financial resources among specific projects. Generally this requires long lead times which do not respond to shifts in potential development as they occur.

All of the above plus the history of redevelopment near downtown Honolulu (Vineyard area), suggest that in order for production of units to occur within the PUC, many unrelated events must fall into place. Unfortunately, most of the major sources of increased population growth projected for the PUC come from redevelopments in Kakaako, Waikiki, and mixed use areas, all of which have little or no proven track record. It is the view of this report that much less should be expected of these sources than is projected. It is suggested that the PUC will be able to provide less than one half of the development which DGP envisions for it during the current planning horizon. This would result in approximately a 15,000 unit shortfall in DGP's projected 69,824 unit increase for Oahu during the period 1983-2005. It is the conclusion of the consultants that the plan presented by DGP could result in a short fall of 63,000 units by the year 2005. (See Schedule XVI).

ALTERNATIVE LOCATIONS TO MEET THE HOUSING NEEDS

Several other projects have been proposed to meet the identified needs for housing in the central Oahu/Ewa area. The following is a brief summary of each of these projects:

Hilliani Town

Hilliani Town is a 3,500 acre new community in central Oahu between Waipio by Gentry and Mahiava 1,300 acres south of H-2 Freeway have been proposed for development.

Ewa Marina

Ewa Marina is a 707 acre development proposed by MCM Development near Omeula Beach Park, West of Ewa Beach.

Waikale

Waikale is a development proposed by AmFac on former Oahu sugar cane land. The DP was amended 5/29/85 to include Waikale.

Waiawa

Waiawa is a 2,200 acre development proposed by Lear Siegler, Inc., with approximately 11,000 units.

West Beach

West Beach is a residential resort community with 5,200 multi-family residential units proposed.

Campbell Estate Land Use Plan

Officials of the Campbell Estate recently unveiled a master plan for all of Ewa. This plan includes proposed and existing development.

Makakilo

Makakilo is a development of Finance Realty which produces 150 to 200 units per year.

Windward Oahu

The United States Supreme Court in May of 1985 refused to hear the State of Hawaii's appeal of the Federal Appeals Court ruling that H-3 cannot proceed with its present routing. This effectively eliminates the Koolauoko and Koolauloa Development plan areas from participating in any large-scale growth in housing units within the time-frame of the existing city and county general and development plans.

Other Developments

A number of other projects are currently underway, such as Waipio by Gentry and New Town. It is estimated by the consultants that these projects will be substantially completed before any of the other alternative locations "come on stream."

Population Allocation to the Village Park Expansion

The proposed Village Park Expansion is one of projects which should be allowed to proceed to meet an annual shortfall of between 2,300 - 3,100 housing units per year.

In looking at the summary of alternatives proposed by the Department of General Planning after its review of the GP amendments proposed for 1985, it seems clear that the Department views the boundaries of the PUC, Central Oahu and Ewa areas and the corresponding population ranges as guidelines in carrying out the policy statements embodied in the General Plan and Development Plans. The following is a review of the five alternatives suggested by DGP:

Alternate

1. Expand the PUC
2. Expand the urban fringe
3. Add a second Secondary Urban Center
4. Relocate the Secondary Urban Center
5. Make no changes in the General Plan

The Village Park Expansion could be accommodated under variations of alternatives one, two, three and four. The property proposed for the Village Park Expansion abuts the existing Village Park development on its southern boundary and shares Waikale Gulch with the Waikale Development on its eastern boundary. Therefore, any proposal which would accommodate the Waikale Development, or changes the status of the existing Village Park development in relation to the General Plan or the Development Plans could be extended to the proposed Village Park Expansion simply by a boundary adjustment.

The most logical alternative to be adopted would be to include the Village Park Expansion within the Primary Urban Center. There is little distinction between the Waipahu and Pearl City areas or for that matter, between Waipahu and the Kaimuki area. All are characterized by commercial development along main thoroughfares and surrounded by residential development, primarily single-family. The Waipahu area is a contiguous continuation of urban Honolulu and could be identified as such in the planning process.

Population guidelines would not be exceeded by the Village Park Expansion if the Department of General Planning accepts this report's contention that a more realistic household size for planning purposes by the year 2005 is 2.7 per unit. This assumption alone would require an additional 10,500 to 34,500

within the PUC (revised) to support the population range of 453,400 to 501,100 within the PUC boundaries. This assumes household size in the PUC maintains its current .3 persons per unit less than the Oahu average household size. Further, this report concludes that the Department of General Planning's estimates for development within the PUC overstates the potential development within the PUC by 15,000 units and, therefore, even without a change in household size the Village Park Expansion could be accommodated.

As indicated in the Summary of Proposals prepared by DCP in October, 1984, there are three other major proposals being considered. Schedule VIII compares the projects.

All of the above possible changes and alternatives are consistent with options promulgated by the Department of General Planning. One possible interpretation of the future need on Oahu for accommodating additional population and housing, suggests that the Department of General Planning consider combining the Ewa and Central Oahu DP areas into one development region.

This alternative would recognize the area as the future home of most of Oahu's expanding population. It would encourage development and growth in the industrial centers and in the proposed residential and resort communities of Ewa. By utilizing an overall strategy for the entire region, a flexible environment for the gradual growth of this area is provided consistent with development history.

SCHEDULE VIII 38/
Comparison of Projects Proposed for Development Plan Amendment

	VILLAGE PARK	MILILANI 40/	MAIAMA 39/	MAIKELE 40/
Population Accommodated	10,000	20,655	31,000	8,100
Acres	691	1,250	2,100	570
Units	3000 Mt 450*/-City	6,600	11,000	2,760
Estimated Units per Year	345-500	450-500	400-500	330
Estimated life of project	7 yrs.	13-15 yrs.	25-30 yrs.	8-9 yrs.
<u>Unit distribution</u>				
Single-family	80%	65%	64%	60%
Multi-family	20%	34%	36%	40%

38/ Prepared by consultants
39/ From Lear Siegler Maiana submittal February, 1985
40/ DCP Summary of General Plan Amending Proposals October, 1984

SECTION VII. ECONOMIC ENVIRONMENT

The Department of Planning and Economic Development (DPED), Research and Economic Analysis Division, has prepared and Updated State and County Forecast report dated July, 1984. The updated projections state as follows:

*Statewide Projections
Economic Projections

Except for the assumptions regarding productivity, earnings, fertility, mortality, and labor force participation, the assumptions leading to the updated set of projections remain generally unchanged since the forecasts made in 1978:

- (1) Visitor arrivals are expected to grow but at a declining annual rate:
- | | |
|-------------|-----------|
| 1980 - 1985 | 5 percent |
| 1985-1990 | 4 percent |
| 1990-1995 | 3 percent |
| 1995-2000 | 2 percent |
| 2000-2005 | 1 percent |

In the short-run, actual experience and the projections do not match. Visitor arrivals for 1984 grew at a rate of approximately 15% over 1983 and 1983 grew a rate of approximately 7% over 1982. Forecasts for 1985 are greater than the 4 to 5 percent forecast made in July of 1984. However, a United Airlines Pilots strike commenced in May 1985, adversely impacting tourism. These variations indicate the dynamic nature of the economy and the dependency of visitor arrivals on the total economy as well as factors such as the availability and cost of jet fuel.

While the rate of growth is projected to decline, the absolute numbers should not decline proportionately as the base continues to increase.

The forecast may be valid for visitor industry planning, however, for housing planning purposes, one would have to conclude that the forecast is conservative. As is noted elsewhere in this analysis, if the availability of housing is to be increased and if the cost of housing is to be reduced or stabilized, it would be better to provide flexibility through an optimistic forecast and err on the upside when evaluating the impact of the visitor industry (Hawaii's primary industry) on housing and the economic wherewithal for persons to purchase housing.

- (2) Federal defense expenditures in constant dollars will increase 2 percent per year.

It does not appear that the DPED is anticipating success in the solicitation of a home porting of a battleship group at Pearl Harbor. If this decision is made in favor of Hawaii, there could be a significant step up in the level of military expenditures to a higher, albeit probably stabilized, level.

"(3) The value of sugar and pineapple production is assumed to remain constant. However, because of technological improvements, employment in these industries is expected to decline by 40 percent between 1980 and 2005."

"(4) Other agricultural exports will grow at rates based on sales projections of the agricultural commodities."

Total exports (including federal defense expenditures), measured in constant dollars, are expected to increase nearly 80 percent between 1980 and 2005. The annual growth rate for exports will average 2.4 percent over the next 25 years. However, because of the slowdown in visitor expenditures, growth will be faster in the earlier years than the later years."

Here again, we see a somewhat pessimistic forecast. It is recognized that the expenditure per visitor is declining; however, as previously noted, if the decline is not in fact as pessimistic as forecasted by the DPED, personal income will be higher and the ability to purchase a home improved.

"For example, between 1985 and 1990, the growth rate will average 3.1 percent per year, compared to 1.6 percent between 2000 and 2005. Of the \$5.4 billion (1980 dollars) gain in exports, visitor expenditures will account for \$3.1 billion, increasing its share of total exports from 42 percent in 1980 to 49 percent in 2005."

The increase in visitor expenditures will contribute to the creation of 17,400 jobs in eating and drinking places and 12,300 jobs in hotels and lodging, the two major sectors comprising the tourism industry. Although exports in the other sectors will also expand, increases in labor productivity will at least match the growth. Military employment is forecast to stay at its 1980 level of 58,400 jobs (assuming no change in the vessels home ported on Oahu) throughout the forecast period. Agriculture and food processing are expected to lose 2,900 jobs, causing their share of total employment to drop from 4.6 percent in 1980 to 3.0 percent in 2005.

Taking into account the jobs supported by the export jobs through the economy's respending (multiplier) process, Hawaii will add a total of 164,400 jobs during the 25-year period. The employment growth rate will average 1.1 percent per year, which will be down dramatically from the 2.8 percent rate that prevailed between 1960 and 1980. Nevertheless, State jobs will grow at about the same pace as jobs in the U.S. economy, according to a long-term forecast by Data Resources, Inc.

Most of the new jobs will be found in trade and services. Including eating and drinking establishments, and hotels, trade and services will add jobs, accounting for a substantial portion of the jobs created in the next 25 years. Federal, State, and local

government will provide another major segment of new jobs; construction, finance, insurance, real estate, 200, miscellaneous manufacturing, transportation, communication, and utilities will round out job creation.

When adjusted for inflation, Hawaii's Gross State Product is projected to increase by 78 percent by 1980 and 2005, rising from \$11.3 to \$20.2 billion (in 1980 dollars). Personal income with a growth rate of 2.5 percent per year will grow by a smaller amount--from \$9.9 billion in 1980 to \$18.3 billion in 2005. On a per capita basis, income will rise by 1.3 percent annually, which is considerably below the historical rate and somewhat less than the 1.7 percent national rate. The slower growth in per capita income reflects the relatively smaller gains in productivity, wage rates, and labor force participation forecast in the future."

The DPED Update fails to take into consideration the possibility that income is significantly understated. While the statement that income on a per capita basis will not keep pace with historic rates or national trends may be correct, the existence of other unquantified sources of income, particularly in the food service and hotel industries (e.g. unreported tips and gratuities), permits one to conclude that personal income may not be as low as projected. Here again, an optimistic projection as a planning tool would lead to the conclusion that more persons will have the wherewithal to purchase housing.

The following points are offered as a partial explanation of other sources of funds and perquisites that offset to some degree the lower levels of income compiled from published data.

1. Gifts and Loans:

Parents will frequently give children a substantial tax-free cash gift or taxable loan to be used as a down payment on a home. These funds may come from savings, or may come from leveraging high equity investments, i.e. refinancing a home with a substantial equity.

2. Unreported Income:

Numerous domestics (housekeepers, gardeners, etc.) and others have income but fail to report for income tax purposes. Cash "kick backs" are common place in some industries.

3. Illegal Income:

Revenue from marijuana (\$11.3 millions, "Green Harvest"--a mere dent according to Police Chief Gibb-1984), gambling, prostitution and fencing of stolen goods is not considered in the calculation of total income.

4. Inheritance:

Tax free inheritances are not included in total income.

5. Barter Transactions:

The exchanging of goods and/or services for other goods and/or services has been growing and may represent a high dollar volume.

6. Non-Reportable and/or Non-Reported Benefits:

Company cars and expense accounts could have an unreported value of three to five thousand dollars or more per year to some individuals. Rent free housing and near rent free housing, based on cost rather than value are not translated into gross income.

7. Co-Maker or Guarantors:

Many first time buyers are able to qualify for a loan based on the personal guarantee of parents, who may be in a higher income bracket, or due to the fact that they have owned their dwelling unit for a number of years may have negligible or even no mortgage payments, and the combined debt-free incomes, net worth, etc. qualify the buyer to do something that he is statistically not able to do alone.

8. Tips and Gratuities:

Another category of revenue which is estimated to be substantial in Hawaii's resort oriented community are tips and other unreported gratuities earned by waiters, waitresses, porters, taxi drivers and others.

9. Savings:

Many purchasers are able to qualify to purchase a home because of the ability to make a substantial down payment after years of saving. Hawaii has a high per capita savings record.

10. Free Housing:

Free or low cost housing or lodging in lieu of higher pay can be a substantial unreported portion of compensation, e.g. the military, resident managers in an apartment building, and foreigners on assignment in Hawaii.

Legality and morality are not the subject of this analysis, nor is this a condemnation of society. However, the fact remains that substantially more money flows through the system than is accounted for in published statistics. This money creates buying power which, at least in part, explains the apparent disparity between the statistical inability to buy and what actually occurs in the marketplace.

Further, no published data was found that segments the population into existing homeowners and non-homeowners by income. Approximately 45% of the population currently enjoys homeownership. Statistics seem to imply that many who own a home could not qualify to buy that home today. This is not the issue given the fact that many people have owned their home for many years and have a very low acquisition cost as compared to today's market value. Many long-term homeowners are paying mortgages with interest rates well below 10 percent as compared to rates prevalent at the time of this writing. These people are not in the market and, therefore, their inability to qualify is irrelevant.

The Bank of Hawaii Annual Economic Report for 1984 reports as follows:

"Income and Employment

Hawaii's economy registered a fairly healthy recovery in 1983 after a lengthy recession. Growth in total personal income (to \$12.4 billion) was an estimated 2.6 percent in real (inflated) terms versus no real increase over the preceding two years. The nation's recovery in total personal income growth was slightly higher at 3.1 percent. However, on a per capita basis the difference was even greater, with the state's personal income level remaining almost unchanged (up 0.7 percent) in real terms versus a rise of 3.0 percent for the nation.

Slower growth in the state's personal income than in the nation's has been occurring since 1980. Most surprisingly, on a per capita basis the state's real personal income in 1983 was only one percent above where it had been ten years ago. This contrasts with earlier years of statehood when the opposite pattern of faster state growth had generally held true. The prospects are that this slower growth may endure for some time to come."

The forecasts of the State and Bank of Hawaii may be correct as to general trend and justly pessimistic absent any positive influence on which to base a more optimistic projection.

However, what the two forecasts failed to do is to analyze the mix of jobs, age groups and household income to distill out the economic capacity of various segments of the economy. Blended averages conceal the fact that there may be many different market segments not detected in pure statistics.

For example, we note that the elderly, which is the fastest growing portion of the population on a percentage basis (see Section V), may already own their home and may no longer have a mortgage, or, in the alternative may have a very small mortgage with a below market interest rate negotiated many years ago.

Therefore, while these people may be living on fixed incomes, pensions, social security and investment income which may not be keeping pace with other segments of the economy, their needs and cost of living may be less. However, due to the fact that they are included in the overall population mix, they may tend to drag the per capita earnings down; leading to the conclusion that the economy as a whole is on a lower economic strata.

One might also find that while per capita income is low (see Schedule XVIII), some household income may be increasing as more and more families have two or more primary wage earners which collectively permit a relatively high standard of living.

It would appear that there is reason to be concerned over the future of Hawaii's economy due to its substantial dependence on tourism, which some have identified as a fragile industry. The nature of employment in the tourist industry will tend to hold down the apparent average income per capita. However, if adjustments are made for the difference between reported income and total actual income and if segmentation of the population into various groups were to be undertaken, it is reasonable to conclude that the result would show that a larger segment of the population will have or will be able to find the means to acquire new housing than is currently believed to exist.

Per Capita Income(1)	Personal Income, Per Capita 41/ Actual and Projected 1969-2005	
	State Total	City & County of Honolulu
1969(2)	\$ 4,191	\$ 4,353
1970	\$ 4,674	\$ 4,627
1971	\$ 4,839	\$ 5,077
1972	\$ 5,107	\$ 5,297
1973	\$ 5,524	\$ 5,726
1974	\$ 6,174	\$ 6,250
1975	\$ 6,612	\$ 6,781
1976	\$ 6,973	\$ 7,196
1977	\$ 7,617	\$ 7,873
1978	\$ 8,378	\$ 8,692
1979	\$ 9,177	\$ 9,535
1980	\$10,182	\$10,601
1981	\$11,032	\$11,553
1982	\$11,614(3)	\$12,078(6)
1983	\$12,101(4)	\$12,585(6)
1984	\$12,888(5)	\$13,403(6)

Income Projections 1985-2005
(Constant 1980 dollars)

1985(7)	\$10,520
1990(7)	\$11,328
1995(7)	\$12,195
2000(7)	\$13,103
2005(7)	\$13,998

- (1) In dollars
 (2) 1969-1981 Statistics obtained from: The State of Hawaii Data Book 1983, Department of Planning and Economic Development, December 1983
 (3) Hawaii 1984, Bank of Hawaii Annual Economic Report
 (4) B1D Preliminary Total
 (5) B1D Estimated Total
 (6) Based on average of 1977-1981 differential between State and City and County of Honolulu per capita incomes. The City and County of Honolulu per capita income was projected as 4 percent greater than the State totals for 1982, 1983 and 1984.
 (7) Population and Economic Projections for the State of Hawaii 1980-2005, Department of Planning and Economic Development Utilities Constant 1980 Dollars

41/ State of Hawaii Data Book 1983

SECTION VIII. MARKET FOR HIGH HOUSING AT VILLAGE PARK EXPANSION IS PROPOSED

Village Park Expansion has been planned to offer a variety of housing both in type and in price. The bulk of Village Park Expansion's market is projected to be middle-income families who will be quite typical of the population of the island of Oahu ranging from low-moderate-income families to high-middle-income families. It is not anticipated that the project will have appeal to those seeking luxury accommodations, nor will the project be able to accommodate persons at the very lowest end of the housing spectrum without government assistance.

The profile of homeowners and/or renters at Village Park Expansion will be similar to the social, economic and ethnic mix of the island of Oahu and, in due course, will also include an age distribution similar to the island as a whole.

It should be noted that necessary phasing precludes the instant attainment of a homogenous community. Two isolated examples of constraints which limit or control the pace of integration of a community are market conditions and engineering considerations.

Market conditions reflect economic and competitive factors which cause developers to pursue one type of product (e.g., multi-family or single-family) or price range at a given point in time. Frequently, it is not possible or economically feasible to be offering several product types in the market place simultaneously. The current (1985) over supply of condominium units is a case in point.

The concept of planned community is very important to prospective purchasers. Therefore, while total integration of the new community may require several years, it is necessary to demonstrate the City and County's and the developer's commitment to a total plan.

Engineering constraints (be they physical or cost considerations), will also, to a large degree, dictate phasing. For example, it is likely that a developer will attempt to intensify development around infrastructure that is in place rather than attempt to develop new product types in areas where infrastructure has not been constructed. A review of the history of other community developments such as Makakilo, Hilliani Tom and Waipio by Gentry will serve as cases in point.

Buyer Profile

The buyer profile for Village Park Expansion single-family dwellings will typically be existing or planned small families. The majority of the market will be first time buyers with small and medium size existing or planned families who have been renting or doubled up with other family members. These purchasers typically have saved diligently, living in modest rental accommodations, with family and/or inconvenient locations and have made other sacrifices in order to realize a dream of home ownership. This group also can be identified in existing Village Park.

A second but smaller segment of purchasers may have owned a previous residence which may have been a single family dwelling in a less convenient location or a condominium apartment which is no longer suitable to the size and requirements of the family. Previous home ownership will have permitted them to build equity through mortgage amortization and depending upon the length of time of ownership and date of purchase, some appreciation. The combination of their initial down payment, paid in equity, sweat-equity and appreciation from the previous residence, will permit them to make a down payment greater than the minimum required for financing. This pattern has consistently been observed in other new communities on Oahu.

A third group consisting of higher income families or families who have accumulated a significant amount of savings will also be attracted to the prime lots and the upgraded single-family units that will be offered in the Waitec proposal.

In the above cases, it is projected that there will be a high percentage of two incomes per family. It is estimated that 85% or more of the single-family dwelling households will have two sources of income. Some larger families may have three or more sources of income, the aggregate of which will range from \$36,900 per year to \$59,900 per year with an average of \$44,600. The estimates are based on a projected price range from \$120,000 to \$195,000 with an average of \$145,000 based on 1985 costs and other relevant factors.

The age group for single-family purchasers will range from persons in their late 20's through persons in their mid to late 30's, the latter recognizing and assuming a continuation of the trend in which the decision to have children is deferred to a later age.

Based on income levels in the community, a large percentage of the single-family homes described above would be available to a large percentage of the population using 3.0 person per dwelling unit times real per capita income.

The buyer profile for multi-family dwellings would also represent a wide spectrum of the community from an ethnic, social and economic point of view. However, family size would be predictably smaller, probably averaging closer to 2.0 persons per dwelling unit.

Persons in this buyer group would be less homogenous than the single family purchasers. The group would consist of young marrieds without children (who may or may not be planning to have children in the future), nonconventional households (e.g., two singles or divorcee with child), empty nesters, mature couples and single individuals.

Each of these groups will have varying characteristics and resources. For example, young marrieds making a first purchase will both be employed and may receive assistance from other members of the family in order to make a down payment and qualify for mortgage payments. This group would typically be in their mid to late twenties.

Empty nesters and/or more mature couples would, no doubt, have substantial equities derived from previous home ownership which can be transferred into a substantial down payment, minimizing the need for two wage earners or for that matter, any wage earners. This group may be in the fifty, sixty and above age groups.

Purchasers in the multi-family group will require incomes from \$31,100 to \$39,100 with an average income of approximately \$35,000 in order to qualify for multi-family units ranging in price from \$90,000 to \$110,000 or an average of \$100,000 with a minimum down payment.

Much of the information for this section is based on data received from Mr. George Nishloka, Sales Manager for Village Park obtained in May, 1985. A copy of the data supplied by Mr. Nishloka is enclosed as Exhibit IV.

The product type for the multi-family group may consist of low density, low-rise apartments, townhouses and stacked flats at a density of 10 to 15 units to the acre and garden apartments at a density of 24 units to the acre. The average multi-family density is estimated at 20 units per acre.

Affordable housing will be integrated into the community based on guidelines and programs negotiated with the City and County of Honolulu, Department of Community Development from time to time, based on the criteria and definition of affordable housing at the time each phase is developed. It is assumed that the product type will be multi-family units similar to the type and style of the Maipio by Gentry Rainbow Townhouses which includes studios, one-bedroom and two-bedroom units at a density of 20 to 24 units to the acre.

SCHEDULE XIX 42/

VILLAGE PARK EXPANSION INCOME REQUIREMENTS

	<u>LOW</u>	<u>AVERAGE</u>	<u>HIGH</u>
<u>Single-family dwelling (fee simple)(1)</u>			
Price:	\$120,000	\$145,000	\$195,000
80% Mortgage:	\$ 96,000	\$116,000	\$156,000
Debt Service:(2)	\$ 987/mo.	\$ 1,193/mo.	\$ 1,604/mo.
CTF:(3)	\$ 120/mo.	\$ 145/mo.	\$ 195/mo.
TOTAL	\$ 1,107/mo.	\$ 1,338/mo.	\$ 1,799/mo.
Required Income (4):	\$ 36,900	\$ 44,600	\$ 59,966
<u>Multi-Family Dwelling (fee simple)</u>			
Price:	\$ 90,000	\$100,000	\$110,000
90% Mortgage:	\$ 81,000	\$ 90,000	\$ 99,500
Debt Service:	\$ 833	\$ 925	\$ 1,023
CTF	\$ 100	\$ 125	\$ 150
TOTAL	\$ 933	\$ 1,050	\$ 1,173
Required Income	\$ 31,100	\$35,000	\$ 39,100

- (1) Single-family product excluding prime sites
- (2) 30 year 12% mortgage
- (3) Customer trust funds (insurance, real property taxes, etc.)
- (4) 36% of debt free income for housing

42/ Prepared by Consultants

SECTION IX. DISTINGUISHING CHARACTERISTICS OF VILLAGE PARK EXPANSION

All of the developers of projects previously mentioned in this report, have to one degree or another identified the need for housing. Most have also shown that the central Oahu and Ewa area are:

- (a) Acceptable location for housing from the consumers point of view.
- (b) Permit development at reasonable costs
- (c) Have access to utility systems with existing or expandable capacity
- (d) Determine that their projects are viable based on other reasonable criteria.

Village Park Expansion as this report, and the reports of other Waitec Consultants demonstrate, has the distinguishing characteristic of momentum. As previous noted in Schedule XIV, Section V, lead time for new development is often several years. Even after zoning has been obtained, time is required for infrastructure, design, additions to utility capacity and extension of services to new areas. Frequently, legal issues delay progress.

Village Park Expansion offers the opportunity to meet a portion of the identified housing needs by timely delivery of new units based on the following factors:

Momentum: Earlier in this report a study prepared by Belt, Collins & Associates indicated that it took on the average 6 years from the time a project was proposed until the first units were delivered. In the case of the original Village Park the process took an incredible 13 years. Any large new development faces the problems of getting approvals and developing product for the target market as well as assembling the staff necessary to carry out the development. All of this takes time. In the case of the Village Park Expansion the development team is in existence and has a track record of being financially able and technically competent in production and marketing. Expansion of the current Village Park development will enable this development team to continue the momentum gained through years of experience and deliver units sooner than alternate projects.

Infrastructure Constraints: Each of the other developments proposed for the Central Oahu area (Waikale, Waiawa and the Milliani Expansion) will require to one degree or another, major infrastructure developments such as new water systems, freeway on-ramps and sewage connections and pump stations. The details of these items will require negotiations between the developer and the respective government agency which will add to the time necessary for product to be delivered. In addition, it requires that the developer make significant capital investments prior to the development and sale of the initial product. This requirement may, in turn, pose further problems as the developers must obtain the financing to make these front-end improvements.

Infrastructure for the first 1,000+/- units of the Village Park Expansion is readily available, including sewer and water which would allow almost three years of unit production prior to the required service date of new systems.

Track Record in Production and Sales to Target Market

As the Production and Delivery record of the existing Village Park development indicates, the developer (Waitec) has demonstrated its ability to provide housing for young (25 - 44 age group), first-time (61%), home buyers entering the housing market. By the end of 1985, almost 1,100 units will have been delivered, and during the extremely high interest rates of 1981 to 1983 and the construction industry strikes of 1984, 1986 and the years beyond would appear to be years of increased sales and deliveries. Waitec has consistently delivered single-family housing at or near the lowest unit price offered for sale in the Central Oahu development plan area and proposes to continue this program into the Village Park Expansion.

Delivery of Quality Product

Village Park has demonstrated that it can produce a quality product and deliver value for the money. Waitec knows its costs and can speak authoritatively based on real life experience, not available to some of the other developers.

Mobilization

Village Park has already solved the problem of mobilization. It has reached the point of manufacturing housing, rather than just building houses. Construction is accomplished by one of Hawaii's best known, and established builders, Pacific Construction Company.

In summary, the Village Park Expansion offers an opportunity to continue an existing project which has been providing moderately-priced housing to local families over the past seven years and to maintain the momentum of an ongoing project with a successful development team and a proven product. Expansion of the Village Park project almost assures that product will be available on a continuous basis in the moderately-priced range for the next ten years. However, of greater importance, Village Park Expansion can deliver housing while others are still planning.

SECTION I. COMMERCIAL DEVELOPMENT AND BUSINESS PARK

Commercial Development

The master plan for the Village Park Expansion calls for the inclusion of 10 acres of commercial area within the development.

Waitec Development Inc., the developer of the existing Village Park and the applicant for the Village Park Expansion commissioned two appraisals for the 4.7 acre commercial site at the entrance to the existing Village Park development. One study was done by Raymond Lesher & Company (1980), and the other by Conell & Company (1984).

The first study was done in 1980 and the other in 1984. Copies of the highest and best use conclusion of each report are enclosed as Exhibits IV and V. The full reports are available upon request.

The conclusion of both appraisals was that the existing Village Park Subdivision would warrant the use of the entire 4.7 acre site for a neighborhood primary market for commercial space of 60,000 square feet. Both studies concluded that the development although some trade might develop from residents of the Village Park commute between Ewa and Wahiawa. The consultants agree with the conclusions of the previous studies.

It is recommended that 10 acres of additional commercial area be provided for the Village Park Expansion.

This commercial acreage is expected to provide an additional 145,000 to 200,000 square feet of commercial space over the life time of the project. The logic of providing commercial space beyond the neighborhood shopping center requirement is that as the Village Park community grows, there will be additional demands to the point where additional activities can be accommodated, many activities require a minimum size property to justify a minimum facility, i.e., Cinemas, which require a large population base.

The two studies mentioned above site an existing unmet need for commercial space in the Waipahu area. Other studies of the Waipahu market area including the Williams-Kuebelbeck 1983 study submitted to the city on behalf of Mafac's Waiale development site, identify an existing unmet demand for almost 400,000 square feet of commercial space.

The Village Park location does not lend itself to providing a community wide focal point for commercial activities for the following reasons:

First, while the proposed 10 acre site is proximate to the H-1 Freeway, via Kunia Road, no access is permitted to the commercial site via Kunia Road.

Second, the proposed site is at the extreme northeast tip of the existing and proposed future development for the Waipahu Area. It is too distant from existing and proposed population centers of Ewa and Wahiawa. Therefore, the commercial land has been limited to that which is necessary to meet the Village Park community needs at maturity with additional space to meet secondary commercial needs should that demand develop.

The space is necessary for commercial activities in the Village Park Expansion is a function of the population of the Village Park Expansion and the income levels of that population. Waitec's population projection is 10,000 persons for the expansion area with an estimated average income of \$42,375 (see computation below).

Single Family Product	92% average income = \$44,600	\$41,032
Experimental Product	8% average income = \$35,000	\$ 2,800
Estimate average income		\$43,395 (1)

Median household income for Waipahu according to the State Data Book 1984 in 1979 dollars is \$23,855 converted to 1984 dollars based on CPI (pg. 425) 1984 State Data Book is \$33,219. An additional 5% is added to convert the amount to 1985 dollars for an estimated median of \$34,880. Thus, the average purchaser of a Village Park unit is expected to have a household income 24% greater than the estimated household income for the Waipahu area.

In order to determine the number of square feet of commercial space necessary to support the purchasing power represented by the projected residents of the Village Park Expansion, the following computations are made:

Square footage based on average shopping center square footage per capita on Oahu of 10.4 sq. ft. in 1980 would indicate that the additional 10,000 persons projected for the Village Park Expansion would require 104,000 sq. ft. of commercial space.

Another way to compute the square footages requirements for the Village Park Expansion commercial area is to work from income and then convert that to estimated sales, then using census data of sales per square foot for various types of businesses, compute the square footage. (All information is in \$1982). 1982 is the most recent retail census).

Based on information provided in the Retail Trade in Hawaii RR 85-1, published by DPED in March, 1985, per capita, retail sales in Honolulu were \$4,719 per year. The figure for expenditures in Waipahu based on the report and by population information supplied by the DPED staff, indicates retail sales of \$3,630 per capita.

This figure is simply the sales made by retail establishments in the Waipahu area divided by the population of the Waipahu area. Recognizing that people other than Waipahu residents shop in Waipahu and that Waipahu residents go outside the Waipahu areas for needs provided by regional centers, this computation offers at least an indication of the demand for shopping facilities which would ordinarily be found in a neighborhood center.

If the \$3,630 is increased by 25% to account for the higher incomes in Village Park, then we arrive at a figure of \$4,500 per capita or \$45,000,000 of annual sales. If sales per square foot are \$330 for food and drugs, and \$150 per square foot for other types of retailing, then the amount of square footage required is:

Food and drugs x 30% = \$45,000,000 = \$13,500,000/\$330 = 40,909 sq. ft.
 Other products x 70% = \$45,000,000 = \$31,500,000/\$150 = 210,000 sq. ft.

 250,909 sq. ft.

If it is assumed that Village Park residents will do 25% of their non-regional shopping outside of their neighborhood center, then the total demand for space will be approximately 188,000 square feet.

Note that either of the methodologies presented above have definite limitations simply because there is a lack of data available which would provide a basis for making more sophisticated projections.

For instance, there is no published data on the amount of commercial space which is not "shopping center" space. There is no published data on the amount of industrial space in which retail sales are conducted. In addition, large amounts of sales are made at swap meets and people's open markets, which there are no published statistics, off-set by the fact that a portion of this income is probably not reported. It would appear that there is a significant amount of space used for commercial purposes that is not accounted for in published statistics.

In addition, although neighborhood centers can be expected to provide for the day-to-day necessities of the residents of the Village Park Subdivision, there is not guarantee that residents will choose to shop at the center. As indicated in the buyer profile provided in the residential section of the analysis, approximately 90% of the buyers at Village Park are two income households. This means that the husband and wife are away from the home on the average of 5 times a week. Over 50% are employed in the Honolulu area. This means that the residents may have developed a shopping habit on their way to or returning from work, which may be more convenient than shopping at the neighborhood center. On the other hand, it is possible that a substantial clientele outside the Village Park Development might be drawn to the center if certain unique shops, restaurants and services choose to locate at the Village Park commercial area.

The area proposed for commercial development is approximately 10 acres, and if designated B-1, would permit buildings to have a floor area ratio of 2.5. This would allow a shopping center of approximately 1,089,000 square feet. (Note: The Land Use Ordinance on which hearings are being held, limits B-1 districts to a F.A.R. of 1.0 or 435,600 square feet for this site). However, customarily in the Honolulu area, neighborhood centers normally maintain a ratio of 33% lot coverage and provide for more parking than demanded by code. Therefore, the site would provide for a shopping facility of approximately 145,000 square feet. This compares favorably with the estimated demand of 104,000 square feet to 188,000 square feet as shown in the analysis.

Maltec's intention to request the Industrial Mixed Use (IMX) designation discussed later in this report provides flexibility should demand be stronger than foreseeable at this time.

The absorption rate is expected to follow population growth in steps based on a total demand of 145,000 square feet.

EMPIRICAL PHASING SCHEDULE XX

Population	Cumulative Population	Constr. Of Comm. Space Square Feet
1,800	1,800	
1,761	3,561	
1,740	5,301	
1,530	6,831	72,500 Phase I
1,335	8,166	
1,149	9,315	
1,035	10,350	72,500 Phase II
<u>10,350</u>		<u>145,000</u>

ve sites and occupants of city housing have been n because purchasing power represented by the d with any degree of certainty. The groups are acts.

Development received Development Plan approval. site is designated commercial, however, only 12 hborhood shopping mall. The balance of 43 acres fice park. Should more of this space be devoted ay be some impact on the commercial facilities n. Given the distances involved, however, the : would be moderate.

Commercial Summary

Demand for commercial space is population driven. The alteration in the product mix should not materially change the demand for commercial space estimated in the 104,000 to 188,000 square foot range. The development of the commercial space within the seven year time-frame proposed for the development of the housing units is feasible. The 145,000 square feet of space proposed and the additional development permitted under existing and proposed B-1 zoning, will allow for the development of adequate commercial facilities should the demand so warrant.

It is recommended that the commercial space be developed in increments. The first increment containing 50% of the space (72,500 square feet G.L.A.), by year four of the development (1991), and the second increment containing 50% of the space (72,500 square feet) by year seven of the development (1994).

Business Park

The developers of the Village Park Expansion are proposing a 16.7 acre business park/light industrial development as part of the overall development plan. The purpose of the business park is to provide an opportunity to employ a number of persons in light industrial/quasicommercial pursuits on site, while at the same time providing an opportunity for a number of businesses to locate in an area which has excellent access to the freeway and is approximately equal distance between the airport and the new deep-draft harbor.

It is the belief of the developer that while the primary purpose of the Village Park Expansion is to provide housing for the Oahu Market, the inclusion of some industrial space is an integral part of a master development plan. A quality labor pool will be close at hand and could serve to reduce at least some off-site commuting. However, rather than relying on the inhabitants of the Village Park area to provide the demand for the proposed business park, this analysis takes a look at islandwide demand for industrial space to determine the feasibility of the business park.

Exhibit V is a listing of industrial parks and provides an inventory of the major industrial development on Oahu. With the exception of approximately 50 acres in the Gentry Park and 50 acres in Campbell Industrial Park, almost all of the sites are fully developed.

Based on the Schedule XXI, approximately 2,000 acres of industrial land have been absorbed (developed and put to use) over the past 27 years. Based on this experience, it is concluded that the average long term absorption rate for industrial land is 75 acres per year. It is the opinion of the consultants that the demand for industrial land has been even greater during the past twenty-seven years as large portions of the Kakaako and Kalihi areas have been converted from residential and other uses to industrial uses.

Based on the foregoing, it is assumed that there is a demand for approximately 75 acres of industrial land per year. While there is a major expansion of Campbell Industrial Park proposed and the development of major high tech park proposed by Oceanic Properties in central Oahu near Mahiwa, the 18.7 acres of land proposed for business park/industrial use in the Village Park Expansion should have no trouble achieving between 5% and 10% of the market for such property per year. There is a demand for industrial space in a wide variety of locations to meet the needs of the business community as demonstrated by the essentially full occupancy of all but the noted industrial parks. For purposes of this analysis, it is assumed that the Village Park Expansion Business Park/Industrial development will be able to achieve an average of 7.5% of the market in any given year, or 5 acres per year.

SCHEDULE XXI

OAHU DEVELOPED INDUSTRIAL PARKS & AREAS
Field Survey

Area	Year	Acres	Type
Airport	1964	133	General
Bougainville	1979	25	Light
Campbell	1958	1,314	Heavy Industrial
Central	1979	33	General
Gentry	1979	120	Light
Heala	1972	25	General
Kapalama	1960	43	Light/Commercial
Moanalua/Hapunapuna	1962	87	General
Newtown	1973	11	Light
Pearl City	1974	106	Light
Puuhiwa/Pahoumua	1958	60	General
Sand Island Access	N/A	9	Light/Commercial
Shafter Flats	1968	19	Light
Waiau	1973	33	Light/Commercial
Waipahu	1963	103	General
Wyco	1972	12	Light/Commercial
		<u>2,133</u>	

However, it would again be short-sighted to limit designators of commercial, industrial and business land use designators to those needs that can be identified at this time. As noted earlier in the discussion of residential needs, matching need and land use has been an underlying cause of shortage. The same is true for commercial and industrial zoned properties. In a discussion with Mr. Garakas of DPED several years ago, he revealed frustration with his assignment to attract new industry to Hawaii when there were few suitable sites available. Development lead time is long and unpredictable. Those that were available were extremely expensive by mainland standards. The lack of sites has contributed to Hawaii's anti-business image.

As in the case of residential property, price will be lower or at least stable if supply is increased.

There is yet another unquantifiable factor to consider. The nation has passed from an agrarian society through the industrial age to an information society. The impact of the computer is drastic by changing business procedure and practice. It is correctly said that we are in a dynamic stage of development.

Hawaii still clings to its agrarian base, but to many, the future change is clear due to international factors beyond Hawaii's control. It would appear wise to plan to accept change that appears both necessary and inevitable. Part of this plan should include a generous designation of land close to labor pools to accommodate new business when it is identified.

Development Schedule

The absorption rate is accommodated in the following schedule:

<u>PHASE I</u>	
1989	5 acres
1990	5 acres
1991	1.7 acres
	<u>11.7 acres</u>

<u>PHASE II</u>	
1993	5 acres
1994	<u>2.2 acres</u>
	<u>7.2 acres</u>

Based on this schedule, the industrial area would require five years to complete, starting in the second year of the Village Park Expansion and being completed at approximately the same time as the residential and commercial developments. However, if recent absorption rates and the current shortage of industrial lands are an indication of the future, this space may be absorbed much more quickly.

Mailele Development

The recent approval of the Mailele Development which abutts the Village Park Expansion on the east, should have little impact on the development of the Village Park Industrial/Business area. If Mailele is developed as proposed, it will be targeting the office market versus the light industrial market that will be targeted by Village Park. If the Mailele Development does not develop as projected, it may become a competitor to the Village Park Development.

However, this may actually benefit the Village Park Development, as the additional sales and promotion effort may actually heighten the awareness of industrial developments in the region with a synergistic rather than competitive impact. Village Park would also appear to have a timing advantage.

Industrial Summary

Demand for industrial space is estimated at 5 acres per year with development proposed in 1989 and 1993. Early interest received by Waitec Development, Inc. indicates that there may be a pent-up demand for space in the area.

The Consultants do not believe that there is a need to alter the assumptions for industrial space based on the changes to the product mix.

COMMERCIAL & INDUSTRIAL DESIGNATION

As indicated in this report, a total of 10 acres is being proposed for commercial development and 24 acres being proposed for industrial development. Waitec Development has elected to request that the entire 34 acre area proposed for the commercial/industrial development to be designated IMX Mixed Use Industrial, as outlined in the pending Land Use Ordinance (as of this date the ordinance is not adopted).

The rationale for using this designation is that it allows more development flexibility, and would permit the development of commercial or industrial emphasis in the future when market conditions could be re-evaluated, to provide for development which best suits the needs of the time. The Consultants concur with this decision.

The commercial and industrial developments at the Village Park Expansion should provide the residents of the Village Park Expansion with the opportunity to shop near their homes and will provide some job opportunities in the area offering residents a chance to work near their residences.

Both the commercial and industrial development will be compatible with the residential development, providing an attractive mix and balance of activities within the Village Park Community.

SECTION XI. COMPLIANCE WITH LAND USE COMMISSION RULES AND REGULATIONS

Part VI. AMENDMENTS TO DISTRICT BOUNDARIES of the State Land Use Commission Rules and Regulations provide as follows:

6-1 REQUIREMENTS FOR BOUNDARY AMENDMENTS No amendment of a land use district boundary shall be approved unless the Commission finds upon the clear preponderance of the evidence that the proposed boundary amendment is reasonable, not violative of Section 205-2 and consistent with the Interim Statewide Land Use Guidance Policies established pursuant to Chapter 205, HRS, or any State Plan hereafter enacted by the Legislature, which State Plan shall supersede the Interim Statewide Land Use Policies. Except when the Commission finds that an injustice or inequity will result, the Commission shall observe and comply with the Interim Statewide Land Use Guidance Policies set forth below:

(1) Land use amendments shall be approved only as reasonably necessary to accommodate growth and development, provided there are no significant adverse effects upon agricultural, natural, environmental, recreational, scenic, historic, or other resources of the area.

Compliance The market report prepared June 1, 1985 and this supplemental report indicate that a Land Use Amendment is necessary to accommodate growth on the island of Oahu. Other consultants will address other requirements of this section.

(2) Lands to be reclassified as an urban district shall have adequate public services and facilities or as can be so provided at reasonable costs to the petitioner.

Compliance Expansion of Village Park complies with this provision in view of the fact that to a large degree the area to be reclassified can be serviced by facilities established in the initial phase of development of Village Park. Incremental additions to public services will be more efficient than creating new urban districts in isolated locations.

(3) Maximum use shall be made of existing services and facilities, and scattered urban development shall be avoided.

Compliance As in the case of Paragraph 2 above, Village Park Expansion will make more efficient use of existing services and facilities. Further, expansion of Village Park does not create scattered urban development.

(4) Urban districts shall be contiguous to an existing urban district or shall constitute all or a part of a self-contained urban center.

Compliance Village Park Expansion will be contiguous to the existing Village Park urban district.

(5) Preference shall be given to amendment petitions which will provide permanent employment, or needed housing accessible to existing or proposed employment centers, or assist in providing a balanced housing supply for all economic and social groups.

Compliance Village Park Expansion will provide some permanent employment. Further, Village Park Expansion will provide needed housing in West Oahu for persons potentially employed in Oahu's "Second City", a concept currently being studied by the City and County of Honolulu. Village Park Expansion will provide a balanced housing supply for most economic and social groups.

(6) In establishing the boundaries of the districts in each county, the Commission shall give consideration to the general plan of the county.

Compliance The Village Park Expansion is compatible with the tenants of the General Plan of the City and County of Honolulu and represents a boundary adjustment to a planning policy which permitted the establishment of the first phase of Village Park.

(7) Insofar as practicable conservation lands shall not be reclassified as urban lands.

Compliance No conservation lands are affected by the proposed amendment.

(8) The Commission is encouraged to reclassify urban lands which are incompatible with the interim statewide land use guidance policy or are not developed in a timely manner.

Compliance On balance the proposal is compatible with State Land Use policies. It is the developer's intention to develop the property in timely manner in accordance with schedules provided earlier in this report.

6-2 INCREMENTAL DISTRICTING

All infrastructure development would be completed within the five year requirement. On-site work would last an estimated six years and total completion of the project is estimated to require seven years.

Incremental districting for Village Park Expansion would not appear to be practical in view of the relatively small size of the project. Incremental districting would be more costly to the developer, and in all likelihood result in higher sales prices thus defeating the goal of providing affordable homes to first time buyers.

6-3 PERFORMANCE TIME

Village Park Expansion will be substantially completed within the five year time frame as it is the goal of the project to provide a timely supply of affordable housing to meet near-term critical housing demand.

SECTION XIII. SUMMARY AND CONCLUSIONS

In response to the requests from the Department of General Planning City and County of Honolulu regarding changes in the GP and DP this report has been prepared. It demonstrates that the population of the island of Oahu has grown consistently in the 25 years since Statehood in 1959. Further, it shows that according to projections of the Department of Planning and Economic Development of the State of Hawaii, and the Department of General Planning of the City and County of Honolulu, the population will likely continue to grow at an average annual rate of at least 1.0% per year, from an estimated 805,300 at the end of 1984. The key time horizon is the year 2005 used by the Department of General Planning for its twenty year plan, at which time it is estimated that the population will be 954,500. The development time of the Village Park Expansion project with attainment of a population of 10,000 persons, is estimated to be 1997/1998. The center of population of Oahu has been moving steadily towards Pearl City, and all indications are that it will continue to do so.

An evaluation of the housing inventory and housing characteristics of Oahu demonstrates that there is not now, nor has there been during the last 25 years, an adequate supply of housing to meet the needs of the growing population. This is particularly true if one considers the dynamics of housing characteristics. The number of persons per dwelling unit on Oahu has declined steadily since 1960 and reached an estimated 3.0 by the end of 1984. Further, the age of the population is shifting with the elderly being the fastest growing segment of the population on a percentage basis and the 25 to 44 old segment growing the fastest in absolute terms. Lifestyles have changed dramatically. This is, in part, attributable to increased need for two or more incomes per household. It is also in large measure a result of changes in traditional values. The status of women in society, abortion laws, birth control, increased rates of divorce and the trend toward more active lifestyles, health and fitness. All of this and many more changes have given rise to new housing requirements.

Concurrently the requirements of home making have been changing. Such things as frozen foods, microwave ovens and other appliances and new household products make housekeeping less demanding, thus permitting an increased time for recreational activity and careers for women.

Trends in persons per dwelling unit also reflect the increase in household formation, putting increased pressure on the housing inventory, maintaining a vacancy factor and placing limits on the choice of housing.

It is estimated that the demand for new housing units during the next 20 years will be 5400 units per year if Oahu is to accommodate population growth, the need for a 5% vacancy factor and the need to replace delapidated and sub-standard housing. It is recommended that more than 5400 units per year be targeted for the planning period (e.g., 6000 - 6500 units per year) in that there is an existing backlog of housing need. These estimates and recommendations contrast sharply with the DGP's estimated need of 3,345 units per year to the year 2005. It would be better to err on the high side now and back

down at a later date than to continue past practices of conservative estimates which have perpetuated the shortage and kept land and housing prices at the highest levels in the nation.

The production of new housing has been delayed significantly by government policies and regulations. Stabilization of inflation may have created the opportune time to move ahead with increased inventory, to overcome the need for new housing at a time when interest rates appear to have stabilized at a relatively low level for the near term, and the Federal government appears to be coming to grips with those factors which could precipitate high inflation and high interest rates again in the future. Further, the low level of inflation will avoid competition between speculators and owner occupants.

A re-evaluation of the Department of General Planning's population distribution suggests a potential serious shortfall in housing requirements, thus perpetuating the shortages of the past. In view of the fact that the westward movement of the population is predicted to continue, the boundary line of the Primary Urban Center may no longer be valid or even meaningful except for statistical purposes. As this analysis points out, inclusion of the Waipahu/Village Park area in the PUC, is a logical extension of the planning district.

The Department of General Planning of the City and County of Honolulu continues to study the distribution of housing on Oahu. In 1983-84 the development plans for Oahu were adopted, however, because of the dynamics of the community, review, evaluation and modification is an ongoing process. Several major changes to the development plans have been proposed including projects in the Ewa District and Central Oahu.

An examination of the existing development plans reveals that the Primary Urban Center has been projected to house a population of 488,300 by the year 2005 or an increase of 63,600 or 15% from 1982. Two major factors bring this assumption into question as of the end of 1984.

First, lands previously identified as under-developed have to a large degree already been developed and are therefore no longer available.

Second, and perhaps more significant, is the increased resistance to the redevelopment of existing neighborhoods. During the 70's and 80's there has been strong public resistance to both public and private efforts to develop and/or redevelop portions of Oahu. Urban renewal in Chinatown, private development in Waialae-Waikane, condominium development at Huna Street and the Admiral Thomas Apartments and more recently the Date Laau initiative demonstrate the political power of the people to resist change. These are not physical planning issues of design and density, rather these are social issues which appear to be deep seated and which will not easily fade away.

While Date Laau does not appear to be a dead issue, it has demonstrated to others what can be done and has alerted the community at large to the tools available to prevent or delay unwanted change. It is reasonable to expect that there will be more initiatives and more protests to prevent redevelopment.

Lastly, the economics of redevelopment have not been adequately considered. While the potential carrying capacity (density) of the Primary Urban Center is higher than is presently being utilized, redevelopment may not either be feasible or a motivation of existing property owners and lessees, particularly during the next several years as legislative action reshapes public policy with regard to leased land ownership.

The Primary Urban Center's convenience to employment centers, recreational facilities and cultural facilities, coupled with the lack of alternative housing, has forced the price of housing in the Primary Urban Center to extremely high levels and is therefore generally the least affordable.

Continued expansion toward Pearl City, Waipahu and Central Oahu is the most probable solution to the housing need. Recent court rulings call into question the ability of the Windward side to make any meaningful contribution to the housing inventory during the planning period.

This report concludes that 15,000 units and the 30,000 persons projected to live in them, will not be accommodated in the Primary Urban Center as estimated by the City and County of Honolulu's Department of General Planning by the year 2005. This alone represents almost 3 times the population of the Village Park Expansion.

Developments in other West and Central Oahu projects will probably also fall short of theoretical densities (due to market and engineering considerations). It is reasonable to assume that The Village Park Expansion can and will capture a market share of 9% of the 5,400 dwelling units required each year, or 345-500 units per year, producing 3,000 market units in 7 years.

This magnitude is consistent with the current Village Park development experience.

An evaluation of other locations to meet the housing needs of Oahu reveals that the proposed Village Park Expansion has many distinguishing characteristics.

1. The momentum of an on-going project.
2. Infrastructure readily expandable.
3. A track record of delivery of product to the target market.
4. Financial arrangements in place.
5. An experienced Hawaii based contractor.

Village Park and Village Park Expansion represent opportunities to meet the housing needs now and in the near term while other projects are planning, engineering, and building off-sites. In this regard, Village Park Expansion is one of the best alternatives to meet the housing needs of Oahu.

The product mix for the market priced product has been projected at 92% single-family and 8% multi-family. This mix has been established based on an evaluation of trends in the housing inventory. There is a need to provide a better balance in the mix of multi-family and single-family housing based on trends in housing characteristics and past housing production. The Village Park Expansion represents a portion of the single-family segment of the mix, a portion of the balancing factor.

It should be noted that, to at least some degree, the 25 year shift in the relative percentages of multi-family and single-family construction has been fostered by the economic phenomenon known as "supply pull" and by investor speculation. The Village Park Expansion represents an opportunity to provide families with a true alternative in a convenient location at attractive prices. Seventy-five percent (75%) fee simple, single-family homes are projected to average \$145,000 and multi-family dwellings are projected to average \$100,000 (1985 dollars).

The economic environment of the State continues to be heavily dependent on tourism with 4.8 million tourist arrivals in Hawaii in 1984 (Hawaii Visitors Bureau 1985) representing a 15% increase over 1983. The Department of Planning and Economic Development of the State of Hawaii projects a potential 8 million tourists by the year 2000, an increase of over three million in 15 years.

It is anticipated that the neighbor islands will experience the highest percentage growth. However, growth will no doubt be significant on Oahu, particularly in light of major commitments at West Beach and Kuliina.

Oahu's role as the principle distribution center, financial center and the political center of Hawaii suggests continued long-range stability in the economy.

Military expenditures are projected to remain a relatively stable element of the economy growing modestly from year to year. It is, however, possible that the military establishment could grow substantially if a major battleship group were to be stationed in Hawaii. Over the long run there may be changes in the military presence in Hawaii based on technology and changing priorities due to pressures on military expenditures.

Diversification efforts continue in a number of areas including diversified agricultural, diversified manufacturing and the introduction of high tech industry.

Limited local markets, "space age" communications, transportation costs, the high cost of living, an anti-business image and other factors have been road blocks to the relative success of many of these efforts. Research continues in the hope of finding a strong alternative business base for the economy, and an attitudinal change appears to have started.

In the short run, and perhaps long run, tourism will be the primary business of Hawaii. Political leaders appear to be more aware of the high dependency on tourism and are addressing the need to maintain and nurture the industry's vitality. The Governor's December, 1984 Tourism Conference is an indication of the level of awareness.

Growth in personal income has not kept pace with the national average, leading to a conclusion that it will continue to be difficult to purchase housing. However, if all sources of income are recognized, the local short fall may not be as bad as it appears. If the population is segmented it will be shown that many groups will qualify for housing.

More important, if the supply of housing is increased and price competition reduces or stabilizes the cost of housing, there will be an opportunity for personal incomes to "catch up".

CONCLUSION REGARDING HOUSING MARKET

It is therefore concluded that for the reasons stated herein, The Village Park Expansion is a viable development, that there is a predictable need for the number and type of units to be offered, that the product type will be well received in the market place and that The Village Park Expansion will be high on the consumer preference list due to price, location and environmental advantages.

COMMERCIAL/BUSINESS PARK/INDUSTRIAL

10 acres will be designated for commercial use. These uses will be primarily to serve the local community, although an incubation period will be needed. Commercial activities will be viable based on the projected order of magnitude of the population.

Providing these facilities within the community will reduce the need for travel outside the community and represent a convenience to local residents.

18.7 acres will be designated for industrial use. It is projected that the existing industrial areas west of the Primary Urban Center will be substantially absorbed during the next 5 to 10 years, particularly in the light of overall growth and proposed redevelopment of the Kakaako District.

Areas such as Gentry Business Park, Campbell Industrial Park and Oceanic Properties, Inc.'s proposed high tech park will not compete for the same type of user, who will be much more sensitive to locational factors and transportation costs.

There is an underlying change taking place in the way business is being done.

The nation evolved from an agrarian economy to an industrial economy. It now appears to be shifting rapidly to what is called an information economy. Hawaii is struggling to maintain its agrarian based economy. Change seems inevitable. The results of the evolution are not yet clear but one thing seems certain - creative options are better than no action at all. Village Park Expansion commercial/business park contributes to these options.

S-0800/4235m/tr

SECTION XII. EXHIBITS

EXHIBIT III

VILLAGE PARK QUESTIONNAIRE

The following information was obtained by interview with the Sales Manager for Village Park, Mr. George Michloke, on May 15, 1985 re: Buyer profile - Village Park.

AGE GROUPS:

Under 26 9%
 26 - 34 55%
 35 - 45 27%
 45 - 55 9%
 over 55 0%

Comments by Consultants

Sixty-four percent of the buyers are under 35 years old with no buyers over 55 years old. This indicates that Village Park is attractive to young people who have not achieved their maximum earning power.

FAMILY SIZE:

1 0
 2 24%
 3 22%
 4 42%
 5 and over 12%

Family size indicates the buyers of Village Park product to be family-oriented people. When combined with the age question, it indicates families with one or two small children or couples prior to having their children.

PLACE OF EMPLOYMENT:

Honolulu 50%
 Airport 13%
 Pearl City 17%
 Waipahu 7%
 Central Oahu 10%
 Windward 3%
 Waianae Coast 0%
 Ewa 0%

Fifty percent of the buyers in Village Park were employed in Honolulu, indicating that Village Park product was sufficiently attractive so that 50% of the buyers opted to commute to Honolulu. Presumably, if there were other product available, equally attractive, and closer to Honolulu, buyers would have elected to buy there - all other things being equal.

PERCENT MILITARY:

22%

Twenty-two percent of buyers were military personnel, some of whom were local residents. Seventy-eight percent of the buyers are civilians, and presumably local residents.

PERCENT CIVILIAN

78%

PREVIOUS RESIDENCE (Area)

Honolulu 40%
 Airport 4%
 Pearl City 21%
 Waipahu 20%
 Central Oahu 10%
 Windward 2%
 Waianae Coast 0%
 Ewa 0%
 Owned house or apt 12%
 Rented home or apt 78%
 1st home buyers 62%
 Formerly owned house or apt 38%

Ninety-eight percent of the buyers of the Village Park product previously lived in the PUC and Central Oahu Dp areas. Sixty-eight percent of the buyers previously resided in the PUC. When combined with the employment question, this seems to indicate a lack of product available in the PUC which is of appropriate price or character to satisfy the needs of the buyers of units at Village Park. With 62% of the buyers of units being first time buyers Village Park represents a development making it possible for young families to get into the housing market.

FINANCIAL QUALIFICATIONS:

Downpayment minimum 73%
 More than minimum 17%
 Substantially more than minimum 10%

The four questions relating to the financial qualifications of the buyers of the Village Park units indicate that the buyers are for the most part qualifying on their own incomes (only 12% received help from parents), are hard working (90% of buyers have two family members working); are not wealthy (in that 73% of the buyers made only minimum downpayments, and only 28% of the buyers had professional or managerial jobs. In short, the buyers of Village Park units are young, hard working, family-oriented local residents.

THO OR MORE FAMILY INCOMES:

90%

RECEIVED HELP FROM PARENTS OR OTHERS

12%

TYPES OF JOBS:

Professional 10%
 Managerial 18%
 Trades 20%
 Clerical/Secretarial 24%
 Military 22%
 Other 6%

AUTOMOBILES:

1 12%
 2 76%
 3 10%
 3 or more 2%

The high proportion of two car families at Village Park is due to the fact that two people work in 90% of the families and there is currently no bus service available to the subdivision.

REASON FOR BUYING IN VILLAGE PARK:

Price 40%
 Location 32%
 Design 13%
 Planned Community 12%
 Friends & Relatives in the neighborhood 3%

Forty percent of the buyers indicated that the price was the primary reason for purchasing at Village Park. The second most popular reason for purchasing at Village Park is location (32%) so that many people find the area very attractive due to physical characteristics.

Moreover, we believe that presently a convenience shopping facility such as a 7-Eleven store or a Fentop convenience store would meet with good market acceptance at this location. Such a store could be combined with a gasoline sales facility. It is also possible that a separate automobile service station and gasoline sales facility would be suitable for location at the subject site. Other uses could include a steakhouse-type or specialty restaurant offering views over Pearl Harbor, a fast-food restaurant, a small commercial building containing space for a beauty shop, banking office and post office.

It is the appraiser's opinion that at this time an area of approximately 1 to 1-1/2 acres would be sufficient to accommodate currently needed commercial facilities. The balance of the site, approximately 3.7 acres, would be placed into utilization as the demand occurs. It is our opinion that it will be several years before the 4.7-acre site can be fully utilized.

B. Highest and Best Use

Although the subject site is presently zoned Ag-1, the adopted development plans for central Oahu indicate the site to be classified Commercial. A request for rezoning to M-1, Neighborhood Commercial, would be granted within a very reasonable period of time. The Village Park master plan also shows planned commercial utilization of the subject site.

There are presently approximately 650 families residing at Village Park. By the summer of 1988, about 1,750 residences will be completed and occupied. Assuming an average family size of 4, about 7,000 people will reside in Village Park. The need for convenient shopping facilities, serving the immediate residents of Village Park, is there and will increase as population increases. The nearest shopping facilities and various service enterprises are now found in Waipahu, along Farrington Highway, a distance of approximately 1-1/2 to 2-1/2 miles.

The location of the subject site is physically separated from the remainder of Waipahu town by the H-1 Freeway which forms the northerly boundary for much of Waipahu town. It has only been in recent years that residential growth continued on the mauka side of the H-1 Freeway.

The subject site is of a size suitable for a neighborhood shopping center. Typically, a neighborhood shopping center ranges in size from about 25,000 to 80,000 square feet of gross leasable area. The median gross leasable area is 52,000 square feet with 80 percent of the neighborhood centers ranging from a lower decile of 24,000 square feet to the upper decile of 101,000 square feet of gross leasable area. The neighborhood center provides for the sale of daily living needs; that is, "convenience goods" such as foods, drugs, hardware and personal service. A supermarket is the principal tenant of this type of center.

We do not believe that at this time a market exists for a typical neighborhood center. The population in Village Park cannot now support a range of merchants as typically found in neighborhood shopping centers. It is the appraiser's opinion that there is no immediate need for a commercial complex utilizing the entire 4.7-acre site.

EXHIBIT VI

DAHU DEVELOPED INDUSTRIAL PARKS AND AREAS

Prepared by consultants

AIRPORT INDUSTRIAL PARK

LOCATION: Honolulu, Oahu
SIZE: 133 acres
TYPE OF INDUSTRY: Light Industrial and Warehousing.
FACILITIES: All utilities, paved streets, sewers, etc. Building constructed to suit tenants' requirements.
APPROXIMATE PRICES: Lease only. Land - none presently available. All leases renegotiated 1-1-83 at the rate of 6% of \$30.00 or \$1.80 per square foot per year. Warehouse space - \$0.40 - \$0.60 per square foot month rent.

CURRENT STATUS: The area has stabilized after a mass exodus in the early 1980's with a low vacancy factor of approximately 5%. There is a tremendous increase in renovation today of existing buildings, and much better "pride of ownership" than in the past 10 years, due to the influx of owner-users versus investors of 10 years ago.

BOUGAINVILLE

LOCATION: Honolulu, Oahu
SIZE: 25 acres (approximately)
STATUS: Bishop Estate and Queens Hospital fee owners. Donald C. G. Look master lessee.
TYPE OF INDUSTRY: Light Industrial
FACILITIES: Water, roads, sewer, underground electric, etc.
APPROXIMATE PRICES: \$19.00-\$21.00 per square foot (lease premium). Average lot size: 22,500 square feet.
CURRENT STATUS: Nonfed recently took a deed in lieu of foreclosure from Donald C. G. Look and will start marketing in mid 1985. 44 of the 47 lots are presently vacant. All lots are graded and ready to build.

JAMES CAMPBELL INDUSTRIAL PARK

LOCATION: Barbers Point, Oahu
SIZE: 1,314 acres. 46 acres still available.
TYPE OF INDUSTRY: Heavy, medium, and light.
FACILITIES: Complete industrial park facilities. Brochure available upon request.
APPROXIMATE PRICES: Lease only. Currently about \$0.68 per square foot annually (\$8.50 fee simple per square foot x 8%) with escalations on 50 year base.
CURRENT STATUS: Phase I is currently 90% leased. Phase II is currently in the planning stage with 120 acres. Some parcels have been sold on a fee simple basis through an exchange rather than leased. Out of the 90% leased parcels, the majority is to large users. The Ollingham site of 126 acres has been on the market for several years.

CENTRAL PARK

LOCATION: Halawa Valley, Oahu
SIZE: 32.7 acres, 58 lots
TYPE OF INDUSTRY: Light Industrial
FACILITIES: Paved streets, utilities, sidewalks, streetlights, planting. Sold developed lots to purchasers who built compatible buildings, warehouses, etc.
APPROXIMATE PRICES: Land - leasehold. Premium of \$15.00 - \$17.00 per square foot to purchase the remaining portion of a 55 year lease. First 10 years of lease set at 7% of \$4.00 per square foot. Warehouse - subleases available \$0.40 - \$0.60 per square foot month net.
CURRENT STATUS: 100% sold out with approximately 86% of the lots built out mostly to owner-users.

GENTRY BUSINESS PARK

LOCATION: Gentry-Waipio, Oahu
SIZE: 120 acres, ocean-view
TYPE OF INDUSTRY: Light industrial and commercial
FACILITIES: Planned development with underground utilities, landscaping in a campus-like atmosphere. Variety of facilities: lease model space, purchase condominium warehouse/offices, request turn-key design/build-to-suit service.
APPROXIMATE PRICES: Fee simple. Prices average \$16.00 - \$18.00 per square foot. Lost sizes vary from small user need to several acres. Warehouse leases are \$0.50 - \$0.60 per square foot.
CURRENT STATUS: Phase I of 55 acres is currently for sale with approximately 96% sold at present. Phase II of 45 acres is currently being marketed, although roads have not been constructed. There is approximately 28% pre-sold mostly to two large users.

HEEIA LIGHT INDUSTRIAL AREA

LOCATION: Kahuhipa Street, Kaneohe, Oahu
SIZE: 25 acres
TYPE OF INDUSTRY: Light industrial, commercial
FACILITIES: Paved streets, utilities, buildings built to users' specifications.
APPROXIMATE PRICES: Land - none available. Warehouse - leasehold only, very limited: \$0.40 - \$0.60 per square foot per month net.
CURRENT STATUS: 100% sold out and built out. A "well seasoned" industrial park.

KAKAAKO INDUSTRIAL AREA (BISHOP ESTATE)

LOCATION: Honolulu, Oahu
SIZE: 42 acres varied industrial; 14 acres commercial. All lots are taken, but subleases are available. Plans for future development involving 50+ acres of Bishop Estate lands will include some industrial sites along with commercial and residential areas.
TYPE OF INDUSTRY: General industrial and commercial.
FACILITIES: All utilities, paved streets, sewers. Master plan calls for street widening, new infrastructure (sewer, water, electric, phones, etc.).
APPROXIMATE PRICES: Subleases office/warehouse only. About \$0.50 - \$0.75 per square foot monthly, triple net (NNN). A recent sale brought \$44.00 per square foot for fee land.
CURRENT STATUS: The area is in a state of transition from industrial use to proposed mixed use projects.

KAPALAMA INDUSTRIAL AREA

LOCATION: Honolulu, Oahu
SIZE: 32 acres light industrial; 7 acres commercial; 4 acres semi-industrial. All sites are taken, but subleases are available.
TYPE OF INDUSTRY: Light industrial and commercial.
FACILITIES: All utilities, paved streets.
APPROXIMATE PRICES: Subleases office/warehouse only. About \$0.40 - \$0.75 per square foot monthly, triple net.
CURRENT STATUS: 100% built out and leased. The area has recently undergone a revitalization with the development of two 50,000 sq. ft. warehouse complexes.

SAND ISLAND ACCESS ROAD INDUSTRIAL AREA

LOCATION: Honolulu, Oahu
SIZE: 9 acres
TYPE OF INDUSTRY: Light industrial and commercial
FACILITIES: All utilities, paved roads, 170,000 square feet in buildings.
APPROXIMATE PRICES: Land - none available. Warehouse - leasehold, very limited: \$0.55 - \$0.75 per square foot month net.
CURRENT STATUS: 100% built out and all leased out. Good properties with abundance of parking and yard space.

SHAFTER FLATS INDUSTRIAL PARK

LOCATION: Honolulu, Oahu
SIZE: About 19 acres. Lots from 10,000 to 46,000 square feet.
STATUS: State owned land; all leased by public auction.
TYPE OF INDUSTRIAL: Light industrial
FACILITIES: All utilities available, paved streets, sidewalks; all improvements by and at expense of lessee. Portions of the land are in a flood zone.
APPROXIMATE PRICE: Lease for land only. Rent established in 1967. Renegotiate in 1987.
CURRENT STATUS: 100% leased and built out. Rents are fairly inexpensive in comparison to Kapunapuna (Damon Estate).

WAI'AU LIGHT INDUSTRIAL PARK

LOCATION: Wai'au, Oahu
SIZE: About 33 acres
TYPE OF INDUSTRY: Light industrial, commercial, warehousing
FACILITIES: Paved streets, utilities, buildings
APPROXIMATE PRICES: \$0.26 per square foot annually, for first 10 years; \$0.40 per square foot annually, for second 10 years; \$0.60 per square foot annually, for last 5 years. (Fully occupied at publication time.)
CURRENT STATUS: Well maintained industrial park with good quality buildings. Approximately 95% occupied with vacancies in smaller spaces, i.e. under 2,500 sq. ft.

WAI'PAHU INDUSTRIAL PARK

LOCATION: Wai'pahu, Oahu
SIZE: 103 acres
TYPE OF INDUSTRY: General industrial
FACILITIES: All utilities, paved streets, sewers, etc.
APPROXIMATE PRICES: Land fee simple, very limited: \$15.00 per square foot. Warehouse leasehold, very limited: \$0.40 - \$0.55 square foot month net.
CURRENT STATUS: Approximately 80% built out and 100% sold. Many larger parcels are underutilized. Many of the buildings that have been built are approximately 70-80% leased.

APPENDIX B

VILLAGE PARK, WAIPAHU, OAHU: ARCHAEOLOGICAL RECONNAISSANCE

Chiniago, Inc.
July 1985

VILLAGE PARK, MAIPAHU, OAHU:
ARCHAEOLOGICAL RECONNAISSANCE

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JULY 1965

1. Introduction

An archaeological reconnaissance survey was conducted on approximately 692 acres of land adjacent to Waikole Gulch, Oahu (Figure 1). The property is bounded on the west by Kuniia Road, on the south by the Village Park sub-division, on the east by

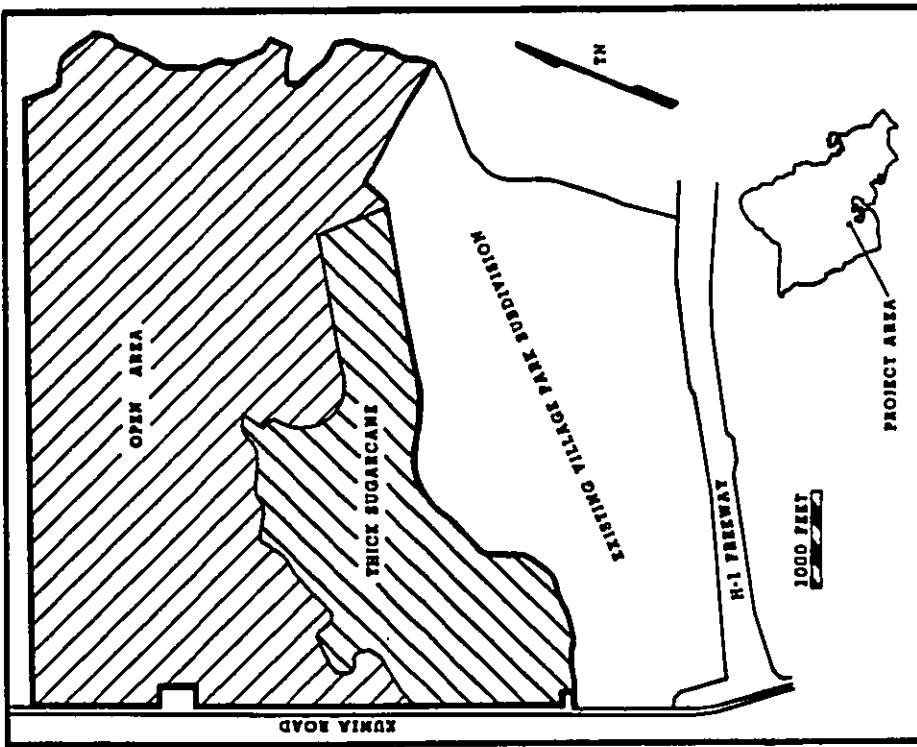


Figure 1. Location of Project Area.

Waikole Gulch, and on the north by sugarcane fields. No information could be found regarding the use of the land prior to the late 1890s when sugar production, which has continued to the present day, commenced. The state of production at the time of the present fieldwork ranged from unplanted to almost ready for harvest. The north and east three-quarters of the parcel was in the unplanted to recently-planted category, and could be negotiated on foot without difficulty. The southwest one-quarter was thickly vegetated and would have been impossible to traverse on foot were it not for the presence of irrigation channels that cut through the sugar fields.

II. Literature Search

The literature search included inspection of Handy's fine Hawaiian Planter (1940), McAllister's Archaeology of Oahu (1933), Sterling and Summers' sites of Oahu (1978), Cox and Stasack's Hawaiian Petroglyphs (1970), maps on file at the State of Hawaii Survey Office, site maps on file at the State Historic Preservation Office, and reports and publications in the Hawaiian collection of the University of Hawaii.

Handy mentions terraces along Waikole stream, immediately outside of the survey area on the east:

"In the flatland, where the Kamehameha Highway crosses the lower valley of Waikole Stream, there are the remains of terraces on both sides of the road, now planted to bananas, beans, cane, and small gardens. For at least 2 miles upstream there were small terrace areas" (Handy 1940:92).

The present status of these terraces is not known, but extensive construction activities in the valley since the time of Handy's visit has probably resulted in their destruction.

McAllister discusses three sites to the south of the survey area, all of which have been destroyed:

"Site 127. Mokuia heiau, southwest of the main road in the village of Maipanu.

"The heiau has been completely destroyed for building purposes of the neighborhood. The site is at the edge of a 50-foot elevation which projects out into the present rice fields and was pointed out by Kaluawai, a Kamehameha undoubtedly more than 100 years old.

IV. Recommendations

because no evidence of past utilization of the subject property in the form of structural or hidden remains was found, and because there have been no archaeological or historical sites previously recorded on the property, we recommend that development be allowed to proceed without any further archaeological work. Should any archaeological or historic remains be uncovered during construction, the construction should stop and the State Historic Preservation Office should be notified immediately.

*Site 128. Waipanu spring, famous in tradition as the place at which the tapa mallet appeared after having been lost in Kanuku. A pump has been placed over the site.

*Site 129. Heiau, Waipanu, said to have been named Hapupu.

*The Waipanu plantation stables on the mountain side of the road across from the schoolhouse west of the town now occupy the site of the former heiau at Maikela. Nothing remains of the heiau. According to Inrua, it was a Heiau pookanaka, where the chief Hao was surprised during temple worship and slain with his priest and attendant chiefs by direction of the moi of Uahu, about 1650. The site was pointed out by Kapano" (McAllister 1933:106).

Also to the south of the survey area, on the ocean side of the H-1 freeway, is a small petroglyph site:

"On the cliff boulders, north side of Maikela Stream, west edge of Waipanu town. Human figures, triangular (arms curved downward), dogs, + 12 units" (Cox and Stasack 1970:97).

As all of the remains revealed in the literature search are for were, in the case of those which have been destroyed) located outside of the project area, the proposed development represents no threat to them.

III. Field Inspection

Our fieldwork consisted of a two-day pedestrian inspection of the property. Structural remains (platforms, terraces, shelters, etc.) would have been destroyed by sugarcane production long ago, so the only evidence of past human utilization which we expected were unearthed fragments of food remains (bones and shells) and artifacts. In the unplanted and recently-planted northern and eastern three-quarters of the property it was possible to walk anywhere and search for such items at will. The southwestern one-quarter was accessible only along irrigation ditches cutting through the thick stands of sugarcane. No evidence of past utilization of any kind were observed either in the open fields or in the exposed earthen faces of the irrigation ditches.

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aeological survey of the island of Oahu.]

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APPENDIX C

**A SOCIO-ECONOMIC ASSESSMENT
OF THE PROPOSED VILLAGE PARK EXPANSION**

Community Resources, Inc.
January 1986

PREFACE

This report was written primarily in August 1985. Many of the conclusions pertaining to housing, population, and -- to a lesser extent -- employment were based on the original market report prepared by Brooks and Zapotocky (1985, as revised).

Subsequently, Waitec Development Co. adjusted its proposed product mix, and Brooks and Zapotocky subsequently revised their original market analysis (Brooks and Zapotocky, 1985).

The present report has consequently been revised in several major ways: (1) changes reflecting the supplemental market report; (2) changes reflecting alterations to the developer's original site plan, and (3) updating of the section on "Preliminary Social Issue Assessment," including an additional section on "Mitigations."

Anticipated future events may further affect particular conclusions in this revised report. These events would include, but not be limited to:

- o Decisions by the City and County of Honolulu about other proposed residential developments in Central Oahu or Ewa;
- o Input from local government and/or community groups about certain project characteristics -- particularly park acreage and locations; inclusion of a school site; and the size and nature of the City low-density apartment rental project.

**A SOCIO-ECONOMIC ASSESSMENT
OF THE PROPOSED
VILLAGE PARK EXPANSION**

August 1985
(Revised: November 1985)
(Final Revision: January 1986)

Prepared for:
Waitec Development Company

Prepared by:
Community Resources, Inc.

EXECUTIVE SUMMARY

Population

- (1) The total population for the Village Park Expansion area is estimated at 10,000 persons. The overall Village Park area (including both the current development and the Expansion) would thus increase from an estimated 5,600 population around the year 2000 to a total population of some 15,600.
- (2) The demographic composition of the combined areas would shift -- although not greatly -- to include relatively more older, comparatively affluent, and/or childless households. Overall, however, the combined Village Park communities would still be comprised mostly of young, local, first-time homebuyers.
- (3) By the turn of the century, communities mauka of Waipahu Town (existing Village Park, Crestview, Waipio, and Waikale) will contain almost as much population as Waipahu itself. Approval of Village Park Expansion and/or Waiala will result in more population above the freeway than below.
- (4) The "Maui Communities" differ from Waipahu residents on a number of demographic and socio-economic dimensions. Village Park Expansion residents will be more like people in the other "Maui Communities" than the people below the freeway, where the population is growing older and increasingly influenced by immigrant settlement.
- (5) Addition of the estimated 10,000 population of the Village Park Expansion would represent a 17 percent increase over the likely year 2005 population for the Waipahu area (including the "Maui Communities" other than Waiala, which has yet to be approved). For all the Central Oahu Development Plan Area (excluding other pending residential proposals), it would represent a seven percent increase.
- (6) Oahu's population is expected to increase by approximately 149,200 persons from 1984 to 2005. The Village Park Expansion project would account for about 6.7 percent of this increase and about 1.1 percent of total Oahu population.

Housing

- (1) The addition of 3,480 units in the Expansion to the total planned 1,800 in the existing Village Park area would nearly triple the ultimate number of units for the combined area.
- (2) There would be some slight shifts in the overall composition of units -- slightly higher proportions of multi-family units and of relatively higher-priced homes on larger lots. Construction of a government-sponsored low-income rental apartment project would also represent a new form of housing in the Village Park area.

- (3) The golf course and other amenities in the Village Park Expansion project should help maintain and improve property values in the existing Village Park development.

- (4) Because the Expansion would be a continuation of the current Village Park development -- for which a development, sales, and construction team is already in place -- it should move forward without delay and be able to meet Waipahu-area housing demand in a period of time after the Waipio project is complete but before Waikale units may be ready for the market.

- (5) The total Waipahu-area housing inventory (including approved projects mauka of the freeway) is estimated at 16,800 units by the year 2000. The Expansion proposal would increase this figure by about 20 percent.

- (6) Census data indicate crowding is a serious problem in Waipahu Town households. By providing relatively affordable new housing, the Expansion project may ultimately allow the "undoubling" of crowded households where several families have "doubled up" in Waipahu.

Employment

- (1) The Expansion project would result in the continuation of the present 310 Village Park construction jobs (average annual figure) from 1988 through 1994.
- (2) When completed, the Expansion would provide on-site employment for an estimated 710 workers. Most of these jobs would be in the commercial center (483), followed by the industrial area (187) and the golf course (40).
- (3) There may also be some induced and indirect employment elsewhere in the Waipahu area, but it is difficult to estimate this.
- (4) Although it is impossible to predict for certain where the labor would come for the 1,121 on-site jobs, Waipahu's relatively high unemployment rate and the occupational characteristics of its labor force suggest a good match with the types of jobs which will be available at the Expansion.

Social Issues: Public Opinion Surveys

- (1) Hawaii State Plan surveys conducted during the 1980's show Oahu residents place a higher priority on affordable housing than on preserving agricultural land.
- (2) A 1982 Waipahu survey shows equal priority for housing and protecting Oahu Sugar Company. It also shows most Waipahu residents welcome growth so long as it is well-planned.

Social Issues: Key Informant Interviews and Community Positions

- (1) While the public hearing process will be the ultimate test for determining public attitudes and concerns, interviews with some 35 Village Park and Waipahu community leaders were conducted to provide a preliminary feel for issues and concerns. Organized community groups also provided input.
 - (2) The overall attitude at this time was generally positive. All major Waipahu-area community organizations have taken positions favoring the project. Most informants seemed to expect and welcome residential growth in the Waipahu area.
 - (3) Project components which seemed most responsible for this positive attitude were (for Waipahu) desired contributions to area growth and continued provision of housing affordable for first-time buyers and (for Village Park) the proposed golf courses.
 - (4) The most frequently raised concern (especially in Waipahu) involved public infrastructure capability -- particularly traffic impacts. There was some frustration over perceived lack of government action to address the cumulative impacts of all proposed developments. Usually, these concerns were expressed as questions about how the problems can be solved rather than as a basis for opposing development.
 - (5) The issues which usually generated the strongest emotional response (especially below the freeway) had to do with whether Village Park and the Expansion would become well-integrated into the larger Waipahu community or would become a distinct, possibly even "competitor" community. For example, there was concern about possible deterioration of Waipahu schools if Village Park and Waikale students are bussed elsewhere.
 - (6) Specific project components producing some degree of concern included (a) the City apartment rental project (desire for compatible design and careful management); (b) the Department of Education's recommended delation of a school site (with which Waipahu community groups disagreed); and (c) the original park acreage distribution (subsequently reallocated to meet some residents' desires for an Expansion park site closer to the eastern portion of current Village Park).
 - (7) Many Waipahu community leaders suggested that a development of this nature should "give back" something to the larger community. Initially, there was a desire to identify ways that the project itself could meet community-wide needs such as church sites.
- However, the final focus of such discussions was on ways that the developer could help meet community needs outside the Village Park area. Following negotiations, the developer agreed to assist in a Kunia Road beautification effort and several other community initiatives.

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I. INTRODUCTION AND OVERVIEW

Purpose and Organization

This socio-economic assessment report is intended to provide resource materials for an Environmental Assessment and later Environmental Impact Statement for the proposed Village Park Expansion Project. The Environmental Assessment is required for the Project developer's application to the Hawaii State Land Use Commission for redesignation of the project's land use category from Agriculture to Urban. The Environmental Impact Statement would be subsequently required for zoning approvals from the City and County of Honolulu.

The remainder of this introductory Section I will provide a project description and a general overview of the affected communities.

Thereafter, Sections II - IV will assess project impacts on three standard socio-economic variables: population (Section II), housing (Section III), and employment (Section V). The format for each of these sections will include a description of the "Existing Situation," followed by a discussion of "Impacts." The usual method for assessing impacts involves a comparison of the expected future situation with the project vs. the expected future without the project. Impacts are thus defined not as changes from the present situation, but as changes from the likely future without the project.

Section V provides a "Preliminary Social Issue Assessment." This consists of evidence about the likely community issues, concerns, and values which could be produced or affected by the project proposal and implementation. The methods used here include review of public opinion surveys and a summary of issues which emerged in interviews with some 35 Village Park and Waipahu-area community leaders and in subsequent interactions with Waipahu-area civic organizations. (The term "preliminary" is used in the section title to emphasize the early nature of issue identification; the public hearing process will provide the final record of community concerns and issues.)

Where possible and appropriate in Section V, the issues are addressed with comment and analysis. However, many of these issues are qualitative in nature and do not lend themselves to firm and accurate forecasts. For purposes of this analysis, social issue assessment is regarded as an ongoing process of communication between the developer and the community (including government decision makers). Section V is intended to provide a starting point for this dialogue.

The final Section VI involves a discussion of "Mitigations." Since the population, housing, and employment impacts have few negative connotations, the mitigations will focus primarily on the less tangible community concerns presented in Section V.

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B. Project Description

The proposed project involves an expansion of the existing "Village Park" subdivision north of Waipahu, immediately above the H-1 freeway. It has not yet been decided whether the proposed new project would share the name "Village Park" or would be given a separate name. Therefore, for purposes of this report, the existing area will be called "current Village Park" or "original Village Park." The proposed new project will be referred to as "Village Park Expansion" or simply "the Expansion."

The current Village Park community will be described in more detail in the "Community Overview" portion of this Section I. Briefly, it is a 310.4-acre planned community which will ultimately consist of approximately 1,800 housing units -- the great majority of which are or will be single-family homes on lots averaging around 4,000 square feet and priced for first-time homebuyers. As of August 1985, 836 units had been occupied, and construction is proceeding rapidly toward an ultimate build-out in 1988. Village Park also contains sites designated for commercial development, and an elementary school, but these are vacant at present. Developer-financed facilities on the area's 10-acre park site are being completed in early 1986. The community is bounded on the east by Waialeale Gulch and Stream, on the south by the freeway, on the west by Kunia Road, and on the north by sugarcane land proposed for development as the Expansion project.

The Expansion site is located on 691.5 acres immediately north of the current Village Park development (Tax Map Key 9-4-02; 30 and portions of 01 and 17). The land is currently owned by Robinson Estate, with development rights held by Waitec Development Co. (also the developer of the current Village Park community). It is also bounded by Waialeale on the east and Kunia Road on the west, to the north are more sugar lands. At present, all of the approximately 692 acres (except for a few gullies, all gulches) are leased to Oahu Sugar Company and are in active use. All State and City land use designations for the property are currently "Agriculture."

Figure 1 shows the location of both the current Village Park development and the proposed Expansion. Figure 2 contains a preliminary site plan for the Expansion. (However, it should be emphasized that final Expansion plans are still in the design stage and are subject to change.) The major land uses proposed for the Expansion are:

Uses	Acres
Residential	404.6
Low-Density Apartment	30.0
Commercial/Industrial Mix	28.7
Golf Course (18-hole)	168.2
Private Recreation	6.9
Public Park	21.0
Circulation (streets)	32.1
Total	691.5

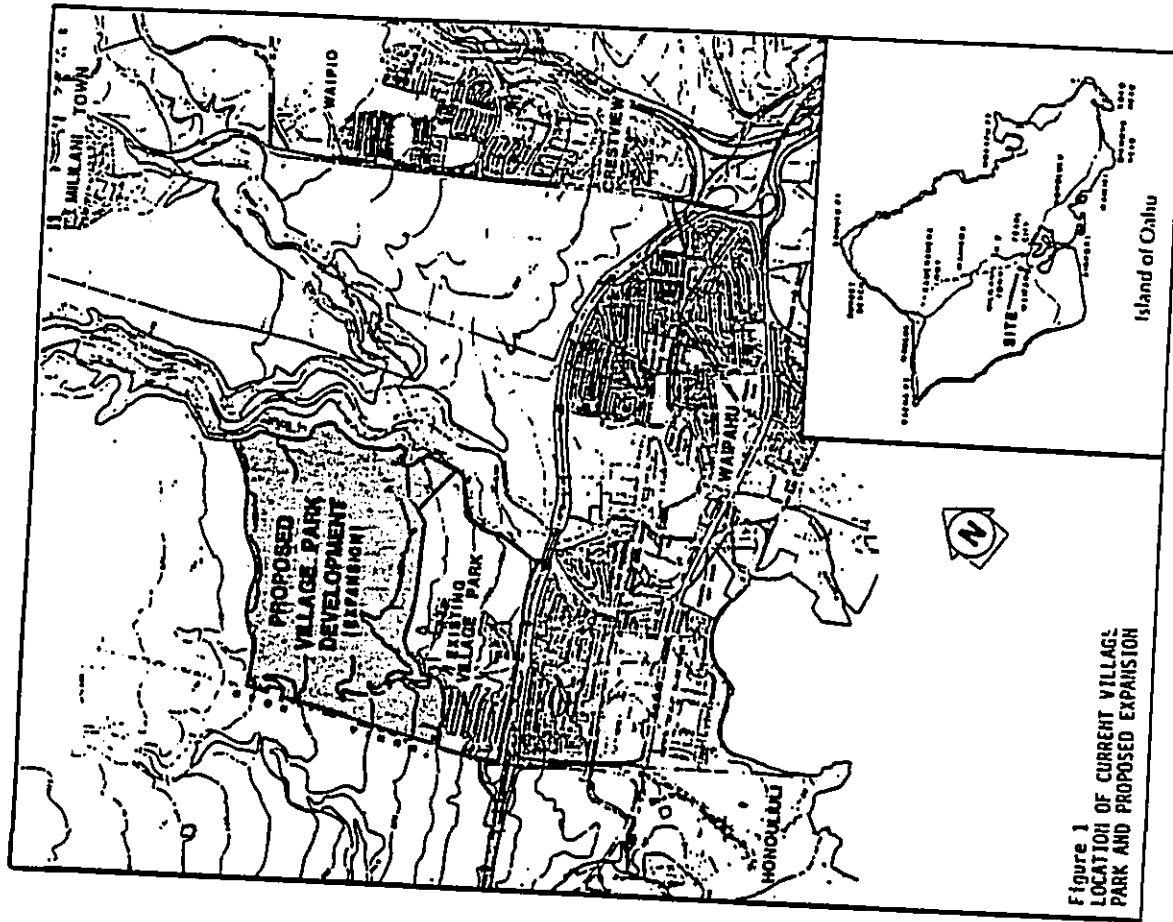


Figure 1
LOCATION OF CURRENT VILLAGE
PARK AND PROPOSED EXPANSION

The original Expansion proposal also contained a site to be dedicated for public school purposes. However, State Department of Education facility planners requested the deletion of this site, saying that the yet undeveloped Hoseae School site in the current Village Park will adequately serve the needs of both developments.

The proposed number of market housing units is 3,000. Brooks and Spotocky (1985, pp. 6-7) report that these 3,000 units would be divided into five product types, as follows:

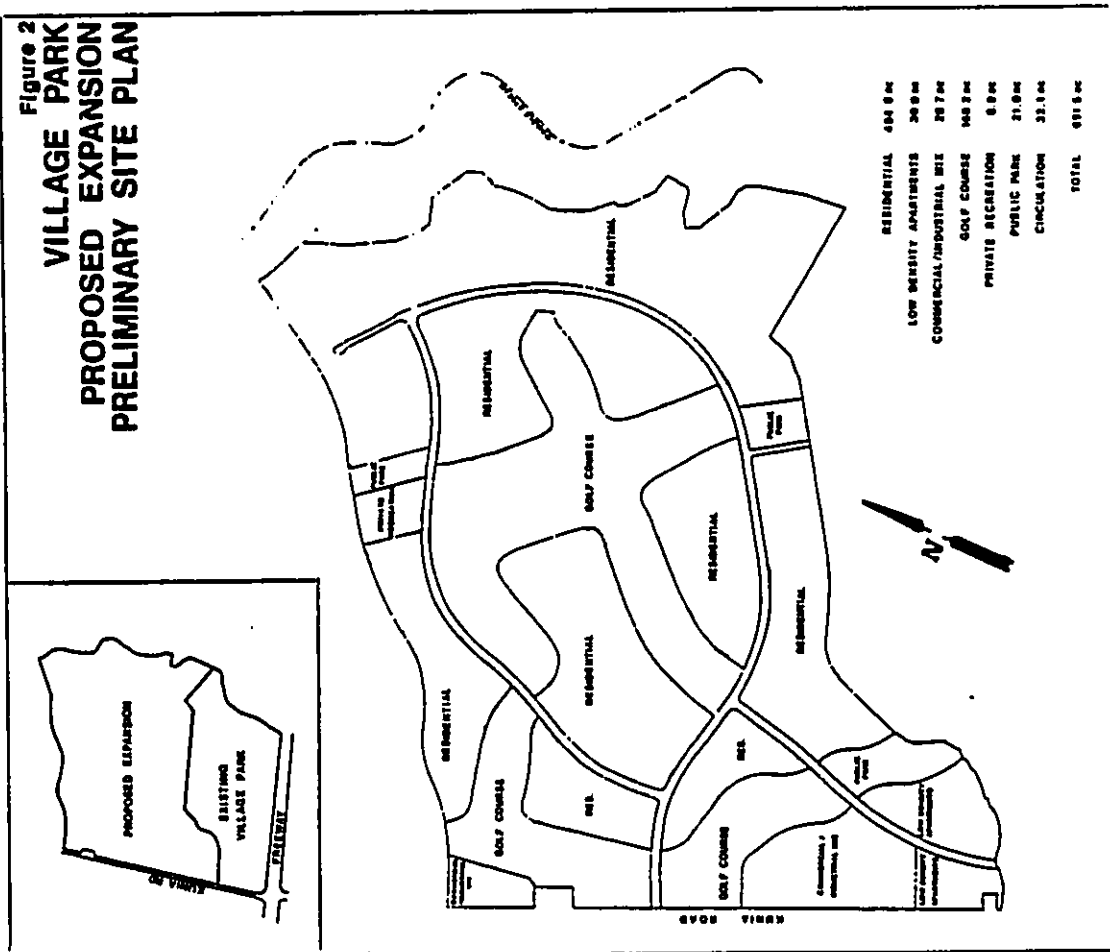
Type	Description	Lot Size (Sq. Ft.)	Average Sale Price	Total No. of Units	Pct.
"Prime Sites"	Golf course frontage --- custom and semi-custom	5,500	\$250,000	270	9.0%
"Upgraded S.F.D."	Good views of locations	4,750	\$185,000	445	14.8%
"Traditional S.F.D."	Similar to current Village Park homes (oriented to lot-time buyers)	3,600	\$145,000	1,055	35.2%
"Starter S.F.D."	Smaller homes (oriented to lot-time buyers with small households)	3,000	\$130,000	990	33.0%
"Attached Units"	Townhouse	N/A	\$100,000	240	8.0%
TOTALS FOR 404.6 ACRES RESIDENTIAL:				3,000	100.0%

("S.F.D." = single family dwellings)

Additionally, to satisfy government requirements for low/moderate income housing, the developer has agreed to dedicate 30 acres of land to the City and County, with the provision that the developer would have substantial input on design (to assure compatibility with both current Village Park and Expansion units) and that a strong management arrangement be created.

Thus, the total number of units in the Expansion, including the City's 480 low-density apartment units, would be about 3,480.

Following are additional comments regarding the various project components.



Golf Course: The 18-hole golf course would be perhaps the most obvious single characteristic differentiating the nature of the Expansion from the original Village Park. It would provide a substantial amount of open space, and homes fronting the course could be expected to have a higher average value than most current Village Park homes. A clubhouse and restaurant would be part of the golf course development.

Residential: Expansion homes would be sold on a fee-simple basis, while current Village Park units have been sold as leasehold. Because of this, and because of the inclusion of "prime site" and "upgraded" products, single-family selling prices would average a little more than for units in the original Village Park. Recent prices in the current Village Park have ranged from about \$118,000 for a three-bedroom single home to \$145,000 for a four-bedroom home, with an overall average of about \$133,000 (personal communication, Craig Champion, Waitec Development Co., June 27, 1985). For the new Expansion area, some 76 percent of the market units would still be in the average \$145,000 price range and below. Such units would still be within the reach of much of the historical market for Village Park -- i.e., young two-income families purchasing a first-home.

Apartments: As of this writing, no final agreements have been worked out between Waitec and the City Department of Housing and Community Development. Preliminary discussions indicate that the City's primary interest is in a rental project rather than a subsidized for-sale project. The exact amount of land to be dedicated is still under discussion.

Commercial/Industrial Mix: Two sites along Kunia Road -- totalling slightly under 29 acres -- are proposed for a "Commercial/Industrial Mix." This designation permits ultimate flexibility in emphasizing commercial vs. industrial development, but the tentative current plan is to devote 10 acres of the lower site to commercial uses and the remainder of both sites to light industrial activities.

The probable Expansion commercial area is slightly north of the yet-to-be-developed 4.7-acre commercial site in the current Village Park. The two commercial sites would be separated by Kupuna Loop, the principal current Village Park internal road, and by the City apartment project. The existing commercial site is marked for development of up to 60,000 square feet of retail and office space when the current Village Park population reaches an adequate level by or before build-out. The Expansion commercial area would provide both more typical retail operations for the additional population and also additional activities -- such as cinema theaters -- which would be feasible only once the population for the combined areas (current Village Park and Expansion) reaches the level of a fairly large independent community.

The market consultants (Brooks and Zapotocky, 1985, p. 71) estimate development of a total of 145,000 square feet of commercial space, in two equal increments.

For the light industrial area, the market consultants project an absorption rate of five acres per year, with the small northern seven-acre site to be developed last. Exact business uses for these sites cannot now be predicted, although typical current light industrial activities involve things such as warehousing or light manufacturing. Attempts to attract high-technology industries to Hawaii might eventually result in the Expansion attracting information-processing industries.

Private Recreation: The private recreational facility for Expansion residents would be similar to that at New Town, probably including facilities for swimming and active sports such as tennis. Current Village Park residents could join for a monthly fee. The site may include other community facilities, such as a meeting place and child care.

Public Parks: Three potential sites are shown in Figure 2. The 5.5-acre site in the southeastern portion represents a recent change in the developer's plans (which originally had no park in this area) made in response to community concerns. This matter will be further discussed in Sections V and VI of this report.

Streets: As in the current Village Park, the major street would be a loop extending throughout much of the Expansion. The preliminary plan shown in Figure 2 would also include two additional streets providing an internal connection between the Expansion and the original Village Park project.

Estimated Development Schedule: The Expansion market analysis anticipates that all market units can be built in seven years, which are tentatively targeted as 1988 through 1994 (Brooks and Zapotocky, 1985, pp. 8 ff.). Because of current low inflation and interest rates, and because the number of competitor developments in the area is projected to drop in the late 1980's (although others will come on line around 1993), it is expected that sales and construction will be somewhat more brisk in the early years. Their projected schedule calls for development of 500 units the first year, gradually declining to 345 units in the seventh year.

Development during the first two years will be primarily in the less expensive three categories -- "traditional single-family," "starter homes," and "attached." The bulks of the "prime" and "upgraded" homes would be developed in the next three years, with the emphasis again shifting back to less expensive units in the final two years.

each Development Plan Area. These represent specified approximate percentages of the estimated percentage for the years 2000 and 2005.

2. Central Oahu and Eva Development Plan Areas

The broad regional level of analysis for this report will be Development Plan Areas rather than judicial districts. This is because the judicial district within which the project is located (Eva District) has come to contain such a diversity of communities and economic activities that a somewhat finer focus seems appropriate.

The existing Village Park and the proposed Expansion are located in the southwestern portion of the Central Oahu Development Plan (D.P.) Area, on the boundary between Central Oahu and the Eva D.P. Area (see Figure 3). Therefore, while the Central Oahu area will receive primary attention in this report during discussions of regional impact, some attention will also be given to the Eva area.

Central Oahu, as the name suggests, encompasses the island's central plain, between the Koolauloa and Maianae mountain ranges. Its northern boundary falls in the agricultural area between the towns of Wahiawa (in Central Oahu) and Haleiwa (by the coast of the North Shore D.P. Area). The Central Oahu area tapers down to Pearl Harbor at its southern boundary.

The population growth rate for Central Oahu was the highest on the island from 1970 to 1980, as the population grew 52.4 percent over ten years to its 1980 level of 100,953 (about 13 percent of the islandwide population). The three major communities in Central Oahu, moving north to south, are:

- o Wahiawa (1980 population 16,911), with an economy based on the nearby pineapple fields and on several surrounding military installations -- the largest of which is the Army's Schofield Barracks (with a separate 1980 population of 18,851).
- o Milliani Town (1980 population 21,365), now primarily a bedroom community with a rapidly-growing population, but also slated to become an employment center with the future development of a recently-approved "high-technology industrial park."
- o Waipahu (1980 population 29,139), historically a sugar plantation community but increasingly a bedroom community for workers employed at Pearl Harbor and in the Honolulu area. Waipahu will be described in more detail shortly.

Much of Central Oahu's land is in agricultural uses -- pineapples to the north and a smaller expanse of sugar land in the south.

C. Community Overview

The remainder of this Section I provides a general qualitative overview of communities potentially affected by the Expansion development. Detailed U.S. Census data and other quantitative information will follow in Sections II, III, and IV.

"Affected communities" exist at several levels: (1) Oahu as a whole; (2) the Central Oahu and Eva Development Plan Areas; (3) Waipahu town (below the freeway); (4) never Waipahu-area communities existing or planned for mauka of the freeway and here referred to as the "Maui Communities"; (5) existing Village Park (which is one of the "Maui Communities," but is felt to merit separate attention in a socio-economic assessment of the proposed Village Park Expansion).

1. Oahu

Oahu is the state's third largest island in terms of land area (379,328 acres), but it is Hawaii's population and economic center. Honolulu, Oahu's largest city, is the state's capital. Nearly 80 percent of Hawaii's population resides on Oahu. According to the 1980 U.S. Census Report, the island was home to 762,534 persons, including military personnel.

The island's economy has been growing increasingly dependent on tourism. The visitor industry is primarily concentrated in Waikiki, although rural resorts have also been started in, or approved for, the Turtle Bay (Kuilima) area on the North Shore, West Beach in the Eva area, and Makaha on the Waianae Coast. Military activities represent a second and fairly stable economic base, while a third -- plantation agriculture -- has been undergoing decline. There are now only two sugar and two pineapple plantations operating on the island, and both sugar operations are cutting back workforces and land under cultivation.

Oahu's average income is only slightly above the national norm, but its cost of living is much higher. As of 1981, an "intermediate" budget for a four-person Oahu family was the highest of 25 urban areas surveyed, and 26 percent greater than the corresponding average for all urban American communities (Hawaii State Department of Planning and Economic Development, 1985a, p. 422). Housing costs are among the highest in the nation. The average price of a single-family home on Oahu in 1983 was \$189,000 (ibid., p. 610).

A single countywide government -- the City and County of Honolulu -- governs both Oahu and the tiny Northwestern Hawaiian Islands (1980 population of 31, mostly military). Although Oahu was historically subdivided for statistical purposes into judicial districts (which formed the basis for U.S. Census divisions), the City and County has recently divided the island into eight "Development Planning Areas" for purposes of land use controls. In an attempt to exercise control over the future direction of growth, the City's General Plan and supporting area-specific Development Plans stipulate population guidelines for

The remaining and larger portion of the Oahu Sugar Company plantation is in the Ewa D.P. area to the west. Ewa historically has been among the island's most productive agricultural areas, and its economy in this century has centered primarily on sugar and military activities (particularly at Pearl Harbor and the Barbera Point Naval Air Station).

Ewa's population also grew at a rapid rate (50.4 percent) from 1970 to 1980, although its 1980 population was still comparatively light at 36,234 -- slightly more than one-third the population of Central Oahu.

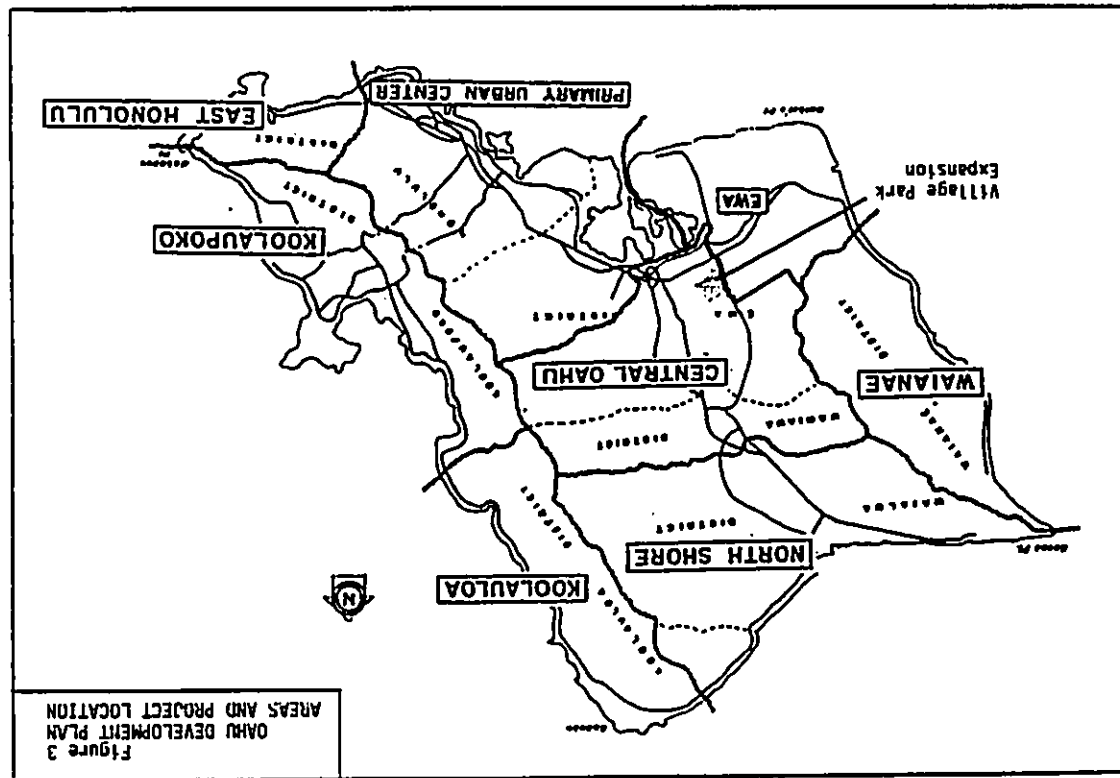
Existing Ewa population centers include (1) Ewa Beach (1980 population 14,369), which is beside Pearl Harbor and is largely military-oriented in its economy, and (2) Makakilo (1980 population 7,691) to the west, which -- like Milliani in Central Oahu -- is a still-developing residential community. The Campbell Industrial Park in the area's southwestern corner is Oahu's principal industrial site outside Honolulu and the site of several refineries.

However, substantial new population and economic growth is slated for Ewa, which is designated in the City's General Plan as Oahu's "secondary urban center." The Estate of James Campbell -- the area's principal landowner -- has submitted a proposed master plan for governmental approval which envisions:

- o a resort development at Mak Beach (already approved at the Development Plan and State Land Use levels);
- o a commercial/residential "City Center" below Makakilo (still in the proposal stage);
- o an expanded industrial area (mostly still in the proposal stage) near the current industrial park and also near Barbara Point Harbor, which the State is now constructing to serve as Oahu's second major civilian harbor;
- o several expanded residential areas mauka of the freeway and on either side of Makakilo (proposal stage);
- o two new residential communities to the west and northwest of Ewa Beach -- Ewa Marina and the "Ewa Plantation" development (approved);
- o various other (proposed) residential in-fill areas -- e.g., between Ewa Marina and "Ewa Plantation," between "Ewa Plantation" and the City Center, and an expansion of Waipahu into Ewa in the Honolulu area.

3. Waipahu Town

Waipahu -- approximately 14 miles west of Honolulu -- is the closest major community to the project site. Waipahu town is



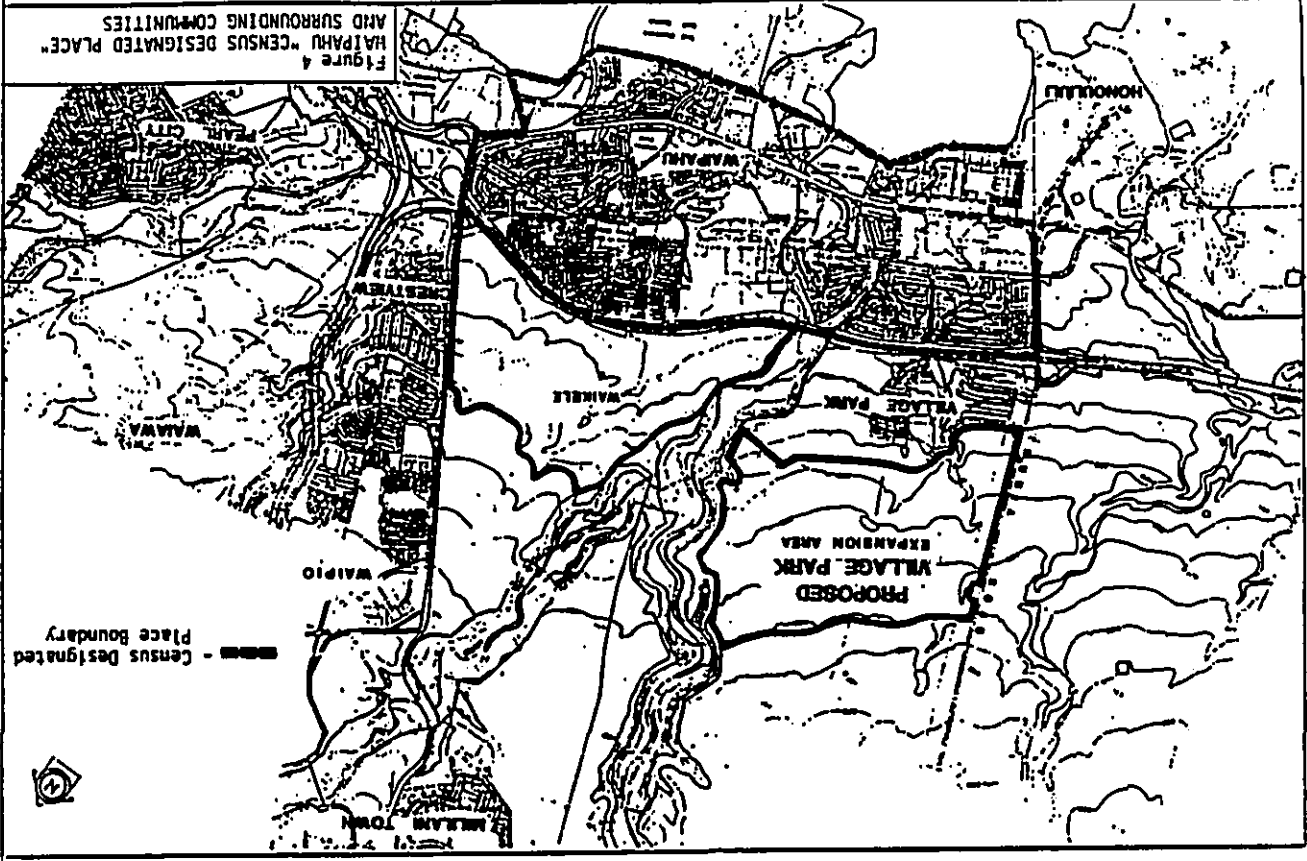
just below the freeway from the current Village Park. Several other Waipahu-area developments exist or are being planned above the freeway, and in the perception of some residents these are also "part of Waipahu." However, they are not included in the U.S. Census Bureau's definition of Waipahu (Figure 4) and they have or are likely to have some socio-economic characteristics distinguishing them from Waipahu. Therefore, they will be discussed separately in the following sub-section.

In early Hawaiian times, the name "Waipahu" (or "gushing water") applied only to a famous spring in the area, but in the mid-1800's the name was given to three small parcels of land and gradually was extended to a general area and then to the town which developed. Modern Waipahu is located in the lower portions of three old Hawaiian ahupua'a's -- Waipio, Waikole, and Hoaaie (the westernmost area, in which Village Park is located). It is believed that several fishing villages and numerous fishponds were once located in the area, which was also well-suited for wet-land farming of such Hawaiian staples as taro (Beachert, 1974, pp. 1-2).

In the late 1800's, the Waipahu area was a thriving agricultural community of small independent farmers, both Hawaiians growing taro and Chinese immigrants growing rice for several local rice mills. However, the region was dramatically transformed when three Hawaii business pioneers -- Benjamin Dillingham, James Campbell, and Paul Isenberg -- made unique contributions leading to the creation of the Oahu Sugar Company in 1897 (Nedbalek, 1984, pp. 8-14).

Campbell had purchased 40,000 acres of arid land in the Ewa plain, and his successful experiments with artesian well production made large-scale sugar production a possibility in both Ewa and the Waipahu area. Dillingham established a railroad from Honolulu to leeward Oahu in order to facilitate shipment of agricultural products, and he subsequently worked with Campbell to consolidate sufficiently large parcels of land to create the Oahu Sugar Company. Isenberg, head of H. Hackfeld and Company (predecessor to Amfac), provided much of the capital through Hackfeld and Company, and he became Oahu Sugar Company's first president.

The company's mill site and office headquarters were officially designated "Waipahu," and this became the name of the town which gradually grew up around the mill. For much of the 20th Century, Waipahu's economic and social structures were linked almost exclusively with the plantation and its functioning. Waipahu schools and community facilities were named for plantation managers such as August Ahrens and Peter L'Orange. Major commercial operations were started by former plantation workers, such as Iempan Arakava, and relied on other plantation workers as customers. Oahu Sugar Company provided housing, day care, and other social services under the paternalistic system of the day.



The socio-economic changes occurring in Hawaii after World War Two particularly affected sugar communities such as Waipahu. Union influence expanded greatly. Oahu Sugar Company entered a period of housing development for sale to employees which began in the 1940's and extended into the 1970's, allowing workers to purchase houselots for less than ten cents a square foot (Masso "Cranky" Watanabe, interviewed by Tanji, 1984, p. 150).

Private developers and government agencies also created housing subdivisions in Waipahu, and the population spurted, particularly in the 1960's. Waipahu residents numbered 7,169 in 1950; 8,353 in 1960; and 22,798 in 1970.

In the 1970's, Hawaii's sugar industry entered a period of serious economic struggle, and Oahu Sugar Company has been gradually cutting back its workforce and taking marginal lands out of production. Much of the new population has had no direct job link with the plantation. Small commercial activities -- mostly strip development along Farrington Highway -- now provide a substantial portion of Waipahu jobs.

As previously noted, Waipahu's population increased to 29,139 in 1980. The population increase of the 1970's was accompanied by several socio-economic transformations. These will be discussed in greater quantitative detail in Section II. Briefly, however, both Census information and resident interviews conducted for this report indicate that grown children of "old-time" Oriental, Hawaiian, and Filipino families (who are likely to have links with Waipahu's sugar-dominated past) have tended to move away from the community, as have some of the more successful older business leaders. The new population, particularly in the younger age brackets, is proportionately more lower-income and/or recent immigrant in character.

Dominant immigrant groups are Samoan and, particularly, Filipino. More than 40 percent of Waipahu's population is now Filipino, and approximately ten percent of Waipahu's public school students are "limited English speakers" (unpublished Hawaii State Department of Education data, provided by Josephine Pablo, Title VII Bilingual Education Technical Assistance Coordinator, personal communication, July 22, 1984).

According to community leaders interviewed for this report, as well as scholarly studies of recent Filipino immigrant (Bigginbotham and Marsella, 1977; Caces, 1985), housing costs represent one of the most serious problems faced by immigrant families. The solution frequently is to buy an older home on a large lot, add on to the house and divide the expanded home into several units; and either rent part of the home or share the mortgage costs with other members of an extended family. While some of Waipahu's earlier residents are now "moving up" to new housing outside Waipahu, recent immigrant Filipinos are "moving up" from rental housing in urban Honolulu to fee-simple homes in Waipahu. A recent survey of Ilocano immigrants found that home-ownership is much higher in Waipahu (60 percent) than in lower Kaliahi (33 percent) or upper Kaliahi (23 percent) (East-West Population Institute and Operation Manong, 1985, p. 5).

Although their memberships are still primarily composed of longtime residents rather than a mix of older and newer residents, Waipahu community organizations are among the most dedicated, and active on the island. Two issues which have consumed much of Waipahu's community planning energy in recent years have been (1) preservation of Waipahu's historical plantation legacy, and (2) revitalization of the somewhat deteriorating commercial areas of the town.

A planned 50-acre cultural park -- "Plantation Village" -- in the heart of Waipahu will hopefully preserve the town's plantation heritage through construction of plantation homes typifying the various ethnic "camps," a museum, an amphitheatre, a Japanese shrine transported from Moiliili, and other historic attractions. The long-term plan envisions a "living museum" in which plantation worker descendants will serve as guides for those who pay admission to see the park. The nonprofit Friends of Waipahu Cultural Garden Park have been working with the City and County Parks Department since 1973, and a few of the planned elements are now in place.

The "Waipahu 2000" (i.e., year 2000) Community Master Plan is a more recent and even more comprehensive planning effort to combine historical preservation and revitalization of the business areas. Amfac provided consultant resources to a citizen committee in conjunction with the company's planning and community involvement program for its own Waikole development above Waipahu. The final plan (Helber, Hestert, van Horn, and Kimura, 1984) proposes a number of steps, many of which will require government funding to become reality. These include visual improvements to business areas, alternate sites for a new Waipahu Civic Center/Library, traffic circulation improvements, and a downtown "heritage district" encompassing the Cultural Garden Park, the Oahu Sugar Company Mill, Hans L'Orange Park, and the old town core fronting on Waipahu Street and Depot Road.

In some respects, Waipahu is today a community facing the prospect of economic decline and deterioration. This has prompted some longtime residents to move away (or to encourage their children to leave), while it has challenged others to plan ways to reverse the apparent trend. Waipahu's future will be determined in part by the community's success in finding public and private resources to implement these plans.

4. "Mauka Communities" (Crestview, Waipio, Waikole, and Waiawa)

Figure 4 shows the location of various new existing or contemplated residential areas mauka of the H-1 Freeway. These will be collectively referred to as the "Mauka Communities" for purposes of this report. Moving from east to west, these include Waiawa, Crestview, Waipio, Waikole, and Village Park. The existing Village Park community will be described separately in the immediately following sub-section, and so this discussion will focus only on the first four areas.

Crestview is the only existing and completed "Maui Community." Developed about 20 years ago, it actually consists of two subdivisions, Seaview (immediately above the highway) and Crestview (above Seaview). However, Waipahu-area residents often refer to the combined area as "Crestview," and this simpler designation will be used throughout the remainder of the report. No official number of Crestview housing units could be located, but a representative of the Robinson Estates, the original landowner, estimated 500 units (personal communication, Mildred Centeio, August 19, 1985). The character of the neighborhood resembles that of many areas below the freeway in Waipahu itself -- low-to-moderate income, "local" population, a relaxed and family-oriented social environment. Of all the "Maui Communities," Crestview is most often considered as "part of Waipahu."

Waipio is an existing but still-developing community immediately above Crestview. Like Crestview, it is sandwiched between the H-2 Freeway and the older Kanehameha Highway. Waipio has been developed by the Gentry Companies and is often referred to as "Gentry-Waipio" or "Waipio-Gentry." Begun in 1978 and scheduled for completion by 1987, the community now features 1,419 single-family units (with 75 more to be constructed); 884 multi-family units (with 515 more to be constructed); 884 units more by another developer; a neighborhood commercial area; and approximately 40 acres of light industrial (to be built out to its 120-acre capacity in an estimated five years' time). (Information provided by developer representative Tosh Hosoda, personal communication, August 6, 1985.) Many of the single-family homes are "patio units" -- high-quality houses with very small yards. These currently range from \$130,000 to \$165,000, above the Village Park units on average. Residents tend to have higher incomes than Waipahu people and differ on other socioeconomic dimensions as well. While neighboring Crestview is generally regarded as "part of Waipahu," the Waipahu residents interviewed for this report tended to see Waipio as having fewer ties with Waipahu.

Waikela is a proposed and approved (at least at the Development Plan level) future community. It is an Amfac project on former Oahu Sugar Company lands judged marginally productive and withdrawn from sugarcane use. The Waikela proposal has enjoyed wide community support in Waipahu, at least in some part due to Amfac's statements that revenues from the development will help sustain Oahu Sugar Company. A commercial center and "office park" will be at the lower base of the project, along the H-1 freeway. This would be surrounded by an 18-hole golf course, with residential development (810 single-family and 1,950 multi-family units) located primarily along the northeastern and northwestern boundaries of the roughly triangle-shaped area. The estimated final residential population of 8,100 will, according to Amfac market projections, all be in place eight years after construction begins in the late 1980's. The commercial center and office park are estimated as providing 2,000 jobs. Forty percent of the housing units are to be affordable to the middle-income market, and another ten percent would be subsidized housing. Waipahu residents expect Waikela will be "part of Waipahu," in part because of their input, in part because of the

ties with Amfac and Oahu Sugar Company, and in part because the Waikela master plan calls for a road connection over the freeway into Waipahu. Waikela would also have road connections over Kanehameha Highway into Crestview, but it would remain separated from both the existing Village Park and the proposed Expansion by Waikela Gulch.

Waikawa is a proposal only as of this time. It is located on Bishop Estate lands above the eastern end of Waipahu and on the eastern side of the H-2 freeway. If approved in its entirety, it would be the largest of the "Maui Communities." Its 2,282 acres would require 20 to 30 years for build-out, at which time it would have an estimated population of 31,000 people and provide 6,000 jobs in its proposed commercial and business park areas, to be located at the foot of the project just northeast of the H-1/H-2 interchange. The residential component would consist of about 4,000 multi-family and 7,000 single-family units; the latter would average \$150,000 selling price, suggesting a quality and character comparable to the Waipio development. The proposed project had not been widely discussed among persons interviewed for this report, and it is difficult to say whether it will be regarded as "part of Waipahu." The Waikawa area is outside the current boundaries for the Waipahu Neighborhood Board (falling instead in the Pearl City Neighborhood Board area), but it is still physically closer to Waipahu than to Pearl City.

5. Existing Village Park

Waitec Development Company's current Village Park development was originally conceived to be primarily a townhouse community, but market conditions and internal business decisions resulted in a shift to single-family development. From 1979 to date, a total of 836 units (including 120 townhouses) have been both built and occupied. Recent reductions in interest rates have resulted in sharply increased sales, and it is now estimated that the full number of units -- approximately 1,800 -- can be constructed and sold by 1988.

Figure 5 provides an internal site plan for the complete 310.4-acre Village Park area. In addition to the residential development at the western end, the following elements of Figure 5 have yet to be constructed:

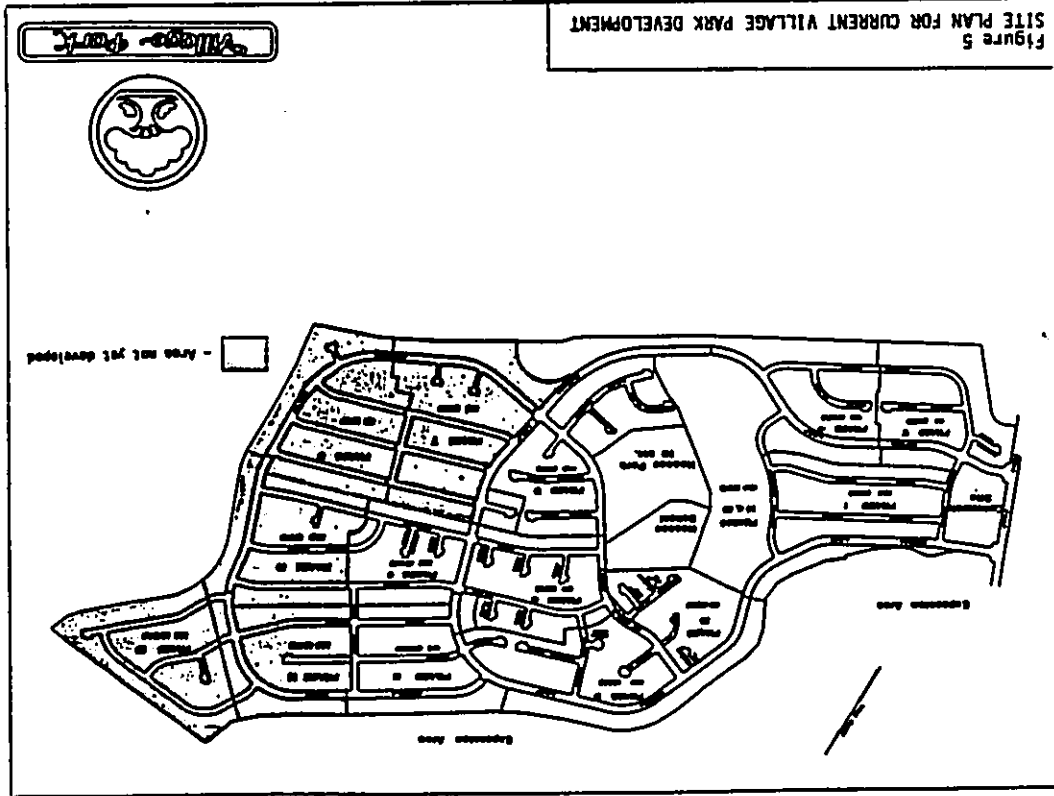
- o The 4.5-acre commercial area is awaiting development of more Village Park houses to provide a suitable market base for retail operations there.
- o The State Department of Education has expressed interest in building the Hoasee Elementary School until there is a greater student population in the area.
- o Facilities for the 10-acre Hoasee Park (tennis, basketball, and volleyball courts; children's playground; restrooms and parking lot) are under construction and should be completed shortly. Because the City lacked

the budgetary resources to develop the park, Maitec Development is funding the facility construction itself, in exchange for permission to develop the 5.3-acre site originally marked for a second park. (The City agreed to delete the second park-site requirement because the final Village Park density was lower than first planned, resulting in a lower population and less need for park space.)

Recent single-family unit selling prices in Village Park have averaged about \$133,200, lower than in Waipio and most other developments in the area. Village Park units are thus oriented to the lower-to-middle portions of the market. Buyers have tended to be young local families, usually first-time home purchasers.

Each homebuyer becomes a member of the Village Park Community Association, which is governed by a Board of Directors elected by the membership. The Board to date has directed much of its energy into efforts to forge a sense of community identity through social events and a periodic newsletter.

Waipahu residents interviewed for this report had mixed perceptions as to whether Village Park is currently a "part of Waipahu," as did the Village Park residents themselves. Village Park public school students are currently bussed to Crestview or Pearl City, and several informants said shopping is more convenient in Pearl City or Honolulu. Few Village Park residents are employed by Oahu Sugar Company.



II. POPULATION

This section examines current and projected future situations pertaining to the population level and composition in areas affected by the proposed Village Park Expansion. The first part of the section addresses present trends and levels, while the second major sub-section describes likely impacts related to the Expansion -- particularly impacts on growth percentage and on the demographic characteristics of affected areas.

The "Maui Communities" (other than Village Park itself) will be discussed in this section in conjunction with the larger neighbor community of Waipahu. However, planned future aspects of these communities must also be considered in analysis of regional and islandwide population levels.

A. Existing Situation

Tables 1-a to 1-c provide selected 1970 and 1980 U.S. Census data for the State of Hawaii, the City and County of Honolulu, the Ewa and Central Development Plan Areas, and Waipahu town (as defined by the Census Bureau, which means that Village Park and the Crestview/Waipio communities are not included).

For the two Development Plan Areas (Ewa and Central Oahu), total population figures may differ slightly from those available from the City and County's Department of General Planning. That is because the small pineapple plantation town of Kunia (1980 population of 829) is counted by the City as part of Central Oahu while it is here counted with Ewa. Kunia falls within Census Tract 86.01 (1980 population of 8,559), which straddles the two D.P. Areas. Other than Kunia and perhaps a few scattered houses, the remainder of this tract's population resides in the Central Oahu D.P. Area, and it proved infeasible based on available data resources to attempt to separate out the Kunia population in all demographic categories.

1. City and County of Honolulu (Oahu)

State researchers have estimated the City and County's population at 805,286 as of July 1, 1984 (Hawaii State Department of Planning and Economic Development, 1985b, Table 1).

As shown in Table 1-a, actual U.S. Census counts totalled 630,528 in 1970 and 762,565 in 1980. (Of the latter figure, 31 were military-related personnel on the Northwestern Hawaiian Islands, and all the remainder were Oahu residents.)

Oahu's share of the statewide population declined from 81 percent in 1970 to 79 percent in 1980, making the 1970's the first decade in the Twentieth Century to witness a slower growth rate on Oahu than the collective Neighbor Islands.

More than half of Oahu's 1980 population lived in the Primary Urban Center D.P. Area extending from Kahala to Pearl City.

TABLE 1-a
Local Population and Demographic Breakdown: State, County, and Possible Affected Areas, 1970 and 1980

Race	STATE OF HAWAII		CITY AND COUNTY OF HONOLULU		EWA D.P. AREA		CENTRAL OAHU D.P. AREA (CITY OF HONOLULU EXCLUDED)		TOTAL POPULATION	
	1970	1980	1970	1980	1970	1980	1970	1980	1970	1980
White	492,000	520,000	240,000	250,000	100,000	100,000	100,000	100,000	440,000	470,000
Black	10,000	15,000	5,000	8,000	2,000	3,000	2,000	3,000	7,000	11,000
Hispanic	10,000	15,000	5,000	8,000	2,000	3,000	2,000	3,000	7,000	11,000
Other	10,000	15,000	5,000	8,000	2,000	3,000	2,000	3,000	7,000	11,000
Median age	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
Less than 5 yr.	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
5-17 yr.	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
18-64 yr.	54.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0
65 yr. and over	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Place of birth										
Hawaii	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Other U.S.	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Foreign country	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Birthplace										
Same house	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Same island	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Different island	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Different state	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Different country	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Education										
College or yr.	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
High school only	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Some college	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
High school grad	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Some high school	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Less than high school	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000

About 13 percent lived in the Central Oahu D.P. Area, and five percent in the Ewa D.P. Area.

The following paragraphs discuss some of the highlights of Tables 1-a to 1-c in terms of Oahu's demographic composition:

Ethnicity, Age, Mobility, and Education. Oahu's two largest ethnic groups -- Caucasians and Japanese -- are found in the same proportions as they may be observed on a statewide basis. The population of both these groups has been growing more slowly than that of other groups, resulting in diminished percentages of overall population from 1970 to 1980. (It should be noted that Census ethnicity reporting procedures changed from 1970 to 1980, accounting for some of the apparent sharp decline in the Caucasian percentage seen in Table 1-a.) The three next largest groups -- Filipinos, Hawaiians/part-Hawaiians, and mixed or "Other" -- now comprise the fastest growing subpopulations.

Oahu's population has been growing older on average (median 28.1 years in 1980 vs. 24.6 years in 1970) but still remains younger than that of the statewide population.

About 55 percent of Oahu's population was Hawaii-born as of 1980; of the remainder, two-thirds were born elsewhere in the United States, and one-third were born in a foreign country. One-fourth of the population had been living elsewhere (primarily on the Mainland) five years previously.

As is the case statewide, Oahu's population has been growing much more educated on average. More than one out of five persons was a college graduate in 1980.

Family Composition and Income Levels. About 86 percent of Oahu's population lived in family-household situations in 1980. Of these, 18 percent were headed by a single parent (up from 13.5 percent in 1970), and 59.5 percent included children under 18 (down from 63.5 percent in 1970). The median family income was a little over \$27,000, and 7.5 percent of Oahu's families fell below the poverty line. This profile closely matches statewide figures, although Oahu had a slightly higher proportion of single persons in 1980.

Labor Force Characteristics. As is the case statewide, Oahu's labor force participation rate has been increasing. (Excluding military, it was 66 percent in 1980, vs. 63 percent in 1970). The 1980 Census unemployment figure was 4.6 percent, while unpublished estimates of the State Department of Labor and Industrial Relations (personal communication, R. Domingo, July 29, 1985) peg the average islandwide unemployment rate at 5.3 percent for 1984 and 5.1 percent for June 1985, the most recent month for which figures were available. Table 1-c shows a marked shift from 1970 to 1980 toward service-related occupations and industries (and away from construction, manufacturing, and agriculture), a trend which has contributed to concern on the part of

some economists that there is inadequate growth in better-paying jobs and that unemployment figures may not include outmigration due to poor job opportunities (C.F., Bank of Hawaii, 1985).

2. Region (Central Oahu and Ewa D.P. Areas)

The Ewa and Central Oahu Development Plan Areas were the fastest growing parts of Oahu during the 1970's. As shown in Table 1-a, total population increased by about 50 percent in each area, for average annualized growth rates of 4.17 percent in Ewa and 4.31 percent in Central Oahu.

According to the City Department of General Planning's unpublished estimates (personal communication, R. Miller, August 5, 1985), population as of June 30, 1984 was 36,046 for the Ewa Development Plan Area and 114,816 for Central Oahu. This implies a slight drop in Central Oahu's average annualized growth rate (to 3-27 percent for the 1980 - 1984 period) and an essential halt to new construction in Ewa during the first part of the 1980's. Both reflect Oahu's overall construction slowdown in the early 1980's.

In regard to demographic characteristics of the population, the following paragraphs point out highlights of Tables 1-a to 1-c:

Ethnicity, Age, Mobility, and Education. Compared to Oahu as a whole, Ewa's population was proportionately more Caucasian and Filipino, less Japanese and Chinese. Central Oahu's population was a somewhat closer match to the islandwide figures, although still with more Filipinos and also with proportionately fewer Hawaiians and Chinese.

Both areas grew older on average from 1970 to 1980, but both still feature a much higher proportion of children and a smaller proportion of senior citizens than Oahu as a whole. This is borne out by the higher proportion of Ewa and Central Oahu residents living in family situations (see following discussion on "Family Composition and Income Levels").

Compared to the island as a whole, Ewa and Central Oahu residents in 1980 were much more likely to have been Mainland-born and/or to have moved from the Mainland in the past five years. The influence of the military population is particularly visible in these figures.

Residents of Central Oahu and, particularly, Ewa were less likely than other Oahu residents to have graduated from college.

Family Composition and Income Levels. Residents of Central Oahu and, particularly, Ewa were more likely than other Oahu residents to be living in family-household situations, and these families were more likely to include children at home under age 18. These families were also more likely than other Oahu

families to have both a husband and wife present, although there was a substantial increase in the percentage of Central Oahu families (with or without children) to be headed by a single female. In both areas, median 1980 family income lagged behind the islandwide median.

Labor Force Characteristics The 1980 civilian labor force unemployment rate was substantially higher in Ewa (8.0 percent) and Central Oahu (6.0 percent) than it was islandwide (4.6 percent). Excluding military, the 1980 civilian labor force participation rate was lower in both Ewa (60.8 percent) and Central Oahu (64.5 percent) than islandwide (65.7 percent). Occupationally, residents of both areas were less likely than other Oahu residents to report being in managerial or professional jobs. They were more likely to report working in the agricultural (particularly in Central Oahu), construction, or manufacturing industries.

3. Waipahu and "Maui Communities"

In addition to the figures for Waipahu in Tables 1-a to 1-c, Census data for the combined page contains a more limited set of (along with similar data for Village Park as of 1980). It should be noted that the value of these data are somewhat limited because (1) the available data sources include a few rural houses outside either Crestview or Waipahu, and (2) the data do not permit separate analysis of Crestview and Waipahu, even though these are two very distinct and different communities. (Based on available information from the City's Department of General Planning about the number of occupied homes in Waipahu as of 1980, it would appear that 51.1 percent of the 3,872 "Crestview/Waipahu" residents analyzed in Table 2 were actually Waipahu residents; 46.3 percent, Crestview residents; and 2.6 percent, other area residents.)

The other two "Maui Communities" -- Waialeale and Waialua -- are not considered here, since no development has yet occurred in these areas.

Waipahu's population grew from 24,150 in 1970 to 29,139 in 1980 -- a 20.6 percent increase, closely matching the islandwide ten-year population increase of 20.9 percent. However, the Department of General Planning's estimated 1984 Waipahu population (personal communication, R. Miller, August 5, 1985) was just 29,300, implying no growth since 1980. (It should be noted that the common practice of expanding existing units in Waipahu rather than building new ones may well have contributed to an expanded population in a way which would be ignored by the City's methodology for population estimates.)

The combined Crestview/Waipahu 1980 population (again, predominantly Crestview at that time) was about 3,870, but the City planners' estimated 1984 combined population was 9,800 (including a few rural homes outside either community). Since the Crestview

Table 2

Selected 1980 Census Data for Village Park and Crestview/Waipahu

	VILLAGE PARK	CRESTVIEW/WAIPAHU
TOTAL POPULATION	418	3,872
ETHNICITY (selected)		
Caucasian	11.7	30.0
Japanese	34.4	27.2
Filipino	34.4	19.1
Hawaiian	8.3	9.1
AGE (selected)		
Less than 17 yr.	37.3	33.9
65 or more yr.	1.7	2.5
PLACE OF BIRTH (selected)		
Hawaii	80.7	65.3
Foreign country	3.9	15.3
RESIDENCE 5 YRS. PREVIOUS		
(selected) -- people aged 5+		
Same house	18.6	33.9
Same island	73.4	51.0
Different state	8.0	12.1
Different country	0.0	2.7
EDUCATION (selected) --		
people aged 25+		
0-8 years only	8.7	9.2
College, 4+ yr.	31.6	23.8
POPULATION IN FAMILIES	414	3,712
as percentage of total pop.	99.1%	95.9%
NUMBER OF FAMILIES	113	981
Head: Husband/Wife	92.9	93.6
With Own Children Under 18	74.3	64.5
Below Poverty Level	4.2	0.9
POTENTIAL CIVILIAN LABOR FORCE		
(aged 16+ -- excludes military)	771	2,622
In Civilian Labor Force	93.4	77.7
Civilian Unemployed	1.6	3.4

Notes: Some figures based on 15% sample and are estimates. Data may include a few rural homes outside labelled areas. Source: U.S. Bureau of the Census, 1980 Summary Tape Files.

population may be assumed to be still approximately what it was in 1980 -- about 1,800 -- this means that the rapidly expanding Waipahu Gentry area had become home to approximately 8,000 residents as of 1984.

Demographically, Tables 1-a to 1-c and Table 2 lead to the following conclusions:

Ethnicity, Age, Mobility, and Education. With the pattern of Filipino immigration and household expansion discussed in Section II, Waipahu's Filipino plurality grew from 33 percent of its 1970 population to 41 percent of its 1980 population. The Crestview/Waipio area was much less heavily Filipino (19 percent) in 1980 and much more Caucasian and Japanese (combined 57 percent, compared to Waipahu's combined 35 percent). The latter two groups' proportionate share of the Waipahu population dropped sharply from 1970 to 1980.

The Waipahu median age (24.5 years) was more than 3.5 years less than the Oahu median in 1980, largely due to the high proportion of children in the population. In both Waipahu and Crestview/Waipio, 34 percent of the population consisted of children under 18, compared to 28 percent islandwide.

Reflecting the pattern of Filipino immigration, both Waipahu and Crestview/Waipio residents were much more likely to have been born in a foreign country. (However, Crestview/Waipio residents were unlikely to have recently moved from a foreign country.) And reflecting the proportionately low Caucasian population, residents of these communities were less likely to have been mainland-born and more likely to have been Hawaii-born. Crestview/Waipio and, particularly, Waipahu residents were also considerably less likely to have been living in another state five years previously.

Waipahu residents on average had much less formal education than other Oahu residents, but Crestview/Waipio residents' educational levels appeared slightly higher than islandwide averages as of 1980.

Family Composition and Income. Waipahu's family composition and income profiles differ sharply from those of Crestview/Waipio, Central Oahu as a whole, or the island in general. Proportionately more of Waipahu's population is in families, but proportionately fewer of these families include children under 18. Given the large percentage of Waipahu's population under 18, this suggests that Waipahu's families tend to divide into older "empty-nest" couples vs. younger families with many children. Interviews with community informants lead to the same conclusion, and also to reports that the older families tend to be Oriental and the younger, larger families tend to be Filipino or Polynesian.

Waipahu has a particularly high proportion of families both headed by females only and with children under 18 at home -- 14.4

percent (vs. 7.7 percent in Central Oahu as a whole and 9.9 percent islandwide). A similar 14.4 percent of Waipahu's families fell below the poverty level in 1980, greatly increased from the 1970 mark of 7.5 percent. According to the U.S. Census Bureau's Neighborhood Statistics Program (1983) analysis of data for Oahu's 33 Neighborhood Board areas, the Waipahu Neighborhood Board area (including Village Park and Crestview/Waipio) had the third highest mean public assistance income figure on Oahu -- \$4,010. And according to a researcher for the State Department of Social Services and Housing (personal communication, M. Yano, July 25, 1985), most State welfare payments in Waipahu are under the Aid to Families with Dependent Children program. This suggests that Waipahu's family poverty problems are closely linked with the number of fatherless families there.

(Income figures for Crestview/Waipio have not been reproduced in Table 2 because it would be particularly misleading to present combined income figures for these two areas. Given the quality of the homes and the impressions of community informants, however, it is safe to speculate that Waipio-Gentry residents probably have the highest average incomes in the Waipahu area.)

Labor Force Characteristics. When military population is disregarded, Waipahu had a civilian labor force participation rate slightly lower (64.5 percent) than the islandwide rate (65.7 percent), while Crestview/Waipio had a much higher rate (77.7 percent). Also illustrating an employment disparity between Waipahu and its neighboring mauka communities were their respective unemployment rates -- 6.4 percent for Waipahu (higher than the islandwide rate) and 3.4 percent for Crestview/Waipio (lower than the islandwide average of 4.6 percent). Waipahu's occupation and industry worker profile was heavily blue-collar, generally matching the Ewa D.P. Area profile more closely than that of Central Oahu as a whole.

Place of Work. Unpublished 1980 Census print-outs available at the Hawaii State Department of Transportation (Urban Transportation Planning Package, 1982) list 12,373 Waipahu workers (including military and self-employed) employed on the island of Oahu. Employment destinations for these workers were as follows:

Honolulu area	52.0%
Pearl Harbor/Aiea	16.5
Waipahu	18.5
Central Oahu	5.8
Ewa	5.6
Waianae	0.9
Windward	0.7
North Shore	0.0

4. Village Park

As of early August 1985, 836 Village Park units were occupied, according to the property management firm for the project (personal communication, G. Heinecke, Chaney Brooks and Company, August 6, 1985).

As of the 1980 Census, the average number of persons per household in Village Park was 3.60. Assuming this average still holds for 1985, the estimated Village Park population at this time would be 3,010 persons.

Table 2 on the preceding pages provides selected 1980 Census data for Village Park as well as Crestview/Waipio. It should be noted that the population at that time was only 418 persons in 116 units, or 14 percent of the current figures. Thus, these 1980 percentages may be even more outdated than those for other study area communities.

Table 3 on the following pages provides selected data (most of which are not strictly compatible with Census categories) on recent Village Park households (i.e., in the period from March 1984 through March 1985). This information differs from a profile of all residents not only in time frame but also in that (1) only buyers are described, not entire families or households; (2) for rental units (13 percent of total 1980 units, but just six percent in 1985, according to Chaney Brooks and Co.), the absentee owners rather than the tenants would be described; (3) data apply to original purchasers, and Chaney Brooks and Co. reports an average four to five units are resold each month (personal communication, G. Heinecke, August 7, 1985).

Thus, it is difficult to describe with confidence the current demographic features of the Village Park population. However, given the available evidence the following comments may be made:

Ethnicity, Age, Mobility, and Education: Ethnically, the early (1980) Village Park population more closely matched the Waipahu profile (Table 1-a) than the Crestview/Waipio profile (Table 2). The dominant ethnic groups at that time were Japanese and Filipino (34.4 percent each), with smaller proportions of Caucasians (11.7 percent) and Hawaiians or part-Hawaiians (8.3 percent).

More like Crestview/Waipio, the 1980 Village Park population had a high proportion of children (37 percent -- see Table 2). Nearly two-thirds of recent buyers have been under 35 years of age, and the great majority have children (Table 3).

Village Park residents are extremely "local" -- i.e., very high proportions are Hawaii-born and/or were living on the Islands five years previously as of 1980. More than 80 percent of recent buyers had come from either the Honolulu or the Waipahu-Pearl City area.

Table 3

Recent Village Park Buyer Profile as of May 1985

AGE	Under 26	94	RESIDENCE AT TIME OF PURCHASE	Rented	784
	26-34	55		Owned	12
	35-45	27		Other (military, w/ parents, etc.)	10
	45-55	9			
	Over 55	0			
FAMILY SIZE			OCCUPATION	Professional	104
1 Person	04			Managerial	18
2 Persons	24			Trades	20
3 Persons	22			Clerical/	24
4 Persons	42			Secretarial	22
5 or More persons	12			Military	6
				Other	6
NUMBER FAMILY INCOMES			PLACE OF WORK	Honolulu	504
One	104			Airport	13
Two or more	90			Pearl City	17
				Waipahu	7
PREVIOUS RESIDENCE				Central Oahu	10
Honolulu	404			Windward	3
Airport	7			Waianae Coast	0
Pearl City	21			Ewa	0
Waipahu	20				
Central Oahu	10		REASON FOR BUYING IN VILLAGE PARK	Price	404
Windward	2			Location	32
Waianae Coast	0			Design	13
				Planned Community	12
				Amenities	2
PREVIOUS HOUSING					
First-time home buyers	624				
Formerly owned	38				

SOURCE: Interview with Village Park Sales Manager, Mr. George Nicholka, conducted May 15, 1985 for market analysis.

BASE: 145 first buyers of new units sold in year prior to interview.

The 1980 Village Park population featured a relatively high proportion (32 percent) of college-educated people. This is probably due to the high proportion of young adults, who tend to be better educated than older adults.

Family Composition and Income Levels: As previously noted, recent homebuyer data suggest most Village Park households consist of young families with children. In the 1980 Census, almost 100 percent of the early Village Park residents lived in family situations, and more than nine out of ten were conventional households with two spouses. Three-quarters of the families had children under 18 living at home.

The 1980 mean family income in Village Park was \$31,724 -- substantially higher than that for Waipahu, Central Oahu in general, or even the island as a whole (Table 1-b). However, the homebuyer profile of Table 2 shows that this "high" income has generally been based on two or more family incomes for the great majority of Village Park residents. Therefore, Village Park residents would not necessarily be accorded a "higher" socio-economic status.

Labor Force Characteristics: The recent homebuyer profile (Table 3) shows that two-thirds were employed in the military, trades, or clerical/secretarial positions. Census data for the early (1980) residential population (not included in Table 2) show more than one-half the employed civilian labor force engaged in technical, sales, and administrative occupations, and one-quarter in managerial/professional occupations. Industry figures suggest relatively high concentrations in public administration, construction, and the financial/insurance/real estate component. The overall picture is of a skilled blue-collar and middle-class labor force.

Place of Work: The recent homebuyer profile suggests that about half the Village Park household heads travel to Honolulu (past the Airport area) to work, while most of the rest are employed in the area from the Airport through Central Oahu. It is probable that secondary household wage earners (e.g., spouses) are even more likely to be employed close to Village Park itself.

5. Homebuyers: Village Park vs. Other Central Oahu Communities

Other than the sort of Census data given in Table 2 -- with all its previously discussed shortcomings -- no publicly available information exists to provide a contrast between recent purchasers of homes in Village Park and those in the other major Central Oahu developments now selling units (e.g., Waipio and Milliani). Data sources such as market surveys and sales records are confidential.

However, in the opinion of the developer, Village Park homebuyers represent a somewhat different market from purchasers

at Waipio or Milliani. Village Park homebuyers are more likely to be young family people with small children; to be Hawaii-born, often with roots in the Waipahu area; to be first-time home purchasers; and to have somewhat lower incomes.

Sales prices are higher on average in Milliani and Waipio than in Village Park. And it may be noted in Table 3 that the single most important reason for buying in Village Park has been "Price."

B. Impacts

Population impacts will be addressed in the reverse order from the previous discussion of "present situation" -- i.e., the Central Oahu and other "Maui Communities" second; islandwide last.

1. Village Park

The existing Village Park community is tentatively scheduled to be built out by the end of 1988, at which time it will consist of approximately 1,800 townhouse and (primarily) single-family units.

Over time, the average Village Park household size may be expected to decline from its 1980 figure of 3.6 persons per unit (vs. 3.3 islandwide). This expectation would be based both upon islandwide trends and upon actual shrinkage in family size as children grow up and leave, starting in the 1990's. The market analysis for the proposed new development (Brooks and Zapotocky, 1985, p. 45) projects that average household size for Oahu will decline to 2.7 persons per unit by the beginning of the 21st Century. If the Village Park average household size remains 0.3 persons greater than the islandwide average, as it was in 1980, then it would be 3.0 persons per unit around the year 2005, resulting in an estimated final Village Park population of 5,600 people.

Brooks and Zapotocky (ibid., p. 2) estimate the Expansion population would be approximately 10,000 persons, implying an average 2.87 persons per unit for all 3,480 units.

Thus, the major population impact for the Village Park area would be a 279 percent increase in size over a seven-year period. The current Village Park area (including the units yet to be occupied) would comprise 36 percent of the total for the two areas combined:

Post-1994 Population	
Current Village Park:	5,600 persons
Proposed New Area:	10,000 persons
-----	-----
TOTAL:	15,600 persons

The desirability of such population growth for current Village Park residents is a matter for determination during the public hearing process. However, as will be discussed further in Section V, preliminary Village Park community contacts have yielded little in the way of negative concerns but several definite perceived benefits. There are important amenities which residents have been denied thus far due to an inadequate population base -- e.g. development of commercial facilities and a school -- and residents look forward to obtaining these. Community pride and identity could also be strengthened through the existence of a broader-based community.

Demographically, residents of the Expansion area would be, on average, slightly more affluent than most current residents at the time of their original purchase. However, this conclusion could be tempered by (1) increases in current Village Park residents' incomes due both to inflation and increased earning power as resident age; (2) increases in overall average income of current Village Park residents due to appreciation of real estate values and consequent higher incomes among resale purchasers; and (3) the inclusion of government-sponsored low-income rentals in the Expansion project, which would further suggest a greater income spread in the proposed Expansion as compared to the current Village Park area.

Otherwise, single-family home purchasers would be much like present Village Park residents -- young local and/or military families with several incomes making an initial home purchase. Purchasers of townhouse or "starter" units would consist relatively more of older persons and/or childless households. On Oahu, such households are a bit more likely to consist of persons of Japanese or Caucasian background.

These differences are expected to be matters of slight degree. Overall, purchasers of Expansion area units would be basically similar to current Village Park residents -- younger families making first-time home purchases toward the lower/middle end of the market. They would continue to be primarily of "local" origin, many with roots in the Waipahu and Central Oahu area.

2. Waipahu and "Mauka Communities"

(NOTE: Some of the analyses of population figures both for this discussion of the Waipahu area and for the following discussion of the region -- as well as similar analyses of housing unit numbers in Section III -- were originally conducted in August 1985 based on projects then proposed for Development Plan amendments. In the subsequent City regulatory process, some of these projects received initial denials, followed by complete or partial reinstatements. As of this writing, final City action on all these Ewa and Central Oahu projects is still pending.)

(Because of the current indeterminate status of the proposed projects, the population and housing analyses have been left unchanged in this revised report.)

Table 4

Existing and Projected Future Populations: Waipahu and "Mauka Communities" Other Than Village Park Expansion

Existing or Approved	Existing (1984)	Calculated Additional Capacity	Potential Total Pop. (Year 2005)
Waipahu	29,300	2,200	31,500
Current Village Park	2,400	3,200*	5,600*
Crestview/Waipio	9,800	3,200	13,000
Waikale	0	8,100	8,100
(Subtotal:)	41,500	16,700*	58,200*
Additional Proposal			
Waiaua	0	31,000	10,300**
(TOTAL:)	41,500	47,700*	68,500**

* Current Village Park build-out population figure given here is that estimated in the preceding pages. City estimate was only 4,900. Thus, City subtotal and total population figures would also be 700 less than figures above.

** Year 2005 figures for Waiaua assume one-third of total potential population by that year.

Source: Unpublished data, City Department of General Planning Land Use Files, plus assumptions by Community Resources.

Table 4 provides City Department of General Planning population data for Waipahu and all existing, planned, or proposed communities immediately mauka of the freeway (excluding the current Expansion proposal). According to these figures, build-out of approved urban-designated land in Waipahu and currently-approved "Mauka Communities" (including the present Village Park development) would lead to a population of 58,200 -- presumably by or about the year 2005. The Expansion would increase the Waipahu-area population to 68,200. This would be equivalent to an average annualized growth rate for the 21-year period from 1984 to 2005 of just 1.62 percent without the Expansion or 2.39 percent with the Expansion. By contrast, the 20-year average annualized growth rate from 1980 to 1980 for the Waipahu area (including the "Mauka Communities") was 7.18 percent, and the ten-year average annualized rate from 1970 to 1980 was approximately 3.10 percent.

If the proposed Waiawa Ridge development is approved, it would add substantially to the future population (31,000, for a total of 79,200). However, it should be noted that it is actually highly unlikely that this project would be built out by the year 2005. In fact, the estimated timeframe for project completion is currently 25 to 30 years, according to a consultant for the developer (personal communication, William E. Wanket, August 14, 1985). This compares to about ten years for Village Park. For the sake of illustration, Table 4 assumes that one-third the potential Waiawa population might be attained by the year 2005, for a total Waipahu-area population (without the Expansion) of 68,500 that year. With the Expansion, it would be 78,500. These figures would boost the average annualized Waipahu-area population growth rate to 2.42 percent without the Expansion and 3.08 percent with the Expansion -- or still slightly under the actual rate for the 1970's.

Other major implications of Table 4 include:

- o By the turn of the century, the three currently approved "Mauka Communities" will contain almost as much population as Waipahu itself. The approval of Waiawa and/or Village Park Expansion will result in more population above the freeway than below.
- o The addition of 10,000 people in the Village Park Expansion would represent a 17 percent increase over the population of 58,200 which would be projected for the year 2005 without Waiawa or the Expansion.
- o Including the proposed Waiawa population with assumptions for the year 2005, the 10,000 Village Park Expansion residents would represent a 14.6 percent increase over the figure of 68,500 expected without the Expansion.

It should be noted that the population estimates are based on the City's method of calculating existing or potential units and multiplying by given assumed household sizes for various types of units. A major contention of the Brooks and Zapotocky Village Park market analysis is that the City's assumed household

size averages should be lowered for the future. If this contention proves true, the "calculated additional capacity" figures in Table 4 would be top high.

Demographically, the proposed Village Park Expansion population would be more similar to that of the other "Mauka Communities" than of Waipahu. It is anticipated that Expansion sales prices would remain somewhat below those of the other areas, though, and so the overall Village Park area would probably continue to be a younger, more family-oriented, comparatively more working-class community.

3. Region (Central Oahu and Ewa D.P. Areas)

Tables 5 - 7 provide City Department of General Planning population data for existing, committed, and proposed residential communities in the two Development Plan Areas. Again, these are calculated, in part, according to a methodology about which questions have been raised in the Brooks and Zapotocky market report. And, again, certain assumptions have been made about the extent to which proposed additional projects would actually be populated by the year 2005.

Major implications of these tables include the following:

- o In Central Oahu, existing or approved projects alone would theoretically produce a population in the year 2005 of 142,400. Brooks and Zapotocky (1985) argue that the actual population for current or approved developments would be less than this because true average household size will not meet the City's assumptions.
- o However, assuming the 142,400 population figure is correct, the proposed Village Park Expansion with its 10,000 residents would represent a 7.0 percent increase over the year 2005 population as based on current approvals and excluding the Expansion population.
- o For Central Oahu and Ewa combined, the City's projected year 2005 population (existing and current approvals only) is 225,700. The proposed additional 10,000 people would represent a 4.4 percent increase over that number.
- o If the other three Central Oahu proposed projects (Halaia, Milliani Mauka, and Milliani Makai) are all approved, and if they develop to the level assumed in Table 5, then the 10,000-person Village Park Expansion would represent a 5.7 percent increase over the assumed cumulative population of 174,700 without the Expansion.
- o For the two areas combined, if all proposed projects are approved and develop to the extent assumed in Tables 5 and 6, the Village Park Expansion would result in a 3.6 percent increase over the assumed cumulative population of 279,700 without the Expansion.

Table 5

Existing and Projected Future Populations:
Eva Development Plan Area

Existing or Approved	Existing (1984)	Calculated Additional Capacity	Potential Total Pop. (Year 2005)
Eva Beach	14,400	200	14,600
Eva Marine	0	13,000	13,000
Eva Village	0	10,000	10,000
Makakilo	8,200	10,200	18,400
Makakilo Expansion	0	2,400	2,400
West Beach	0	10,400	10,400
Remainder	13,400	1,100	14,500
(Subtotal:)	36,000	47,300	83,300
Additional Proposals			
West Beach Expansion	0	13,300	13,300**
Eva City Center	0	91,400	8,400**
(Subtotal:)	0	104,700	21,700**
(TOTAL:)	36,000	152,000*	105,000**

** Year 2005 figures assume 100 percent of potential total West Beach Expansion population and about nine percent of total "Eva City Center" population by that year. The latter assumption is based on a conservative scenario by a Campbell Estate planner (personal communication, Charles Ehrhorn, August 16, 1985) in which the only residential portions of the "City Center" to be built out would be 80 percent of the units in the eastern portion, between Eva Villages and Eva Marina.

Sources: Unpublished data, City Department of General Planning Land Use Files, plus assumptions by Community Resources.

Table 2

Existing and Projected Future Populations: Central Oahu Development Plan Area (Excluding Village Park Expansion)

Existing or Approved	Existing (1984)	Calculated Additional Capacity	Potential Total Pop. (Year 2005)
Waipahu/Mauka Communities* (Table 4)	41,500	16,700*	58,200*
Milliani	23,700	5,900	29,600
Melemanu Woodlands	0	2,200	2,200
Whitmore	3,500	900	4,400
Whitmore Village Expansion	0	1,200	1,200
Wahiawa	17,200	700	17,900
Remainder	28,900	0	28,900
(Subtotal:)	114,800	27,600*	142,400*
Additional Proposals			
Wahiawa (Table 4)	0	31,000	10,300**
Milliani Mauka Expansion	0	20,700	20,700**
Milliani Makai Expansion	0	1,300	1,300**
(Subtotal:)	0	53,000	32,300**
(TOTAL:)	114,800	80,600*	174,700**

* See first asterisked footnote, Table 4.

** Year 2005 figures assume one-third of total Wahiawa population and 100 percent of total Milliani population by that year, based on market analysis by Kusco (1984).

Sources: Unpublished data, City Department of General Planning Land Use Files, plus assumptions by Community Resources.

Table 7

Existing and Projected Future Populations: Combined Central Oahu and Rwa Development Plan Areas			
	Existing (1984)	Calculated Additional Capacity	Potential Total Pop. (Year 2005)
Existing or Approved			
(Cumulative This Category -- Tables 5 and 6)	150,800	74,900*	225,700*
Additional Proposals			
(Cumulative This Category -- Tables 5 and 6)	0	157,700	54,000**
(TOTAL:)	150,800	232,600*	279,700**

* See first asterisked footnote, Table 4.

** See double-asterisked footnotes, Tables 5 and 6.

Source: Unpublished data, City Department of General Planning Land Use Files, plus assumptions by Community Resources.

4. Oahu

The Hawaii State Department of Planning and Economic Development (1984) projects year 2005 Oahu population as 954,500 persons. Given the State's estimated 1984 Oahu population of 805,300, this suggests a projected absolute growth of 149,200 net additional population over 21 years. The estimated Village Park Expansion population of 10,000 persons would account for 6.7 percent of this anticipated islandwide growth. On a total population basis, the Expansion population would represent 1.1 percent of the islandwide population of 954,500.

It would also, of course, result in the relocation to Central Oahu of population which might otherwise find housing elsewhere on the island as of 2005. The maximum relocation figures would be the full 10,000 population, although it is actually likely that many prospective Village Park buyers would choose to purchase in another Central Oahu location (e.g., Waiala) if a supply were available.

From the figures and assumptions of Table 5, the following percentages may be calculated to determine the maximum impact of the Village Park Expansion on the proportion of future additional population which would be located in Central Oahu as of 2005:

	ADDITIONAL population as percent of est. islandwide (149,200)	TOTAL population as percent of est. total pop. islandwide (954,500)
Existing/Approved Projects Only	18.5%	14.9%
Existing/Approved PLUS Village Park Expansion	25.2%	16.0%
Existing/Approved Plus Additional Proposals (EXCLUDING Expansion)	40.1%	18.3%
Existing/Approved Plus Additional Proposals (INCLUDING Expansion)	46.8%	19.4%

Thus, if Village Park Expansion and the other Central Oahu development proposals (Waiala and Mililani) are denied, the figures indicate that 18.5 percent of the projected new Oahu population would be located in Central Oahu, raising Central Oahu's share of the total islandwide population to 14.9 percent. If all three Central Oahu proposals are approved and develop at the rate assumed in Table 5, 46.8 percent of the new population would be directed to Central Oahu. However, the increase in Central Oahu's share of total Oahu population would be to just 19.4 percent.

III. HOUSING

A. Existing Situation

Table 8 provides selected 1970 and 1980 U.S. Census housing data for the State of Hawaii, the City and County, the two Development Plan Areas, and the Waipahu community below the freeway.

1. Oahu

While Oahu's population increased 20.9 percent between 1970 and 1980, its inventory of total year-round housing units increased 44.1 percent. However, Census definitions of year-round units include resort condominiums, and this largely accounts for the apparent increase in the total vacancy rate from 1970 to 1980.

Subsequent estimates of housing inventory (Hawaii State Department of Planning and Economic Development, 1985a, p. 625) reflect the high interest rates and lowered housing construction which occurred during the early 1980's. From 1980 to 1984, the net growth in housing units average 1.1 percent per year. In the preceding four-year period, it had been 2.0 percent per year, and in the four-year period before that (1972 to 1976), it had been 5.1 percent. (However, the earlier figures are partially due to a boom in condominium units, many not intended for residential occupancy.)

The ownership rate increased on Oahu during the 1970's, although at 49.9 percent it lagged behind the rate for the Neighbor Islands and the country as a whole. The proportion of substandard units decreased, but crowding (as measured by the incidence of units with 1.51 or more persons per room) remains a problem. Since average household size decreased from 1970, this suggests a greater spread in the distribution of number of persons per unit, with an increase in the proportion of units occupied by only one or two persons.

Rental increases during the 1970's essentially kept pace with inflation, although recent reports from realtors suggest a sharper rise during the 1980's. A more dramatic 1970 - 1980 difference can be observed in Table 8 for the median value of owner-occupied units, which increased 240 percent. Oahu housing prices are significantly higher than those on the Neighbor Islands.

More recently, the average selling price of single-family homes on Oahu during 1983 was \$189,000, for condominium units, \$114,000 (Hawaii State Department of Planning and Economic Development, 1985a, p. 610).

TABLE 8
Housing Stock and Characteristics: State, County, and Possible Affected Areas, 1970 and 1980

Category	STATE OF HAWAII		CITY AND COUNTY OF HONOLULU		EIM D.P. AREA (C.I. D-46, U2)		CENTRAL OAHU D.P. AREA (C.I. B7, U1-45, U5)		DEVELOPMENT PLAN AREA (DETERMINED PLACE)	
	1970	1980	1970	1980	1970	1980	1970	1980	1970	1980
TOTAL YEAR-ROUND HOUSING UNITS	319,892	332,213	124,107	200,844	9,723	15,883	27,029	5,537	7,118	5,537
VACANT (TOTAL)	5.9%	11.5%	8.4%	8.2%	4.2%	3.4%	2.1%	2.5%	2.5%	2.5%
VACANT FOR SALE	2.5%	4.9%	0.6%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
VACANT FOR RENT	3.4%	6.6%	7.8%	7.7%	3.7%	2.9%	1.6%	2.0%	2.0%	2.0%
IDEAL YEAR-ROUND OCCUPIED UNITS	203,088	294,022	164,743	230,214	5,484	9,139	15,263	2,342	4,939	2,342
OWNER-OCCUPIED	48.9%	51.7%	49.9%	49.9%	54.2%	54.2%	54.2%	49.4%	49.4%	49.4%
RENTER-OCCUPIED	51.1%	48.3%	50.1%	50.1%	45.8%	45.8%	45.8%	50.6%	50.6%	50.6%
SELECTED CONDITIONS										
1.51 OR MORE PERSONS/ROOM	5.6%	3.2%	5.2%	1.5%	3.0%	0.6%	1.2%	4.8%	1.2%	1.2%
RENTAL INCREASE	7.8	7.0	6.9	7.4	6.9	8.5	7.8	6.8	10.4	12.8
ERRORS FOR OVERHEAD	2.7%	3.2%	3.0%	3.2%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
ERRORS FOR OVERHEAD	3.2%	3.2%	3.0%	3.2%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
DEVELOPMENT PLAN AREA	4121	4272	4130	4279	4120	4270	4120	4120	4120	4120
IDEAL YEAR-ROUND	4220	4270	4120	4270	4120	4270	4120	4120	4120	4120
OWNER-OCCUPIED	4120	4270	4120	4270	4120	4270	4120	4120	4120	4120
RENTER-OCCUPIED	4120	4270	4120	4270	4120	4270	4120	4120	4120	4120
DEVELOPMENT PLAN AREA	4220	4270	4120	4270	4120	4270	4120	4120	4120	4120
OWNER-OCCUPIED	4220	4270	4120	4270	4120	4270	4120	4120	4120	4120
RENTER-OCCUPIED	4220	4270	4120	4270	4120	4270	4120	4120	4120	4120

NOTE: For 1970, median values are for non-congregate housing units. The figures for median value and median value under the category of the census tracts comprising these areas. The figures for median value and median value under the category of the census tracts comprising these areas. The figures for median value and median value under the category of the census tracts comprising these areas.

2. Region (Central Oahu and Ewa D.P. Areas)

Both Development Plan Areas were sites of major housing construction efforts during the 1970's. In Central Oahu, such additions to the housing stock inventory have been continuing in the 1980's with ongoing build-out of communities such as Village Park, Waipio, and Mililani. In Ewa, however, there has been little additional net gain to the housing inventory during the past five years, although preliminary approvals have recently been obtained for a number of major new projects (see Table 6, preceding section).

While Census vacancy figures are unreliable, the numbers in Table 8 suggest that the housing situation generally became tighter from 1970 to 1980 in both areas.

With most of the new housing developments aimed at the owner-occupant rather than the rental market, homeownership rates increased dramatically in both areas during the 1970's. They had been below the islandwide average in 1970 but were slightly greater than the islandwide average in 1980.

The incidence of substandard units dropped as new units comprised an increased proportion of the total, but pockets of crowding remained in the region, as was the case islandwide. The average household size in both areas (3.86 in Central Oahu, 3.96 in Ewa) not only exceeded the islandwide average (3.31 persons per unit), but the ten-year decline in average household size was also less in both areas than it was islandwide. For Oahu as a whole, the average household size declined 14 percent from 1970 to 1980; in Central Oahu, the decline was only 11 percent, and, in Ewa, only ten percent.

Median housing cost data can only be provided for these areas in terms of ranges. The figures in Table 8 suggest that 1980 rentals were fairly consistent with islandwide costs, but median value of owner-occupied units were generally lower than the islandwide median. Since the region's housing stock is relatively young, this would support the notion that developers in the study area aimed for the "middle" and "lower" ends of the ownership market during the 1970's.

3. Waipahu and "Mauka Communities"

The Census definition of "Waipahu" for Table 8 is limited to the town below the freeway. Additional selected 1980 Census data for the existing "Mauka Communities" above the freeway (Village Park and Crestview/Waipio combined) are given in Table 9, although discussion of Village Park is reserved for the next subsection.

The vacancy figures in Table 8 suggest a tighter housing availability situation in Waipahu than was the case islandwide in 1980. Other 1980 Census data show that housing types in Waipahu

Table 2

Selected 1980 Housing Data for Village Park and Crestview/Waipio

	VILLAGE PARK	CRESTVIEW/WAIPIO
TOTAL OCCUPIED HOUSING UNITS	116	1,067
PERCENT		
owner-occupied	87.1%	91.0%
renter-occupied	12.9%	9.0%
PERSONS PER HOUSEHOLD (based on occupied units)	3.60	3.63
MEDIAN CASH RENT (rental-occupied)	\$500+	\$265 to \$466
MEDIAN VALUE (owner-occupied, non-condominium units)	\$125,300	\$120,400 to \$189,900

SOURCE: U.S. Bureau of the Census, 1980 Summary Tape Files 1-A.

were primarily single-family (in greater proportion than island-wide) but also contained a large number of multi-family units:

	WAIPAHU	OAHU
single-unit, detached	51.9	42.2
single-unit, attached	2.8	4.9
two-unit structures	4.9	4.9
three or more units	40.4	48.0

Waipahu homeownership rates remained essentially static during the 1970's at slightly less than 50 percent, while the 1980 rate for the Crestview/Waipio areas was at 91 percent.

Perhaps the most striking aspect of Waipahu's housing situation relates to crowding. Not only was Waipahu's average household size in 1980 (4.20) greatly in excess of the norms for either Oahu or the overall Central Oahu D.P. Area, but the ten-year decline in household size was also much less than for either Oahu or the entire Central Oahu D.P. Area. The proportion of units with severe crowding (1.51 or more persons per room) was particularly high -- 13.8 percent -- about double the figure for Oahu or the overall Central Oahu D.P. Area.

Because of the relatively high proportion of families with children in Waipio/Crestview (Table 2, preceding section), the average household size there was higher than the 1980 islandwide norm. However, at 3.63 persons per unit, it was still lower than the 3.86 figure for the overall Central Oahu D.P. Area.

Waipahu housing values in 1980 were only about 86 percent of the islandwide norm, based on median value of owner-occupied units. Mauka of the highway, however, values have been considerably higher in the Crestview and, particularly, Waipio areas. Rentals were slightly higher in Waipahu than islandwide in 1980.

4. Village Park

Although the 1980 Census data of Table 9 are based on only the first 116 occupied units in Village Park, they tend to confirm the general picture of a low-to-moderate cost housing development settled largely by owner-occupants. The median value of owner-occupied units at that time was just \$125,300 -- higher than for Waipahu but actually lower than the islandwide median.

The 1980 figures suggest about 13 percent of the units were being rented, although more recent estimates by the property manager (personal communication, G. Heinecke, Chaney Brooks and Company, August 6, 1985) place the current figure at less than seven percent. Rental values at Village Park were high as of 1980, reflecting the newness of the development.

Average household size in 1980 was 3.60, about the same as for the other "Mauka Communities" of Crestview/Waipio. The profile of recent Village Park buyers (Table 3, preceding section) showed 100 percent of buyers having a family size of at least two persons; 76 percent with three or more persons; and 54 percent with four or more persons.

B. Impacts

Impacts are again most usefully discussed in reverse order, beginning with Village Park first. Regional and islandwide impacts will be considered together.

1. Village Park

Table 10 provides a summary of unit numbers and types for the current Village Park development (upon build-out), the Expansion, and the combined totals.

The major impact of the proposal would be to approximately triple the total number of units in the combined areas.

A second impact would involve shifts in the composition of unit types -- i.e., significantly greater variety. The overall proportion of "traditional" detached single-family homes would drop. Some relatively more expensive housing types would be introduced for the first time, balanced by less expensive "starter" units.

The low-density apartments in the Expansion area would be the government-built and operated low-income rental project. These would be the first units of this type in the Village Park area, although there are a number of such projects in Waipahu. (Additionally, Village Park's existing 120 townhouse units were sold at below-market prices to homebuyers meeting government income guidelines.)

Other than these units, all Expansion housing would be sold in fee simple, as contrasted to the leasehold character of the current Village Park area. A probable impact of the Expansion would be stimulation of more interest among current Village Park residents in the lease-fee conversion process. (In fact, as of November 1985, the current Village Park community association's Board of Directors has already begun arranging homeowner meetings to initiate these proceedings, which had been tried once before with little success.)

A final impact for existing Village Park housing owners -- assuming successful conversion of leasehold to fee-simple ownership -- should be an overall increase in value, due to the golf course and other amenities expected to accompany the Expansion. Current Village Park residents with homes near the proposed low-density apartment project have expressed concern about possible negative impacts on their property values, and the developer has pledged to take a strong negotiating stance with

the City to assure both adequate design controls and tight management of the rental project in order to protect nearby property values.

Table 10
Composition of Planned and Proposed Village Park Housing Units

Unit Type	CURRENT VILLAGE PARK		EXPANSION AREA		TOTAL
	NO.	%	NO.	%	NO.
Low Density Apartment	0	0%	480	14%	480
Townhouse/Attached	120	7%	240	7%	360
Single-Family ("Starter")	0	0%	990	28%	990
Single-Family ("Traditional")*	1,680	93%	1,055	30%	2,735
Single-Family ("Upgrade")	0	0%	445	13%	445
Single-Family ("Prime")	0	0%	270	8%	270
TOTAL	1,800		3,480		5,280

* "Traditional" refers to single-family housing on individual lots as typified by most existing Village Park development.

Sources: Waitec Development Co.; Brooks and Zapotocky (1985, p. 8 ff.)

2. Waipahu and "Maui Communities"

One of the project's more significant Waipahu-area housing impacts will be the assurance of a continued supply of new housing inventory during the late 1980's. Given the ongoing current Village Park development and the mobilization of an existing development, construction, and sales team, the proposed expansion may be expected to proceed without delay. Meanwhile, construction of all housing units in the Waipahu development is expected to finish by 1987, according to a Gentry representative (personal communication, Gary Dol, August 15, 1985). Construction at Waialeale or Waialea could theoretically begin around this time, but the practical difficulties involved in obtaining final permits, mobilizing a construction team, and initiating major infrastructure improvements could easily delay sales until the early 1990's. The Village Park Expansion project would continue to provide new housing opportunities in the Waipahu area during this "window" of time.

Table 11 provides approximate numbers of housing units for the various existing, planned, or proposed Waipahu-area developments. Excluding the Waialea proposal, there will be approximately 16,800 units in the area by the turn of the century. The Village Park Expansion proposal thus represents a 20 percent increase in the housing supply planned for the Waipahu area by the year 2000 or so.

The proposed Waialea development would add approximately 7,000 more units (although most would not be developed until long after the year 2000). This would bring the "ultimate" Waipahu-area total -- without the Village Park Expansion -- to 23,800 sometime in the 21st Century. If the Village Park Expansion is permitted, this "ultimate" total would increase by 14 percent.

Other Waipahu-area housing impacts of the project would include:

- o higher homeownership rate in the area;
- o less crowding, as existing residents living in extended family situations "undouble" to take advantage of greater choices within the study area;
- o slight increase in overall proportion of single-family units;
- o values of the statistical whole will increase due to higher-priced Expansion units.

Table II

Estimated Total Waipahu-Area Housing Supply Without
Village Park Expansion Project

Eventual Number
of Housing Units
(rounded)

Existing/Approved Communities

Waipahu Town	7,500*
Current Village Park	1,800
Crestview	1,800
Maipo	3,200
Waiale	2,500
(Subtotal)	16,800

Additional Proposal

Waiale	7,000**
(TOTAL)	23,800

* Waipahu's total 1980 housing inventory was 7,118. The future estimate of 7,500 is based on assumption of future replacement housing being of higher density than existing structures.

** Most Waiale units would not be built until after the year 2000, while the other numbers in this table are assumed to be applicable by around the year 2000.

3. Regional and Islandwide Effects

As discussed in Section II, past Village Park buyers differ somewhat from residents of other competitive Central Oahu developments. They are younger, have lower incomes, are more "local," and generally have small, young families. They also come frequently from Waipahu and Central Oahu.

To some degree, future Village Park Expansion buyers would otherwise buy in competitive Central Oahu or Ewa developments, since these are the principal areas where new single-family units will be developed. However, since price has been the principal Village Park selling point (Table 3, Section II), for many families the choice will be between the Village Park Expansion, buying something in a comparable price range (perhaps farther from Waipahu), buying a multi-family rather than a single-family unit, or else continuing to rent and/or double up within a larger household.

Principal changes in residence patterns, then, would be:

- o realignment within Central Oahu;
- o some mobility from Honolulu to the Village Park area;
- o some mobility from Ewa to Central Oahu.

IV. EMPLOYMENT

Because employment impacts will be primarily confined to the project site (with some slight indirect impacts on the surrounding larger Waipahu-area community), discussion in this section will not extend to the regional or islandwide levels.

A. Existing Situation

The current Village Park project supports an average of 310 full-time construction workers, plus a small sales staff. Because the Village Park population is not yet sufficiently large to attract anchor clients to the planned commercial area, there is not currently any retail-related employment in Village Park.

In the remainder of the Waipahu area (including Waipio), special 1980 Census print-outs available at the Hawaii State Department of Transportation (Urban Transportation Planning Package, 1982) indicate a total of 5,983 jobs. The same data indicated only about 38 percent of these jobs were filled by area residents in 1980.

Labor force characteristics of both Village Park and other Waipahu-area community residents were discussed in Section II. It was noted there that few recent Village Park homebuyers work in Waipahu itself (seven percent -- Table 3), but approximately one-third work in the area encompassing Pearl City, Waipahu, and the rest of Central Oahu. About half work in Honolulu, and another 13 percent in the Airport area.

B. Impacts

Construction-related employment would involve the continuation of the current average 310 full-time construction jobs from 1988 through 1997. As of 1983, there were approximately 14,700 construction jobs on Oahu (Hawaii State Department of Planning and Economic Development, 1985a, p. 355). Village Park's figure of 310 would represent 2.1 percent of these. (NOTE: The accelerated development schedule for the Expansion area could mean an increased construction workforce; this means the 310 job figure is a conservative one.)

Table 12 summarizes estimated permanent employment within the Village Park Expansion area when the project is completed. About 68 percent of the total estimated 710 total employment would be located within the commercial area, and another 26 percent would be in the industrial area. It will be recalled that the actual land use request is for "Commercial/Industrial Mix," and that the acreage and square footage assumptions in Table 12 reflect only current estimates. If actual developments in results in a greater emphasis on commercial, jobs will increase; if the emphasis is more on light industrial, jobs will increase; intensive, jobs would decrease from the Table 12 estimate. If a public school is re-incorporated in Expansion plans, this would provide another 30 or so jobs.

Table 12

Permanent Employment in the Completed Village Park Expansion

Commercial	483
one employee per 300 square feet, 145,000 square feet	
Industrial	187
ten employees per acre, 18.7 acres	
Golf Course	40
TOTAL:	710

Notes: Golf course employment figures from Decision Analysts Hawaii, Inc. (1986a). Assumptions about commercial square footage and light industrial acreage are from market report (Brooks and Zapotocky, 1985).

Table 13 provides an estimate of the total number of jobs required to support the Village Park Expansion population. The estimated 710 on-site jobs would account for approximately 12 percent of the estimated total jobs needed by occupants of the 3,480 units.

This is not, of course, intended to suggest that the jobs would be filled by Village Park residents themselves -- or even necessarily by Waipahu-area residents. However, it may be noted in Table 1-C (Section II) that the Waipahu Town labor force in 1980 had an above-average unemployment rate and that civilian workers were employed disproportionately in service and trade occupations. There appears, then, to be a good match between the existing Waipahu workforce and future jobs from the Village Park Expansion.

The Expansion area would also create some indirect and induced employment in the Waipahu area, through expenditures of residents, employees, and businesses. This is less easily measured, primarily because of difficulties in making assumptions about (1) how much of the restaurant and retail demand generated by residents and employees would be met by the Expansion's own commercial area, and (2) how many of the Expansion residents' own businesses would still be located elsewhere in the Waipahu area if the Expansion is not built.

Most of the indirect/induced employment would still be pre-sent somewhere on Oahu whether or not the project is approved. The true question concerns how many jobs might shift from elsewhere to serve the Village Park Expansion. Table 3 (Section II) indicated that about one-half the recent Village Park homebuyers had moved from areas east of Pearl City, and it may be assumed that some of the employment induced by their local shopping would also shift to their new home area. However, lack of standard regionalized multipliers and the previously-mentioned uncertainty about the Expansion's commercial area prevents further quantitative estimates.

Table 13

Estimated Job Need Among Village Park Expansion Residents

Total Number of Units 3,480

Total Occupied Units

--- assume 2% vacancy (3,480 x 0.98) 3,410

Number of Work-Derived Incomes Per Unit 1.71

--- assume 85% have at least two incomes*

--- assume 5% have three incomes (85 + 5 = 90) entirely from sources other than job (1.90 x .90 = 1.71)

Total Number of Jobs Required (3,410 x 1.71) 5,832

* From Market Report (Brooks and Zapotocky, 1985).

V. PRELIMINARY SOCIAL ISSUE ASSESSMENT

This section is an inventory of social issues and concerns relevant to the proposed Expansion which have been discovered in surveys and in preliminary contacts with community leaders. Where possible and appropriate, the issues are analyzed and commented upon. The word "preliminary" has been added to the title of this section to emphasize the tentative and changeable nature of such an analysis. Community perceptions and concerns can shift over time.

Much of this section is based on interviews held in July and August 1985 with approximately 35 "key informants" (primarily persons active in community organizations) in Village Park and Waipahu. Issues and concerns arising out of the developer's subsequent community interaction program have also been inserted in this revised report. However, other residents may choose to participate in the public hearing process for the Expansion proposal, and new views or issues may be raised.

However, the following assessment is based on extensive community contact. It is intended to provide an introduction to the ongoing process of social impact assessment through public hearings and other forms of community input.

A. Public Opinion Surveys

Two types of available public opinion survey results are relevant to this assessment: (1) islandwide priorities on housing development, particularly in situations where there is a trade-off with preservation of agricultural land; (2) needs and values within the Waipahu-area community.

1. Islandwide Priorities: Housing vs. Preservation of Agricultural Land

Numerous public opinion surveys have determined that provision of more affordable housing is a major community issue on Oahu, along with other standard concerns such as crime, need for jobs, and need for improvement in the educational system.

However, the proposed Village Park Expansion would provide housing at the cost of withdrawing productive agricultural land, and preservation of such lands has also frequently emerged as a public concern. Therefore, it may be instructive to review public opinion research on the relative priorities given to housing or ag land preservation in such trade-off situations.

The only recent available surveys in which such a trade-off question was posed are the 1981 and 1984 "State Plan Surveys" commissioned by the Hawaii State Department of Planning and Economic Development (SMS Research, 1981, 1984). In the 1981 survey, the question was one of several trade-off queries. It was posed in the following way and with the following results for the Oahu sample of 400 persons:

 Sometimes it is hard for a community to get everything it wants. For each two things I mention, tell me which is more important to you.

lower housing costs, or	59%
preserving agricultural land	37%
(don't know/won't choose)	4%

(SOURCE: SMS Research, 1981, p. 37)

In 1984, the question was posed in a different format, but with fairly similar results:

 Please tell me whether you agree or disagree with each of the following statements ...
 We should have more affordable housing for residents even if we lose prime agricultural land.

Agree	50%
Disagree	37%
Don't Know	12%

(SOURCE: SMS Research, 1984, p. 32)

2. Waipahu Community Needs and Values

A literature search for surveys taken during the 1980's on Waipahu community needs and values uncovered only one relevant study. This had been commissioned by Anafac Property Development Corp. (SMS Research, 1982) in its early planning for the Waikoleo development. Results are proprietary, but Anafac granted permission to quote data for several general questions on community values.

Table 14 contains results for a question on "possible problems or community needs." A list of 19 possible community concerns was read to each of 400 randomly-selected respondents from Waipahu town (below the freeway only). Eleven of these potential concerns were also read to a separate sample of 200 respondents from the rest of Central Oahu (including Village Park, Crestview, Waipio, Milliani, and Wahiawa).

Some of the major conclusions to be drawn from Table 14 would include:

- o As of 1982, the "need to keep Oahu Sugar Company" in business" and the need for more "housing that families making less than \$40,000 can afford" were neck-and-neck top priorities, both in Waipahu and the rest of Central Oahu.
- o The perceived need was clearly for such lower-to-middle-income housing, since there was a distinct lack of concern about more "high quality housing."
- o While there was some concern at that time about population growth and traffic, large portions of both samples considered these issues "not a problem" in 1982.

A final question from this survey which deals with community values relevant to the proposed project was posed only to the Waipahu sample:

Which one of the following two statements is closest to your own feelings? (NOTE: Half the respondents heard one statement first, while the other half heard the other statement first.)

Many of Waipahu's important problems can be solved by well-planned growth. 76%

Any growth, no matter how well-planned, will just add to Waipahu's problems. 19%

(disagreed with both statements) 2%

(don't know/refused/other reply) 4%

(SOURCE: SMS Research, 1982, p. 22)

Table 14

Waipahu Public Opinion Survey:
Importance of Various Community Problems or Needs

(Question: "I'm going to read you a list of possible problems or community needs. For each one, please tell me if you think this is not a problem in your area, is an important problem, or is a very important problem.")

	WAIPAHU TOWN		REST OF CENTRAL OAHU	
	very important	not important	very important	not important
	%	%	%	%
need to keep Oahu Sugar Co. in business	49	11	45	10
not enough housing that families making less than \$40,000 can afford	48	17	47	14
need to keep Dole Pine-apple Co. in business	42	13	45	10
need to save agricultural land	31	23	32	22
not enough playgrounds for small children	29	38	*	*
hospitals and doctors are too far away	29	43	20	51
population of area growing too fast	25	37	21	45
jobs are too far away	25	43	25	45
streets and roads need widening	23	49	*	*
not enough different kinds of housing to choose from	22	48	19	50
need to protect scenic or rural areas	21	32	*	*
too much traffic	21	51	22	50

(CONTINUED NEXT PAGE)

Table 14
(Continued)

(Questions) "I'm going to read you a list of possible problems or community needs. For each one, please tell me if you think this is not a problem in your area, is an important problem, or is a very important problem."

	WAIPAHU TOWN		REST OF CENTRAL OAHU	
	very important	not a problem	very important	not a problem
not enough sports facilities and playing fields	19	44	*	*
lack of community facilities elderly centers or halls for meetings and parties	19	45	*	*
air and noise pollution from sugar mill operations	17	63	*	*
need to save historic buildings or places	16	44	*	*
problems with sugar cane trucks	10	70	*	*
need for regional shopping center like Pearl Ridge	9	69	13	61
not enough high quality housing for business executives, professionals or other high income people	7	73	5	73
(base:)	(400)		(200)	

* These questions not asked of larger Central Oahu sample.

Notes: Other response categories omitted for sake of space included "important," "don't know," and "opposite view."

Source: SMS Research, 1982, pp. 19-20

B. Community Input and Issue Assessment Process

The surveys discussed previously were conducted prior to the formulation of the Village Park Expansion Proposal and thus did not deal with attitudes or issues which could be linked directly to this proposal.

To determine community concerns relevant to this project in particular, it was decided to interview several dozen "key informants" -- people who were particularly knowledgeable about the Village Park and/or Waipahu-area communities and/or people who were considered likely (because of their professional affiliations or their positions in community organizations) to become eventual participants in the public decision-making process.

As a result of these initial contacts in July and August 1985, the developer undertook a community dialogue program to permit more substantial interaction with organizations in both the current Village Park and the greater Waipahu area. The following brief overviews summarize the major issues emerging in each of these two phases.

1. Initial Key Informant Interviews

Informants were selected by a "chain" process. That is, initial informants were selected because they held highly visible community positions (e.g., chair of the Neighborhood Board), and these people were asked to recommend other key informants. Not all recommended informants could be contacted in the time before this report was written, but those who could be reached appear to form a good cross-section of Village Park and Waipahu community groups (see Table 15, which also includes a few individuals contacted since the initial July/August discussions).

Following is a short general overview of the results of these discussions. A more detailed discussion is provided in following pages.

General Results of Initial Key Informant Interviews:

- o The overall attitude at this time was generally positive toward the project as a whole (although there was little awareness of, and some surprise over, the project's magnitude). Most informants seemed to expect and welcome more residential growth in the Waipahu area.
 - o Project components which seemed most responsible for this positive attitude were (for Waipahu) the continued provision of housing which can be afforded by young people and (for Village Park) the proposed golf course.
- Additionally, both Village Park and Waipahu-area community leaders felt that the additional population would provide them with more political strength in competing for government facilities and services.

Table 15
(Continued)

Name	Affiliation/Organizational
Shoji Okazaki	ILMU
George Orakoda	Waipahu Inter-Agency Council, Chair
Rev. Cypriano Pasaquen	Leeward Community College Filipino United Church of Christ, Pastor
Loreen Stern	Waipahu Community Association, Secy.
Larry Tang	Waipahu Business Association, President
Frank Warren	Pearl City Community Association
Ken Willinger	Rotary Waipahu 2000 Community Council Leeward Mental Health Center, Psychologist
John Winnes	Waipahu Counseling Center (State Men- tal Health), Clinical Social Worker
Joanne Wong	Oahu Pop Warner Federation, Secy.
Hiroshi Yamashita	Waipahu Community Association Waipahu 2000 Community Council Amfac

- o The most frequently raised concern (especially in Waipahu) involved public infrastructure capability -- particularly traffic and water system impacts. Usually, these concerns were expressed as questions about how the problems can be solved rather than as a basis for opposing the project.
- o The issues which usually generated the strongest emotional response (especially below the freeway) had to do with whether Village Park and the Expansion would become well-integrated into the larger Waipahu community or would become a distinct, possibly even "competitor" community. For example, there was concern about possible deterioration of Waipahu schools if Village Park and Waikale students are bussed elsewhere. There was also a tendency to seek out opportunities within the project for meeting community-wide needs, such as church sites or a regional recreation complex.
- o Several other topics with the potential for generating strong feelings -- e.g., implications for Oahu Sugar Company's future, low-income rental public housing project -- were rarely mentioned in these preliminary contacts.

Table 15

List of Key Informants for Social Issue Assessment

Name	Affiliation/Organizational
VILLAGE PARK	
Sandy Bunda	Resident
Rex Crighton	Board of Directors of Village Park Community Association, Treasurer
Christine Franklin	Board of Directors, President
Alice Ino	Board of Directors
Leonard Leong	Board of Directors
Ken Liederbach	Village Park Affirmative Action
Alan McAngus	Honowai Village Park Athletic Assn.
Harvey Nobrigo	Board of Directors
Chuck Page	Board of Directors
Jennie Wolf	Village Park Affirmative Action
OTHER WAIPAHU-AREA COMMUNITIES	
C. O. "Andy" Anderson	Waipahu 2000 Community Council Waipahu Neighborhood Board Waipahu Community Association Waipahu Cultural Gardens Park Oahu Sugar Company, Manager Waipio-Gentry, Resident and Sales Manager
Bill Balfour	United Church of Christ
Gary Doi	ILMU
Ruth Endo	Waipahu Community Association, President
Guy Fujimura	Waipahu Business Association
Les Hill	Rotary
Richard Hirata	Waipahu Community Association
Bob Hirayama	Waipahu Community Association Waipahu 2000 Community Council
Leonard Hoshijo	Oahu Metropolitan Planning Organization
Miles Ichinose	ILMU
Cal Kawamoto	Waipahu Community Association Waipahu Business Association Waipahu Neighborhood Board, Chair Waipahu Community Association Waipahu Cultural Gardens Park, Executive Director
Shari Nakamura	Waipahu Community Association, First Vice President
Saxon Nishioka	Waipahu 2000 Community Council, Co-Chairman Waipahu Business Association

(CONTINUED NEXT PAGE)

- o There was some increase in attention to possible negative social impacts from the City rental apartment project. The concern was generally cautionary rather than active; that is, community groups urged the developer to maintain some level of control, but they did not oppose the rental project completely.
- o Concerns over infrastructure capability came to focus primarily on regional traffic impacts. However, the usual position was that government must act to solve the problem for the area as a whole, without particular reference to any one proposed development.
- o Waipahu organizations felt that developers such as Waitec should provide some "givebacks" to the larger Waipahu area.
- o Within Village Park, there was an intensification of internal debates over community association politics and the need for more park space. This resulted in some residents asking for a reconfiguration of planned Expansion park space so that a new park could border the eastern part of the existing Village Park development.

The following seven sub-sections (C to I) deal with specific issues raised among both Village Park and other Waipahu informants. The next two sub-sections (J and K) provide discussion of issues primarily encountered in Village Park alone or in Waipahu alone. The last sub-section (L) summarizes positions taken by community groups.

C. Housing Provision

The need for an ongoing supply of new housing units in the Waipahu area was a matter which usually seemed taken for granted in key informant discussions. Waipahu informants often noted the tendency of young adults in the town to wish to move out of Waipahu, and the development of housing projects mauka of the freeway is seen as a way for such young people to "move up" to a new area while still remaining close to family and friends.

Because Village Park prices have been among the most competitive in Central Oahu, the Expansion was generally viewed as the continuation of a project which is already serving an important function. A few people cautioned that community support would depend on the ongoing provision of housing within the price range of the grown children of longtime Waipahu families.

Despite the abundance of other current (Waipio), approved (Waikale), or proposed (Waiawa) Waipahu-area developments, there was a marked absence of comments such as "We have enough already," or "Good, but not in our back yard." Rather, most of the community informants interviewed for this report seemed to accept Waipahu and Central Oahu as an appropriate (or, at the least, inevitable) site for continued housing development.

- o Village Park residents were expectably concerned with Expansion details of less interest to Waipahu residents -- e.g., exact phasing and rate of development, nature of commercial activities in the business park, provision of schools and location of parks.
- o There was a general lack of awareness of the Expansion proposal prior to the interviews, and many people urged the developer to initiate more communication with the public. This was done (see below).

2. Subsequent Community Interaction

The community dialogue program was carried out at two levels: Village Park and greater-Waipahu community organizations.

Within Village Park, the developer instituted a practice of keeping residents more informed through occasional newsletters, two of which were mailed to all residents in the fall and early winter of 1985 (with a third scheduled for early 1986). In addition to project presentations to the community association's Board of Directors, discussions were also held with a separate group ("Village Park Affirmative Action") about various internal issues, a few of which have some implications for the Expansion.

In Waipahu, the developers met with the major community organizations concerned with land use and/or economic development -- the Waipahu Neighborhood Board (as well as the neighboring Peart City Neighborhood Board), Waipahu Community Association, Waipahu 2000 Community Council, and Waipahu Business Association. Several of these groups posed questions about impacts and mitigations which required further study and repeat meetings before the groups took their final positions (presented in sub-section K at the end of this chapter).

Additionally, an ad hoc group of community leaders from all organizations met with the developer to negotiate ways the developer could provide "givebacks" and establish closer links with the greater Waipahu community. Results of these meetings are reported in Section VI.A of this report.

As a result of these discussions, a few new issues arose, and there was also some evolution and clarification of the issues charted from the initial contacts.

Highlights of Major Additional/Altered Issues

- o Waipahu organizations expressed substantial concern over the Department of Education's recommendation to eliminate the new elementary school site in the Expansion area. Also, the concern about bussing of "mauka community" school children continued to grow during this period.

D. Desired Growth, Political Strength, and Competition for Government Expenditures

Village Park informants expressed hope that the additional population which would be contained in the Expansion would increase the community's "clout" in obtaining both more commercial amenities and also more government public works expenditures.

Most Waipahu community leaders interviewed for this report also indicated their belief that a subdivision such as the Expansion would further their community planning goals, which include designation of the Waipahu area as a "growth center" on the City's General Plan.

Most major Waipahu community organizations (e.g., Waipahu Community Association, Waipahu 2000 Community Council, Waipahu Business Association) have a well-established pro-growth philosophy. Given the uncertain future of the Oahu Sugar Co., there is a desire to perpetuate community vitality and to improve political "clout" in obtaining capital improvements through well-planned growth. This attitude would also appear to be shared by the general public, as indicated by the previously-cited 1982 survey finding that 76% of Waipahu residents agreed with the statement "Many of Waipahu's important problems can be solved by well-planned growth."

However, a few Waipahu residents expressed concern that the various "Mauka Communities" would successfully compete with Waipahu for government expenditures -- "They'll get the new streetlights, and we won't." The concern was based both on a recognition that new developments require substantial government revenues for initial creation of public facilities, and also on a feeling that the residents of these new subdivisions will be more articulate and have more political clout.

For some people, this concern blended into the larger issue of overall links between Waipahu and Village Park or other "Mauka Communities" (see following sub-section). For others, it was an issue in its own right. Even if Expansion residents feel "part of Waipahu," it was held, they might nevertheless siphon off government funds from the rest of Waipahu.

Comment and Analysis: The perception of increased political "clout" accompanying increased population is a reasonable expectation. For example, years in which the Department of Education builds new schools in Waikale, Village Park, or the Expansion will likely be years in which there are limited funds for improvements to existing schools elsewhere in the Leeward District.

Should new housing -- and consequent new needs for government-funded facilities -- be provided for many years simultaneously in Waikale, Waiawa, and the Village Park Expansion, Waipahu residents will doubtlessly need to lobby vigorously for

funds to meet needs below the freeway. It is to be hoped that local government officials will note this unique situation and find ways to make sure that Waipahu is not neglected.

However, many of Waipahu's desired public works projects -- particularly highway improvements -- are regional in nature. For such objectives, increases in the overall regional population are clearly beneficial for purposes of attracting governmental attention.

E. General Issues of Community Identity and Integration

Questions were raised at two levels:

- (1) Would the Expansion area and the existing Village Park comprise a single community or two separate communities?
- (2) Would the expanded Village Park area (whether or not it is internally integrated) be linked with the larger Waipahu community, or would it be a separate -- perhaps even competitive -- community?

The latter question involved a number of inter-related issues. For some people, these issues merged to form the larger question posed as "(2)" above. For other people, some of the sub-issues were highly important in their own rights. Therefore, the second question above will be discussed below in a general overview fashion, while some of the more frequently mentioned sub-issues -- e.g., school linkages or business competition -- will receive further attention in following sub-sections.

1. Integration of Current Village Park and Expansion Area

Within Village Park, informants were generally more curious about the Expansion's relationship to existing Village Park than its relationship to Waipahu. Typical questions included: Will the Expansion have its own community association or be part of the present association? Will there be many streets connecting the two areas? Will the existing area get all its promised amenities before they are installed in the Expansion?

There were also mixed feelings about whether the existing homeowners association should be extended to include homes in the Expansion. On the one hand, there was some concern about the perpetuation of Waitec's legal power to control decisions by the association, since the developer retains the voting rights of unbuild/unsold homes and the number of such units would greatly increase during the Expansion's construction period. On the other hand, there was also a desire to have the new community integrated with the present one, rather than having it viewed as a totally separate area which might even compete with the present area for developer attention or governmental amenities.

Comment and Analysis: At the physical level, the tentative Expansion site plan calls for two internal road connections with the existing Village Park, one behind the commercial area close to the Kunia Road entrance and the other about halfway between the eastern and western boundaries. The commercial area in the Expansion is adjacent to the existing commercial area. The current plan is to develop the existing commercial area first, but either site would effectively serve the current Village Park residents equally well.

In regard to homeowners associations and other social factors, Waitac has decided to form a separate association for the Expansion, meaning that this will formally function as a community separate from the current Village Park. However, the developer will also encourage formation of an umbrella community association (based on residency rather than homeowner status, with no developer controls) encompassing both the current Village Park and the Expansion area.

Because the Expansion would be planned and constructed by the same development team responsible for the existing Village Park, and because both areas are designed for essentially the same market segment, it is highly likely that residents will paralyze themselves as living in the same community. However, should the developer choose to market the Expansion under a different name, this would have some effect on what would otherwise be a natural tendency toward an integrated community identity.

2. Village Park Links with Waipahu: Overview

Many Waipahu community leaders expressed concern that all the future "Mauka Communities" -- Waialeale and Waiala, as well as Village Park -- would take on their own separate identities rather than becoming part of Waipahu. (There was a feeling that the Waipio-Gentry community already has established itself as a community separate from Waipahu.)

For some people, this concern is primarily a matter of community pride and identity. There is some worry that the entire area may become a patchwork of small, unrelated residential enclaves. This could mean that even Waipahu below the freeway -- as fewer of its people are longtime residents and/or share common links to the sugar company -- would lose its unique identity as an easy-going "rural" plantation town. And there is a negative reaction to the possibility that people in the new areas above the freeway would "look down" on Waipahu.

Other people also (or instead) base their concern on the possibility of competition from the "Mauka Communities" -- political competition for government expenditures (particularly school facilities) or business competition with Waipahu merchants. Some of these concerns will be separately discussed in more detail in later parts of this section.

Village Park residents interviewed for this report were far less concerned over the issue of community integration with Waipahu. Many of them indicated they have mixed feelings at present as to whether they are in fact "part of Waipahu," although Village Park residents originating from Waipahu seem to identify Village Park with Waipahu.

Comment and Analysis: A number of factors contribute to whether nearby residential areas feel they are part of the "same community."

(1) **Physical Contiguity:** Waipahu and Village Park (including the Expansion site) are separated by the H-1 freeway and connected only by the Kunia Road overpass. The new Waialeale community is to be connected to Waipahu by a major road passing over the freeway from the middle (rather than the edge) of the new development. However, Village Park residents will not have access to this route into Waipahu because the steep gulch between Waialeale and Village Park will keep these two areas physically separate. Thus, physical factors affecting Village Park's linkages with Waipahu will be unchanged whether or not the Expansion area is built.

(2) **Shared Employment Centers:** Most Waipahu residents do not work in Waipahu itself, and neither do most Village Park residents. The situation is unlikely to change with construction of the Expansion community.

(3) **Similar Socio-Economic Characteristics:** As noted in Sections I and II, residents of the "Mauka Communities" (including Village Park) have many socio-economic similarities with Waipahu's older population. However, the younger population of Waipahu is more likely to consist of immigrants and/or lower-income people.

(4) **Family Roots:** "Mauka Community" residents who grew up in Waipahu and/or still have family there are more likely to regard themselves as part of Waipahu. Many Village Park buyers have had family roots in Waipahu. However, Central Oahu developments will be increasingly looked to by buyers from all over the island and so it is likely the proportion of future Expansion buyers with Waipahu roots will be a smaller one.

(5) **Common Shopping Areas:** Waipahu shopping centers are spread out along Farrington Highway. Village Park residents who work in Honolulu or Pearl Harbor often find it more convenient to shop at Ala Moana or Pearl Ridge, rather than doubling back from the freeway and stopping at several Waipahu locations. However, if the Waipahu 2000 plan is implemented, Waipahu's commercial areas could ultimately be more attractive to residents of all "Mauka Communities."

- (6) **Schools and Youth Activities:** As will be discussed further, all Village Park public school students are currently bussed to Crestview for elementary school and to Pearl City for intermediate and high school. However, the Department of Education will soon begin considering whether to bus these students to Waipahu instead. Village Park youth are currently integrated with Waipahu junior sport leagues.
- (7) **Shared Recreational Facilities:** As will also be discussed further, many Waipahu community leaders believe the region is badly in need of additional facilities, and they look to the park sites in the proposed Expansion for possible solutions. It is unlikely that hopes for a major regional complex (e.g., with a municipal swimming pool) would be located within the Expansion, but specific regional needs such as ballfields could be accommodated.
- (8) **Common Church Sites:** There is a lack of sites in Waipahu, and this was another need which some informants wondered if the Expansion might fill. It should be noted that proposed changes to Honolulu's zoning code would restrict churches to light industrial areas. Conceivably part of the Expansion's planned industrial or "business park" area could be used for church purposes, if economically feasible. A social cost for such a decision would involve some reduction in on-site employment for the Expansion, since churches are generally not labor-intensive activities.
- (9) **Participation in Common Community Organizations:** For the past three years, the officers of Village Park's community association have opted not to participate in the Waipahu Community Association, which is the umbrella organization for various neighborhood organizations in the Waipahu area. There was little immediate interest within Village Park in the newly-formed Waipahu Neighborhood Board, and no Village Park residents now sit on that Board. While the Village Park development team might itself contribute to or become involved in Waipahu community groups, Village Park residents would make their own choice.
- (10) **Shared Local News Media:** Waipahu High School's monthly newspaper, the *Cana Tassel*, functions as a community newspaper and is distributed throughout the area (circulation 12,000).

Of all the foregoing factors, the only ones subject to influence by Expansion planners or developers would be possible provision of regional recreation or church-site needs. Two other factors are subject to future action by other parties. These are the school linkage issue (action by the Department of Education) and the revitalization of Waipahu shopping areas (action by government, landowners, and businesspeople to implement the "Waipahu 2000" plan).

The future preservation of Waipahu's historical identity is likely to be affected more by actions taken within the town itself than by the development of the Village Park Expansion or other "Mauka Communities." It is a natural tendency for urban areas to shift their social identities as economic conditions change -- just as early Waipahu itself changed in character when the sugar plantation supplanted earlier diversified farming activities (Hadbalek, 1984). The current drive to develop the Waipahu Cultural Garden Park represents a conscious effort to preserve a part of the past and hence to preserve Waipahu's identity as a "plantation town." The success of this effort will probably be more crucial to Waipahu's traditional identity than will be the linkages or non-linkages to new mauka developments.

E. Links with Waipahu School System

Although an elementary school site has been dedicated in the existing Village Park area, potential enrollment does not yet justify its development, and Village Park elementary students are now bussed to Kanelani Elementary School in Crestview. Older students are bussed to Highlands Intermediate and Pearl City High School, both in Pearl City. Older students from Crestview and Waipahu are also bussed to Pearl City rather than to Waipahu Intermediate or Waipahu High School.

This was a major sore point for many Waipahu community leaders. There was a concern that Waipahu Intermediate and Waipahu High School are becoming "ghetto-ized." That is, upwardly-mobile Waipahu families tend to obtain district exceptions for their children and send them out of Waipahu to school. Consequently, students in Waipahu schools are increasingly comprised of immigrants (often with limited English) and/or children from lower-income backgrounds. Discipline problems have resulted, and these have led to a poor image for the schools. This, in turn, has led to even more middle-class families taking their children out of the schools. It is felt that other school areas -- particularly Pearl City -- have ended up with the number and level of students to justify more funds, better facilities, upgraded programs, and better control over students.

While these Waipahu informants recognized that Village Park parents would be as likely as middle-class parents in Waipahu itself to find ways to avoid sending their children to schools with poor reputations, there was still a desire to attempt to take some action to counter the "vicious cycle" of middle-class withdrawal. There is also a desire to involve more middle-class parents in Waipahu school parent-teacher groups, in order to improve the activity level and political clout of these groups in seeking more State funds for improvements at Waipahu Intermediate and Waipahu High School.

By contrast, the few Village Park informants who mentioned the school situation seemed satisfied with the current arrangement. They would prefer, however, to send the current school students to the future school in Village Park because of its more convenient location.

Comment and Analysis: The 1985 State Legislature passed a resolution asking the Board of Education to consider bussing Village Park students to Waipahu rather than Pearl City. The Leeward District School Advisory Council held a hearing on the matter January 24, 1986. According to Leeward Oahu School District Superintendent William Araki (personal communication, January 31, 1986), there was little testimony. The Waipahu Neighborhood Board, chairman testified in opposition to current bussing practices. Nobody from Village Park testified.

As a result of the political concerns and hearing, Mr. Araki recommends that:

- o The elementary school site in current Village Park should be developed and operating by 1989.
- o Prior to this, since Kanoelani in Crestview is nearing capacity, some Village Park children may be bussed to elementary schools in Waipahu.
- o By 1987, intermediate and high school students above the freeway will be bussed to Waipahu instead of Pearl City.

Construction of the Expansion project will ultimately increase the number of people affected by these recommendations, if implemented. Should the attitudes of the Village Park residents contacted for this report be shared by many others in Village Park and the Expansion, the social controversy over this issue is likely to be stronger and more extended through time.

G. Need for Regional Recreational Facilities

Both Waipahu and Village Park informants feel there is a serious need for more regional recreational facilities in the Waipahu area. (By contrast, some Waipahu people questioned the need for another golf course, given the existence of present courses in Waipahu and Kunia, and the planned addition of another course in Waikale.) Some facilities which were specifically mentioned as major needs were:

- o a public swimming pool;
- o more football and baseball fields;
- o more hard-surface outdoor courts for tennis or basketball.

It was felt that the Waipahu Recreational Center on Paia Street, currently the only recreational complex in Waipahu, is inadequate for the existing population and that no additional homes should be built without another regional recreational center. Questions were raised about the feasibility of using one of the two Expansion park sites for such a complex.

Comment and Analysis: Because the Village Park Expansion project would be on the periphery of the Waipahu "region," it would not appear practical to construct the sort of large complex there which would more appropriately be located near the center of the regional population to be served. Additionally, it is doubtful whether the City currently has the resources to build and maintain a municipal swimming pool in the Expansion area.

However, the Expansion site can contribute to regional needs for both ballfields and hard-surface courts. The relatively distant location is less of a concern for such facilities. Ballfields are usually used by organized groups which can provide transportation for their members, and hard-surface courts are often utilized by young adults rather than children too young to drive. The developer has expressed a willingness to remain in contact with community groups for further discussion on ways to meet Waipahu regional recreation needs.

H. Crime and Delinquency Problems

A concern frequently expressed by Waipahu community leaders involved the area's increasing incidence of broken families and youth problems, which are felt to be reflected in a growing crime problem in Waipahu. The concern as expressed had little direct relationship with the proposed Expansion, except that informants were sensitized to the crime issue and tended to wonder about crime implications of any proposed Waipahu-area change.

Some Village Park informants felt that increased population in the area probably would lead to more crime, but there was a feeling that overall crime effects would be minimal. More concern was expressed about youth activities in general, with delinquency just one of several worrisome possible outcomes.

Factors thought to be associated with Waipahu crime and youth problems included:

- o lack of parental supervision due to high number of single-parent families and families with two working parents;
- o reduced availability of natural open space, inadequacy of Waipahu Recreational Complex, and lack of other youth activity centers -- leading to congregation in arcades and other "street scene" settings;
- o cultural adjustment problems for some immigrants;
- o income disparities and consequent pressure on some lower-income people to resort to theft;
- o perceived oversupply in Waipahu of halfway houses dealing with alcoholism, marital problems, welfare, etc., with

- o consequent increase in "transient" population with no loyalty to the community;
- o general shifts in social ethics from communal plantation-era values to individual advancement.

Comment and Analysis: In a survey of Waipahu businessmen the most frequently reported "problem with current business location" was crime, mentioned by nearly half the respondents (SMS Research, 1983, Table 1). Unfortunately, no comparable survey has been taken in other communities to provide a basis of comparison.

Because Honolulu Police Department district and beat boundaries do not conform to census tract boundaries, it is difficult to estimate the resident population within any given beat. Therefore, crime rate figures are not available except on an islandwide basis, and it is not possible to say for sure whether Waipahu has an extremely high rate.

However, crime data for 1983 (the most recent available year) show high absolute numbers for the two beats encompassing Waipahu and the "Mauka Communities." Beat 328 -- including western Waipahu and Village Park -- recorded 1,228 offenses of the Part I (i.e., serious crime) category, the second highest total number of reported Part I crimes for any police beat that year. More than 60 percent of these offenses were simple larcenies, a proportion in line with the islandwide breakdown of crime types (Honolulu Police Department, 1984, p. 42). Each police beat is usually staffed by a single patrol. Thus, while it is uncertain whether Waipahu and Village Park residents must cope with more crime per person than other Oahu residents, it is clear that their police officers do.

But in informal discussions with both Waipahu police officers and Village Park residents, there was little feeling that Village Park is itself a particularly high crime area. The number of reported Beat 328 burglaries in 1983, while high in absolute terms, was proportionately less than the islandwide fraction of total reported Part I crimes (19.1 percent for Beat 328 vs. 21.6 percent islandwide). Thus, there is no reason to expect that the Expansion project would generate crime out of proportion to its population.

In his response to the Notice of Preparation for this Environmental Assessment, Honolulu Police Chief Douglas Gibb (in a letter to Attorney Roy Y. Takeyama, July 11, 1985) wrote that residential development in Central Oahu should not affect delivery of police services if City budgeting permits resources to keep pace with the population growth. Rather than crime, the Chief's primary concern was with traffic impact.

However, it should be noted that the extremely high labor force participation rate in both Village Park and other "Mauka Communities" (Table 2, Section II) -- coupled with the high

number of multiple incomes among recent Village Park buyers (Table 3, Section II) -- strongly suggests potential youth problems having to do with lack of parental supervision. This is an islandwide problem for young families attempting to meet mortgage payments and would be expected in any new housing development aimed at the same market as Village Park and the Expansion. A part of the solution would lie in the recreational facilities previously discussed. However, it is likely that the need for organized Waipahu-area youth activities will continue to increase as more young two-income families move into all the Central Oahu housing developments.

L. City Apartment Rental Project

The dedication to the City of 30 acres (two adjacent 15-acre sites) for an apartment rental project has generated some concern in both Village Park and Waipahu community organizations. The project would be located adjacent to the western portion of the current Village Park development and at the "gateway" connecting existing Village Park and the Expansion.

Concern has centered on the possibility of a "low-income" enclave, implications for property values of existing neighbors, and general appeal and attractiveness of the overall area.

Comment and Analysis: The City has asked for dedication of at least one of the 15-acre parcels early in 1986, raising the possibility of prompt development there -- essentially simultaneous with development of the market units. The developer thus also has a strong interest in assuring that the City project is compatible with the surrounding community.

The developer and the City Department of Housing and Community Development have agreed in principle that Waitec will have substantial review and input through the City's design stage. The developer has also requested some input regarding the management contract for the completed project; this matter is still under discussion.

L. Other Village Park Issues and Concerns

A number of other topics were brought up primarily by Village Park informants and not by other Waipahu-area people: (1) provision and timing of amenities; (2) nature of business park activities; (3) certain issues and controversies internal to the existing Village Park community; (4) property values; (5) lease-fee conversion efforts; and (6) localized traffic impacts.

1. Provision and Timing of Amenities

As earlier noted, Village Park residents interviewed to date were particularly pleased by the proposed golf course. Many were

golfers themselves, and others saw positive implications for open space and property values.

There was also positive reaction to the proposed Expansion commercial area, school site, and two park sites. However, these planned amenities also reminded people that similar amenities in the current Village Park community have yet to be developed. The commercial area was a particular focus of concern, because the commercial site in the current Village Park area had not been developed as rapidly as expected. Additionally, the vacant site had not been landscaped until recently and was once an aesthetic sore point for some residents. There was concern that the expansion's commercial area might for some reason be developed before the existing designated commercial area.

Questions were therefore raised about the timing of Expansion amenities and the use of such land prior to its actual development. Some people also noted that the pace of overall housing development in the existing Village Park community had lagged behind the original schedule, and they wondered whether sales would adequately justify the amenities in the Expansion.

Comment and Analysis Commercial development in the existing Village Park has been delayed, according to the developer, because prospective anchor stores have not wished to locate there until Village Park has a larger population. The planned build-out of the current development by 1988 should provide an adequate market for such stores.

Slow housing sales in Village Park's first years were due to market conditions in general and high interest rates in particular. Sales are currently much more brisk. There is always the possibility that high interest rates or other negative market conditions may return someday, slowing the pace of development at Village Park and subdivisions throughout Oahu.

The developer responded to requests from the community association's board of directors to landscape the vacant commercial area until it is developed. This community concern was noted, and similar landscaping will be carried out at any Expansion sites which must remain vacant until an adequate population base (or government funding resources) permit construction of planned stores, parks, or school.

2. Nature of Business Park Activities

Village Park informants reacted more neutrally to the proposed light industrial (business park) sites on Kunia Road, perhaps because there are no similar sites in the existing community to provide residents with a point of reference.

Questions were raised about the exact nature of activities which would take place there. Many involved requests for desired types of service businesses, such as medical/dental facilities and branch offices of insurance companies. However, a few people

expressed fears that "industry" would produce "pollution" of some sort.

Comment and Analysis The exact nature of business park activities cannot now be known for sure, but the intent is to seek zoning for light industrial activities (e.g., warehousing). The sort of heavy industry which could produce air or noise pollution would not be permitted under such zoning. Furthermore, the relatively small amount of land available on the site would deter most large industries from locating there.

3. Interaction with Current Internal Issues: Values and Parks

Several current (summer/fall of 1985) issues and controversies within the Village Park community may have some implications for the proposed Expansion. These involve (1) internal debates about the Village Park Community Association's Board of Directors and related value issues, and (2) reactions to the developer's recent agreement with the City about planned park sites within the current Village Park.

A. Values: Much of the controversy between the Board of Directors and certain other Village Park residents involves individual personalities and allegations of dishonest or illegal actions on both sides. These provoke high feelings but have little substantive relationship with the Expansion proposal.

However, one underlying aspect of the debate could extend to the new area. This has to do with a basic value difference as to whether Community Association dues (theoretically owed by all Village Park owners) should be spent primarily for social events or primarily to enforce Sales Agreement provisions regarding upkeep and maintenance. The current Board of Directors has emphasized social functions and internal communications, arguing the need to create a sense of community and to provide activities for children. Some other residents (a number of whom have organized as the "Village Park Affirmative Action" group) feel that early Village Park buyers or their renters have allowed their properties to deteriorate significantly, and they feel priority should be given to maintaining communitywide standards, as specified in their Sales Agreement with Waitec.

Comment and Analysis The value dispute is one which is most appropriately left to the community to resolve. However, it should be noted that the debate is basically over what sort of community Village Park will be as it begins to age. Clearly, the answer to this question will have much to do with what sort of community the adjacent Expansion area would eventually become.

The developer's decision to establish a separate community association and Board of Directors for the Expansion area could possibly confine much of the present dispute to the existing Village Park area.

the apartment rental project. Such assumptions were based on the planned golf course and the general increase in amenities and islandwide visibility which the new project would bring to Village Park.

5. Lease-Fee Conversion

Homes in the current Village Park development have been sold on a leasehold basis, while units in the Expansion would be sold in fee simple. Some of the Village Park informants felt the Expansion would heighten current residents' awareness of the difference and could result in a renewed drive for negotiations to convert the leasehold land to fee simple.

Comment and Analysis: The developer assisted the current Village Park Community Association Board of Directors in preliminary attempts to interest an adequate percentage of leasehold owners in initiating negotiations for a lease-fee conversion. That attempt failed to generate sufficient interest. However, given the likely heightened awareness of the lease-fee issue due to the Expansion proposal, the developer has agreed to talk further with the Board of Directors about renewing the effort and has facilitated communication with qualified attorneys.

6. (Local) Traffic Impact

Village Park residents' traffic concerns were primarily focused on Kunia Road and on freeway access and egress ramps. The basic question was simply one of capacity and adequacy.

Comment and Analysis: The Expansion plan calls for widening Kunia Road alongside the development and improving the freeway ramps to increase capacity. Informants were satisfied with the concept, although they will be seeking a detailed examination of the actual plans.

K. Other Waipahu Issues and Concerns

Questions raised primarily by Waipahu-area informants, and rarely by Village Park people, included: (1) traffic/infrastructure impacts (regional); (2) cumulative impacts of all proposed developments; (3) competition with Waipahu businesses; (4) desire for job guarantees; (5) implications for the future of Oahu Sugar Company; (6) need for a school site in the Expansion; and (7) desirability of developer "givebacks."

1. (Regional) Traffic Impact and Infrastructure Capacity

Perhaps the most frequently-raised issue among Waipahu residents was the project's impact on highway, water, and sewage disposal infrastructure. However, the tone of these concerns was

b. Parks: The second internal issue involves the two original park sites for the existing Village Park. In the original proposal for a 3,200-unit townhouse project, a ten-acre and a 5.3-acre lot were to meet requirements for parks and open space. However, the number of residential units was eventually reduced to 1,800 (mostly single-family), which resulted in lower density as well. Because of City budget constraints, neither park site has yet been developed. Further, pressures to use the ten-acre vacant lot have been increasing, primarily because it sits in the middle of a relatively established part of the subdivision. Consequently the developer recently made an agreement with the City not to provide a second community park site in the current Village Park development, in exchange for which Waitec (rather than the City) will fund construction of facilities at the one existing but now-vacant park site.

This second issue is related to the first primarily because some of the same factions are involved. The current Board of Directors approved the trade-off, favoring one immediate park with facilities rather than two large vacant lots. However, some other residents felt there had been inadequate communitywide discussion and/or notification of affected homeowners. They pointed out that the eastern portions of Village Park will now contain virtually no open space.

As of the time that initial interviews were being conducted, preliminary plans for the eastern part of the lower Expansion area also contained little open space, intensifying the impacts of the elimination of the second park site in the original Village Park community.

Comment and Analysis: In response to the community concerns, the developer agreed to reorganize the park acreage for the Expansion so as to provide a 5.5-acre site just north of the western portion of existing Village Park (see Figure 2 in Section I). Additionally, the developer will provide a temporary "tot lot" on the old second park site in current Village Park until the new Expansion park site has been completed and dedicated to the City for improvements and maintenance.

It should be noted that this agreement is contingent on government approvals. The City Department of Parks and Recreation has expressed a desire for the consolidation of all Expansion park acreage into a single 21-acre parcel, primarily to reduce maintenance costs. The developer has expressed disagreement with this particular City position.

4. Property Values

Most Village Park informants expressed at least passing curiosity about the Expansion's effect on their own property values. However, the usual assumption was that this effect would be positive, other than the previously-mentioned concerns about

usually not one of objecting to the project itself due to strains on the infrastructure, but rather just wanting to be assured that the potential problems would be dealt with in good planning fashion. Informants tended to suggest that infrastructure capacity will be a very major issue if answers are not forthcoming, but not so major if answers are available.

Traffic impacts were mentioned more prominently than other infrastructure concerns. In contrast with the Village Park emphasis on Kunia Road and the freeway ramps, the Waipahu concerns were more with the regional effects on overall freeway capacity. The H-1 corridor into Honolulu, starting at the Waiala interchange with the H-2 freeway, is one of the island's worst bottlenecks. There is a general concern about impacts from any or all of the future "Mauka Communities," including Waikale and Waiala.

Water was the next most often-mentioned concern. The question was usually a simple "Where will you get your water?"

Comment and Analysis: Despite the brief attention given this issue in the present report, highway and other infrastructure capacity will clearly be a major factor in government approvals for all the various development requests for Central Oahu and Ewa. Traffic impacts from the Village Park Expansion proposal itself will be the subject of a separate consultant analysis. Water will come from sources now on the property to which the current landowner (Robinson Estate) has retained rights; this, too, will be analyzed in a separate consultant report.

2. Lack of Information on Cumulative Development Impacts

Related to the foregoing issue is a sense of concern over the cumulative impacts of all the proposed and approved "Mauka Community" developments. While most informants believed that the Village Park developer will address project-specific impacts as expected, some expressed apprehension that nobody seems to be addressing the combined regional impacts of all the projects.

These informants felt that Waipahu community groups have taken a position of supporting development, as in the case of Waikale. They would like to maintain this position with subsequent proposals such as Village Park, but they are concerned about the need to address cumulative infrastructure impacts.

The informants interviewed for this report stressed that they do not believe the solution to cumulative impacts is to withhold approval until all existing problems are solved. In fact, some felt that any moratorium on development would result in a false sense of complacency and could actually encourage community and public apathy.

Comment and Analysis: Public agencies are the appropriate bodies to review regional impacts. This was recognized by the

residents who expressed the concerns. They felt the public sector should form a joint "task force" of some type, which should include members of City and State agencies, private developer interests, and community organizations.

Such a solution is highly recommended. In the course of gathering information for this report, the present consultants found evidence of substantial discussion of cumulative impacts within and between government agencies, but not among government, developers, and community groups.

3. Competition with Existing Waipahu Businesses

Some Waipahu residents were concerned that the commercial areas in any or all the "Mauka Communities" would provide competition that would weaken existing Waipahu businesses, which suffer the disadvantage of being located in aging and sometimes physically deteriorated downtown locations. This was essentially a fear that commercial areas mauka of the freeway would increase the trend toward deterioration of downtown Waipahu.

Comment and Analysis: The Expansion commercial area is unlikely to have an extreme effect of this sort. It is located on a far corner of the Waipahu area; it will have no direct access from Kunia Road, and it is unlikely to develop into the sort of large regional shopping center (such as Pearl Ridge) which would draw Waipahu residents away from closer stores. Two separate market studies (Raymond A. Leisher and Company, 1980; Covell and Company, 1984) have concluded that the market for the existing Village Park commercial site would be primarily limited to Village Park residents, and the Expansion market consultants (Brooks and Zapotocky, 1985a, pp. 66 - 67) draw a similar conclusion with regard to the proposed Expansion shopping area.

The success of the Waipahu 2000 plan and the commercial developments in Waikale (with direct overpass road connection to downtown Waipahu) appear more significant factors in determining the future survival and revitalization of the downtown Waipahu business area.

4. Request for Job Guarantees

Some Waipahu informants were under the impression that the Waikale project has "guaranteed" 40 percent of the jobs created in that project will go to Waipahu residents. Request was made for a similar guarantee for the Village Park Expansion. (NOTE: Amfac's actual statement was that the number of jobs projected for the development would be equivalent to 40 percent of those which would be required by adult workers among Waikale's expected population.)

Comment and Analysis: Such a guarantee is not legally possible, because Federal law prohibits job discrimination on the

basis of factors such as religion, ethnicity, or place of residence. (Additionally, of course, Waitec would be the developer of the Expansion's commercial and industrial sites, but the business tenants and not Waitec would be the actual employers for permanent jobs.)

Waitec could, however, urge tenants to advertise job openings widely in the Waipahu area. It could also provide tenants relocating from outside the area with information on how to make linkages with the local State Employment Service, Waipahu business organizations, and any other communication channels useful for the goal of trying to give Waipahu residents first opportunity for job openings.

5. Project Implications for Oahu Sugar Co. and Waikale

Although Waipahu is both proud and protective of its identity as a sugar town, only a few of the community leaders interviewed raised any questions about the project's potential impact on Oahu Sugar Company operations. Nevertheless, the proposed withdrawal of hundreds of acres from currently-active sugarcane production represents a potential issue of concern in the Waipahu area. IHWU representatives contacted for the project have indicated they are particularly concerned with guaranteeing that sugar jobs will not be affected.

Some community leaders did raise questions about competitive implications for Waikale, which is supported by the community in large part because of feelings that it will help keep Oahu Sugar alive. The general feeling was that support for one development would logically suggest support for other developments -- unless the other developments harmed the first-proposed ones.

Comment and Analysis: Oahu Sugar Company president William D. Balfour, Jr. has written a letter to Waitec Development dated June 20, 1985 in which he says the company has no objection to the Expansion. The letter notes that the project would be developed in phases and that withdrawal of land from sugar cultivation would be gradual. "Finally," the letter states, "the proposed expansion will not adversely affect the operations of Oahu Sugar Company, Limited."

Additionally, the developer has contracted with another consultant to provide an independent evaluation of the project's impact on the economics of sugar operations in Central Oahu. The consultant's summary report states:

...the Village Park Expansion, individually or in combination with other major projects planned and proposed for Eva and Central Oahu, will not adversely affect the economic viability of [Oahu Sugar Co.], nor will it require layoffs of sugar workers. Part of the reason for this is that the cost for relocating cane-haul roads, irrigation ditches and pipes, an earthen reservoir, and power poles will be

absorbed by the developer of Village Park. In addition, the reduction in sugarcane acreage is expected to be gradual and partially or completely compensated for by increasing yields. Also, reductions in employment will occur through retirement and voluntary movement to other jobs. In the long term, OSCO could accommodate a major reduction in acreage and maintain economies of scale by operating just one mill, rather than two in parallel. (Decision Analysts Hawaii, Inc., 1986b, p. iv.)

Implications for Waikale reflect uncertainty about the extent of the housing market. The Village Park market analysis (Brooks and Spotocky, 1985, pp. 44 - 51) notes that the City Department of General Planning projects a need for 69,824 additional housing units islandwide by the year 2005, although the market consultants feel the actual need could be almost double this figure. In this context, the Expansion's 3,485 units represent only another small segment of proposed supply, as does Waikale itself. A highly competitive situation could develop as a result of the cumulative impacts of all developments proposed for government approvals this year (particularly the large tracts in Ewa) or if a resumption of high interest rates limits effective demand. It should be noted that recent planning initiatives on the part of several government agencies have the express purpose of increasing competition among housing providers, in order to lower costs to the consumer.

6. Need for Expansion School Site

In presentations to Waipahu community groups, the developer noted that original Expansion project plans included an elementary school site, in addition to the currently undeveloped site in the existing Village Park area. However, the State Department of Education recommended deletion of the Expansion site because the current Village Park site was considered to have sufficient potential capacity for both areas.

The Waipahu organizations repeatedly expressed concern over this recommendation, particularly in light of the large number of young families which have comprised the historic Village Park market. The Waipahu Neighborhood Board wrote a letter to the Department of Education objecting to the recommendation and asking for a more specific explanation of the rationale. (No reply had been received as of this writing.)

Comment and Analysis: In a January 16, 1986 letter to the DOE Facilities Branch, the developer voluntarily agreed to reserve a 6.0-acre site in the upper northeastern portion of the Expansion, near the planned recreation center/public park sites, for use as a possible future school site. Waitec agreed to set aside this land for a period of three years after zoning is received for the project. If the DOE has not by that time determined a need for the land and acquired it, it would be developed in the otherwise intended residential use.

VI. MITIGATIONS

This section identifies potential measures which could be implemented to mitigate potential social impacts previously addressed. For the most part, the mitigative actions address the (actionable) citizen concerns raised in Section V. The subjects addressed in previous sections -- population, housing, and employment -- generally require no mitigations. Some of the following suggested mitigations are repetitions of ideas put forth in Section V.

Potential mitigations fall under two separate categories:

- (1) **Mitigation measures which can be implemented by the developer** -- These are primarily onsite efforts which could be initiated by the developer alone.
- (2) **Mitigation measures beyond the developer's full control** -- While the developer may be instrumental in, or supportive of, certain mitigation efforts, the actual decision-making and/or implementation powers of these efforts lie in the hands of others, such as government agencies.

A. Measures Which Can Be Implemented by Developer

This subsection identifies actions which the developer can initiate either at the planning stage, in the detailed design stage, or upon completing portions of the proposed project.

1. **Initiate Discussions with the Community to Identify Mutually Agreeable Mitigation or "Giveback" Measures**

The developer has already begun discussions with two levels of the community to work out solutions. The first level involves the internal problems previously described. The organization which has expressed the most dissatisfaction with the current Board of Directors is called Village Park Affirmative Action. While the developer still believes that these internal problems should be handled by the residents themselves, a working relationship with Affirmative Action has proven valuable in working out problems specific to the Expansion. These discussions to date have centered primarily around the siting of Expansion parks to achieve better geographical distribution of parks.

The second level of community discussion involves the larger Waipahu-area community groups. In the fall of 1985, representatives from organizations such as the Waipahu Community Association, the Waipahu 2000 Community Council, and the Waipahu Business Association, as well as from the Waipahu Neighborhood Board, formed an ad hoc group to work with the Village Park developer. The group's basic objective was to identify ways in which the developer could participate in activities and projects

7. Requests for Community "Givebacks"

A number of members and leaders of Waipahu community groups expressed the feeling that any major developer should "give back" something to the larger community in which it is working. The rationale for this feeling included:

- o possible impacts and disruptions;
- o the example of Waikale, whose developer (Amfac) provided substantial technical assistance to community planning efforts, as well as commitments to Farrington Highway beautification efforts;
- o the previously-cited concern about assuring some linkages between Waipahu and the "Maui Communities."

Comment and Analysis: These requests led to a brief and successful series of negotiations between the community leaders and the developer. The negotiations and their results are described in Section VI.A.

L. Positions Taken by Community Groups

Most Waipahu-area community groups have taken positions in favor of the project, and none have opposed.

At a January 23, 1986 public hearing of the City Planning Commission, the following positions were stated in testimony:

Supporting the Project

Waipahu Neighborhood Board
Pearl City Neighborhood Board
Waipahu Community Association
Waipahu Business Association
Waipahu 2000 Community Council
Village Park Community Assn. Board of Directors

Supporting Need for Three Parks in Expansion

Village Park Affirmative Action

The Milliani Neighborhood Board took a position of deferring all Central Oahu Development Plan amendment requests until traffic congestion problems are resolved.

benefitting the larger Waipahu area. This participation would presumably alleviate some of the isolation which currently exists between the Village Park community and the larger Waipahu.

It was also felt that the developer's participation in, and contributions to, communitywide efforts would solidify a working relationship with Waipahu and would be a "giveback" to the community for such impacts or disruptions as may occur. In return for such contributions, the ad hoc group has indicated its willingness to support the proposed project, providing the project's impacts are addressed by the developer.

The ad hoc group identified a number of potential projects for the developer's consideration. Thus far, the developer has committed, in writing, to do the following:

- o Fund the materials and installation of a WELCOME TO WAIPAHU sign at the Kunia Road end of Farrington Highway. Such a sign has also been planned for the Pearl City end of Farrington Highway and will be funded by the Oahu Sugar Company.
- o Prepare a Master Plan for Kunia Road beautification. These efforts will include phased funding.
- o Provide in-kind support to efforts of the Waipahu Cultural Garden Park and the Waipahu 2000 Community Council.
- o Participate in a number of other community projects as a team member.

The ad hoc group has responded favorably to these commitments and the developer will continue to work with these people on the specific efforts.

2. Use Design Measures to Physically Integrate the Expansion Area with the Existing Village Park

The plans for the Expansion include two internal roadways linking the existing Village Park with the newer area. Also, the developer has stated that the majority of the proposed residential units will be similar in price range and market to the existing homes. This will lend itself to architectural compatibility, which should also extend to the commercial structures on both the existing designated commercial area and on the Proposed Expansion.

3. Umbrella Community Association for Current Village Park and Expansion Area

Since the Expansion will have its own homeowners association, a loose "umbrella" organization encompassing residents of both areas will be useful to encourage communication among the two Boards of Directors and the general citizenry.

4. Keep Community Informed to Ensure Awareness of Proposed Plans and Any Changes

The developer has made presentations to various community groups on the Proposed Expansion. Many of these groups have expressed interest in the developer continuing these efforts, so that the community can continue providing input. Ongoing dialogue is therefore planned and is in the process of being carried out.

5. Encourage Lease-Fee Conversion for the Existing Village Park

The developer has initiated discussion with Village Park residents prior to this Proposed Expansion and intends to continue this effort, providing there is interest from the community.

B. Measures Beyond the Developer's Full Control

This section identifies certain mitigation measures which are recognized, but it is considered impractical and unrealistic to suggest that the developer could actually implement these alone. Many of these measures will rely on other forces for planning, funding, and implementation. Due to the scope of concerns heard from the community, however, it is felt that it is important to raise these for the purposes of this report.

1. Design and Management Control of City Apartment Project

The developer is currently seeking some degree of input on physical design and management of the Proposed City rental project, to ensure both physical and social compatibility with surrounding residences. However, the extent and nature of developer controls are still a matter of negotiation with the City Department of Housing and Community Development.

2. Park Space in the Southeastern Part of the Expansion

As mentioned several times previously, the deletion of the originally planned second park in the current Village Park development in order to develop facilities more rapidly at the first park leaves the eastern part of the current development with limited open space. A park in the southeastern part of the Expansion could alleviate this difficulty, and some Village Park residents have requested this. The developer is tentatively willing to oblige, and the most recent Expansion site plans indicated a 5.5-acre park in the requested location. However, it will be necessary to obtain concurrence from the City Department of Parks and Recreation, as well as other permitting agencies.

3. Establishing a Joint Task Force to Address Cumulative Impacts of All of the Major Proposals in Leeward Oahu

Currently, the responsibility of overseeing the regional impacts of Leeward Oahu proposals lies with the public sector, as required by laws governing the planning process. Each developer is responsible for addressing the specific impacts which may be generated by the proposals. It has been suggested that a joint task force, comprising City and State representatives and those of the major developments. Such a group may prove extremely valuable in combining expertise and addressing the regional impacts. The Waipahu Neighborhood Board has recently initiated forums on regional transportation issues, and these may prove to be the appropriate vehicle for achieving such objectives.

4. Establishing a Public Elementary School in Village Park to Minimize Out-of-Area Busing

The timing of the Village Park elementary school is totally dependent on Department of Education population criteria and funding availability. Further, the Department of Education also controls the busing of intermediate and high school students to Pearl City facilities.

5. Actual Use of Recreational and Commercial/Industrial Facilities by Larger Waipahu Community

While such facilities will be available to the larger Waipahu community, the physical boundary of H-1 Freeway may prove too inconvenient for many Waipahu residents. This and other barriers will be considered in the marketing strategy for the commercial and industrial facilities. On the recreational parks, it is highly possible that Waipahu residents will make use of these areas because of the current inadequate supply of recreational facilities in Waipahu.

6. Involvement of Both Current Village Park and Expansion Residents in the Affairs and Activities of Larger Waipahu

Again, while the developer may encourage a link between the Village Park residents and those of the larger Waipahu community, the Village Park residents may find the H-1 Freeway a psychological, as well as a physical, boundary. Many of the Village Park residents do not necessarily have strong family or cultural ties with the Waipahu community, simply because Village Park is a recent community. The initiative to establish such ties is in the hands of the Village Park residents themselves.

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APPENDIX D

**PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON AGRICULTURE AND AQUACULTURE**

Decision Analysts Hawaii, Inc.
February 1986

**PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON AGRICULTURE AND AQUACULTURE**

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EXECUTIVE SUMMARY

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freed from sugar production given the outlook for low sugar prices; and (3) the comparatively small amount of land and water required to grow proven and promising crops to achieve a realistic level of food and animal-feed self-sufficiency, and to increase exports.

EXECUTIVE SUMMARY

The Village Park Expansion will result in the urbanization of approximately 691.5 acres of sugarcane lands under cultivation by Oahu Sugar Company, Ltd. (OSCo). However, the Village Park Expansion, individually or in combination with other major projects planned and proposed for Ewa and Central Oahu, will not adversely affect the economic viability of OSCo, nor will it require layoffs of sugar workers. Part of the reason for this is that the cost for relocating cane-haul roads, irrigation ditches and pipes, an earthen reservoir, and power poles will be absorbed by the developer of Village Park. In addition, the reduction in sugarcane acreage is expected to be gradual and partially or completely compensated for by increasing yields. Also, reductions in employment will occur through retirement and voluntary movement to other jobs. In the long term, OSCo could accommodate a major reduction in acreage and maintain economies of scale by operating just one mill, rather than two in parallel.

If OSCo is forced to cease operations for whatever reason (most likely because of low sugar prices), a significant economic loss and social disruption will result. Over the long term, however, the number of jobs which will be generated by West Beach Resort, Campbell Industrial Park, and other new economic activities in Ewa and Central Oahu will greatly exceed the number of jobs lost due to the demise of sugar and, on average, will pay higher wages. Therefore, most, but possibly not all, sugar employees can be expected to find other employment if this should be required. However, unskilled sugar workers and those having non-transferable skills may receive reduced pay when and if they are forced to find non-sugar jobs.

The development of Village Park Expansion on sugarcane acreage will eliminate the possibility of using these lands for diversified agriculture and/or aquaculture. However, it is extremely doubtful that this will adversely affect the growth of diversified agriculture and aquaculture in Hawaii. There are three reasons for this assessment: (1) the extensive amount of prime-agricultural land and water that has been freed from sugar and pineapple production because of past mill closings and reductions in operations; (2) the very real possibility that additional land and water will be

for sugarcane acreage, and are adjusted as a function of the revenues from sugar operations. Both leases allow partial withdrawal of lands for urbanization. The Campbell Estate lands above H-1 Freeway and west of Kumia Road have been dedicated to agricultural use in order to obtain special property tax assessments.

Soils in the Village Park area generally fall within the clayey silt ML and MH category of the Unified Soil Classification System. The USDA Soil Conservation Soil Survey classifies the soil as the Motokai silty clay loam, MuA, MuB, MuC and MuD, depending on the slope of the land.

OSCo is one of the major water users on Oahu, pumping 92.5 million gallons per day (MGD) of groundwater, and diverting in normal-rainfall years 28 to 30 MGD from the Windward side via Waiahole Ditch. Per-acre usage by OSCo averages 6,630 gallons per day. For comparison, pumpage by the Board of Water Supply averages under 140 MGD, and per-acre usage for single-family homes at 5 units per acre averages about 2,130 gallons per day.

Field, mill, and management employment at OSCo is approximately 600 workers. Indirect employment dependent upon OSCo is estimated to be 680 jobs (multiplier of 1.13, based on the State Economic Model).

Because of favorable growing conditions, good farming practices, and drip irrigation, sugar yields at OSCo are very high, about 15 to 18 tons per acre, versus a 1984 Statewide average of 11.86 tons per acre (U.S. DOA, Dec. 1984, p. 26). In fact, OSCo holds the world record sugar yield at 21.63 tons per acre set in April 1985 (HSPA, June 26, 1985). But even with high yields and very efficient operations, OSCo is, at best, only marginally profitable because of low sugar prices and high lease rents. The marginal profitability is measured before accounting for new capital investment needed to replace equipment.

URBANIZATION PRESSURES ON OSCo

The gradual growth westward of urban Honolulu has consumed a large amount of former sugarcane land as evidenced by the fact that the eastern boundary of OSCo lands has moved westward by 9 miles from Moanalua Valley out past Waialea Stream. Since the 1980s, four ridges west of Halawa have been urbanized. But because of new plantings in the foothills of the Waianae mountains and on former pasture lands, sufficient acreage was cultivated to maintain economies of scale. The westward urbanization pressures of Honolulu continues, but plantings of new lands to compensate for lost fields is no longer feasible.

PROPOSED VILLAGE PARK EXPANSION: IMPACT ON AGRICULTURE AND AQUACULTURE

INTRODUCTION

The Proposed Village Park Expansion will involve the urbanization of 691.5 acres of sugarcane lands of Oahu Sugar Company, Ltd. (OSCo). The impact of this loss on OSCo operations is summarized in this report. The analysis covers background information on OSCo, urbanization pressures on OSCo, the Amfac Master Agriculture Plan, and the impacts of the Village Park Expansion combined with other major projects on the long-term operations of OSCo, including the impacts on diversified agriculture and aquaculture alternatives. Also included is an appendix which provides an overview of the sugar and sweetener market, and the outlook for sugar prices. A second appendix discusses diversified agriculture and aquaculture alternatives for OSCo's Kumia lands.

BACKGROUND INFORMATION ON OSCo¹

Amfac's OSCo first milled sugar in 1899, and is now the fourth largest sugar operation in the State. It cultivates about 14,200 acres of sugarcane land, and produces about 90,000 to 95,000 tons of raw sugar, or nearly 10 percent of Hawaii's total sugar production. Its lands cover portions of Central Oahu on each side of Kumia Road above Pearl Harbor, and portions of the Ewa Plain to the west of Pearl Harbor. The Ewa lands were taken over from Ewa Sugar Co. in 1970.

Another 4,200 acres of OSCo lands were in production in 1982, but are now fallow. These lands are mostly mauike lands with high pumping costs, and lands close to the seashore where soils tend to be inferior, yields low, and hauling costs high because of the distance to the mill.

Nearly all of the land which OSCo cultivates is leased, principally from Campbell Estate with a lease expiration date of 1995, and Robinson Estate with a lease expiration date of 1996. The lease rents on these lands are the highest in the State

¹Unless otherwise noted, the material in this section is from OSCo, Amfac, and/or Section B, Chapter VI of Hawaii's Sugar Industry: Problems, Outlook, and Urban Growth Issues.

- The economic forces which create urbanization pressures on OSCo include:
- Returns from urban land uses far in excess of those for agricultural uses.
 - Proximity to the new or growing employment centers of West Beach, Barbers Point Harbor, Campbell Industrial Park, and downtown Honolulu.
 - Reasonable travel times to these employment centers because of the H-1 Freeway.
 - Availability of water if freed from sugar production.
 - Proximity to the Honolulu waste-treatment facility.
 - Low construction costs compared to areas that require extensive grading or removal of structures.

In contrast, redevelopment of downtown suffers from the high expense and displacement problems required to remove existing structures, the high expense and inconvenience of redeveloping inadequate infrastructure, less desirable high-rise housing compared to single-family homes, and strong community opposition on occasion. Hawaii Kai suffers from a lack of employment growth centers, relatively little land available for further single-family housing, severe transportation problems, and community opposition to further development. Similarly, the Windward side suffers from a lack of growing employment centers, transportation problems, and community opposition to further development.

In view of these factors, the City & County of Honolulu has designated the Ewa area as a "Secondary Urban Center" which will be developed to accommodate a major portion of Honolulu's future growth.

Major housing developments planned and proposed for the Ewa/Central-Oahu area are summarized in Table 1 including, for each development, the land owner, permit status with respect to State Urban Districting and County Development Plans, the number of housing units included in the project, and the affected sugarcane acreage of OSCo. The total number of housing units is very large, and very probably would require in excess of two decades to absorb all of the planned and proposed homes; during the 1970s, the increase in housing units for all of Oahu totaled 76,766 units (DPED, pp. 637 and 631). However, the more competition among landowners and developers, the better to home buyers in terms of price and selection. Currently, projects on Campbell Estate Lands account for 74 percent of the major projects listed in Table 1 which have State Urban Districting; if competition is to exist, other land owners must be allowed to remain and/or enter the housing market.

Table 1.- MAJOR HOUSING DEVELOPMENTS
IN THE EWA/CENTRAL-OAHU AREA

Project (Land Owner)	Permit Status		Housing Units	Affected Sugarcane Acreage
	State Urban District	County Development Plan		
Ewa Master Plan (Campbell Estate)	No	No	37,962	6,000
Ewa Marina (Campbell Estate)	Yes	Yes	4,850	410 + Followed
Ewa Plantation (Campbell Estate)	Yes	Yes	4,716	750
Makakio (Campbell Estate)	Yes	Yes	4,243	None
Melemanu Woodlands (Waikalani Developers, Inc.)	Yes	Yes	1,122	None
Milliani Town (Castle and Cooke)	Yes	Yes	1,400	None
Approved	No	No	6,940	None
Proposed				
Village Park (Robinson Estate)	Yes	Yes	909	Followed
Approved	No	No	3,333	690
Proposed				
Waiaua Ridge (Bishop Estate)	No	No	11,000	Followed
Waikole (Amfac)	No	Yes	2,760	Followed
Waipahu Civic Center Complex (State of Hawaii)	Yes	Yes	300	None
Waipio Gentry (Gentry)	Yes	Yes	910	None
Waterfront Manor (Okata Trucking Co., Ltd.)	Yes	Yes	704	None
West Beach Resort (Campbell Estate)	Yes	Yes	2,000	Followed
Whitmore Village (Castle & Cooke)	Yes	Yes	300	None
TOTAL			83,596	7,858

AMPAC MASTER AGRICULTURAL PLAN

In the long term, the survival of OSCo will depend primarily on the price of sugar, for which the outlook is pessimistic (see Appendix A). In the world market, the average price of sugar is expected to remain well below the production costs for all countries. This is because sugar in excess of various trade agreements is dumped on the world market, particularly by the European Economic Community (EEC) which, because of generous price supports to local sugar-beet growers and generous trade agreements with former colonies, is a major sugar producer, importer, and exporter, even though the EEC is one of the highest-cost sugar producers in the world, is self-sufficient in sugar and has no need to import it, and must sell its excess sugar on the world market at enormous losses. In the U.S., Federal legislation protects sugar from the low world prices by import quotas, tariffs, and import fees. However, U.S. sugar prices are managed so that they are fairly low in order to prevent accelerating the growth of high-fructose-corn syrup (HFCS), which costs less to produce than normal sugar. In addition, the new sweetener aspartame is capturing market share and putting additional downward pressure on U.S. sugar prices.

In view of the poor outlook for sugar prices, and combined with the fact that sugar plantations are in place with substantial infrastructure, but suitable replacement crops have yet to be identified, Amfac has developed a Master Agricultural Plan which includes a Survival Plan for OSCo. This plan amounts to a holding action to gain time to find as many replacement crops as possible before OSCo may be forced by outside economic factors to cease operations. Key components of the plan are:

- continue to improve the economic efficiency of OSCo by increasing sugar yields and reducing production costs (both of which have been improved substantially in the last few years);
- urbanize Waikale (the only land of OSCo owned by Amfac) in order to derive revenues to help support and justify continued sugar operations and
- experiment with a variety of crops (papaya, sweet corn, potatoes, forage and feed crops, etc.) in order to find profitable replacements to sugar.

Success of this plan will depend on continued Federal price supports for sugar sufficiently high to justify continued operations, union support to reduce costs, and an adequate allocation of water from the Pearl Harbor aquifer. After the major leases

expire with Campbell Estate and Robinson Estate in 1995 and 1996, respectively, continued sugar operations will also depend on success in negotiating favorable lease terms.

In support of continued sugar operations, the developers of Village Park will absorb the cost of relocating cane-haul roads, irrigation ditches and pipes, an earthen reservoir, and power poles.

An important component of OSCo's cost reduction is a continued decline in the labor force. This is to be accomplished by attrition—that is, employees who retire or leave OSCo for other voluntary reasons generally will not be replaced. According to Amfac, over at least the next decade (to the end of the major leases), no combination of the major housing projects planned and proposed for the Ewa/Central-Oahu area (see Table 1), and resulting loss in sugarcane acreage, will require layoffs of sugar workers. This is because of the expectation for relatively gradual reduction in sugarcane acreage, partial or complete compensation of this acreage loss by increasing yields, and rapid employment loss by attrition.

LONG-TERM OUTLOOK FOR OSCo

Assuming sufficiently high sugar prices to justify continued sugar operations, an important question is whether the Village Park Expansion, combined with the other projects listed in Table 1, would eventually reduce sugarcane acreage and economies of scale sufficiently to force the closing of OSCo.

OSCo runs two mills in parallel; with reduced operations, only one mill would be operated. Because of this, OSCo could reduce acreage and production substantially without losing economies of scale. Of significance, Amfac's Kekaha Sugar Company, Inc., which has climatic conditions similar to those of OSCo and a similar yield potential, is one of the most profitable sugar operations in the State. Yet this plantation has only about 8,000 acres under cultivation, and produces only about 55,000 tons of sugar per year versus 14,200 acres and 90,000 to 95,000 tons per year for OSCo. Assuming that OSCo could be reduced to a level similar to that of Kekaha Sugar Company without losing its economies of scale, which is regarded by Amfac as possible, then about 6,200 acres could be freed (14,200 - 8,000). Therefore, nearly all of the major housing developments planned and proposed for the Ewa/Central-Oahu area (see Table 1) can be safely accommodated without having OSCo lose its economies of scale and be forced to close.

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If OSCo were to cease operations for whatever reason (most likely because of low sugar prices), the loss of jobs would be less than 600 direct jobs and 680 indirect jobs, with the actual number dependent upon the reduced employment made possible by continuing productivity increases. However, over the next few decades, only a portion of the vast amount of land and water freed from sugar production would be absorbed by housing and other urban development; most of the land and water would remain available for diversified agriculture and other economic activities. Immediately following the mill closing, there would be a significant economic loss and social disruption. But over the long term, the economic loss would be absorbed easily by expanding economic opportunities in the Ewa/Central-Oahu area. For example, the new hotels at West Beach will be the equivalent of over seven OSCos in terms of direct plus indirect jobs and—when tip income and all indirect jobs are considered—will provide higher average wages (based on analysis with the State Economic Model). Other new jobs in the Ewa area will be provided by Barbers Point Harbor, expansion of Campbell Industrial Park, growth of diversified agriculture and aquaculture, and other economic activities which may be attracted to the area because of the availability of land and water, and home prices which should be less than that in most other areas on Oahu.

IMPACTS ON DIVERSIFIED AGRICULTURE AND AQUACULTURE

The development of Village Park Expansion is an irrevocable commitment of agricultural land to urban use. This commitment raises the question of whether the Village Park Expansion will affect adversely the development of diversified agriculture and/or aquaculture, either immediately or in the long term. Before addressing this question, the supply of and demand for land for diversified agriculture and aquaculture should be clarified.

Land Supply

Regarding the supply of land, there is an enormous and growing supply of prime agricultural land which has been freed from sugar and pineapple production. On Oahu, OSCo freed about 4,300 acres of agricultural land from sugar production in 1982 and 1983, and Wai'anae Sugar Co. on the north shore of Oahu recently released about 1,400 acres from sugar. On Kauai, Lihue Plantation Co. recently released 1,700 acres from sugar production. On the Big Island, 15,640 acres were released by

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the closing of Puna Sugar Co. Considerable land also was made available to diversified agriculture as a result of previous reductions in sugar acreage: 3,000 acres released on Oahu in 1971 with the closing of Kahuku Plantation Co.; 12,000 acres released on Kauai in 1971 with the closing of Kilauea Sugar Co.; 4,300 acres released in 1975 with the closing of Kohala Sugar Co. (Piasch, Hawaii's Sugar Industry, HSPA, Hawaii Agricultural Reporting Service).

Also, at least 33,600 acres of land have been freed from pineapple production over the last two decades: 11,600 on Oahu, 7,300 on Kauai, and over 20,000 on Molokai and Lanai (Hawaii Agricultural Reporting Service).

Some of the land freed from sugar and pineapple production has or will be converted to urban, diversified-agriculture, and aquaculture uses. Also, some of the land freed from pineapple use on Oahu was converted to sugar production. Making allowances for the various conversions, uncommitted acreage which remains available to diversified agriculture and aquaculture amounts to many tens of thousands of acres, with a large share of this on Oahu. Furthermore, this supply probably will increase given the unfavorable outlook for sugar prices. Many of the lands freed or to be freed from sugar and pineapple production have excellent agricultural qualities and climatic conditions, and are well suited for crop and aquaculture production. Also, water is available for most of these lands, especially lands freed from sugar production. However, many of the lands freed from sugar production are at high elevations where pumping costs are relatively high.

Further, some additional land has been made available to diversified agriculture in government-sponsored agricultural parks throughout the State.

Even though considerable agricultural land is available, it should be noted that the supply of parcels for small-scale farmers is limited. This is partially because of County regulations which require electrical power, paved rather than gravel roads, and buried rather than surface water lines. These requirements are appropriate for rural estates, but are unnecessary for agricultural use of the lands. The added expense for these items make it uneconomical for large land owners to subdivide their land into small agricultural lots.

Of interest, there is also a large supply of fallow agricultural land on the mainland. And this supply is expected to increase given genetic engineering advances which give promise of developing crops having higher yields, increased resistance to diseases and pests, and increased tolerance to climatic variations. Thus, increasing demand for agricultural land in Hawaii as a result of land shortages on the mainland should not be expected since such mainland land shortages are not expected.

Land Demand

In order to accommodate all diversified agriculture and aquaculture activities that are agronomically suited for Kumia and to provide the hope (but not the expectation) of profitable operations, the amount of land required is relatively small (see Appendix B). As discussed below and in the following section, little of the increase in diversified agriculture and aquaculture production can be expected to occur in Kumia, given the current ground rents in the area, and the greater suitability of the land for sugar and housing.

For the Hawaii market, fruits and vegetables which are judged to be agronomically and possibly commercially feasible for Kumia, based largely upon those crops which are already grown commercially in Hawaii in areas having a climate similar to that of Kumia, include:

- Import substitution potential, increasing production trend (an indicator of profitability): Chinese bananas, broccoli, sweet corn, sweet peppers, Italian squash, watermelon.
 - Import substitution potential, flat or decreasing production trend (an indicator of marginal profitability): snap beans, cucumbers, round egg-plant, limes, Chinese peas, Togan squash, taro, tomatoes.
 - Unlikely import substitutions: avocados, bittermelon, kai choy cabbage, daikon, daubeen, long eggplant, ginger root, semi-head lettuce, dry onions, green onions, pumpkins, radishes, sweet potatoes.
- Produce grown elsewhere in Hawaii, but not suitable for Kumia, includes:
- citrus other than limes, Chinese head cabbage, head cabbage, carrots, cauliflower, celery, head lettuce, romaine lettuce: require cool temperatures or other climatic conditions not found in Kumia.
 - long- and medium-day onions: require longer days for proper growth and curing, and prices are too low for profitability.
 - mangoes: a subsistence crop priced too low to justify commercial farming.
 - papaya: treated as an export crop (see below).
 - potatoes: Hawaii's major food import (nearly 38 million pounds in 1983), but repeatedly proven unprofitable in Hawaii; requires cool temperatures.
 - summer squash other than zucchini, and melon other than watermelons: insect and disease infestations.

The potential produce market for potential Kumia growers is derived from three sources: displacing production from other areas in the State, displacing imports, and

resident-plus-visitor population growth. The most promising produce crops for Kumia would be those which have substantial import substitution potential, and show trends of increasing production in Hawaii (an indicator of profitability). Crops with no recent history of profitable production in Hawaii offer additional potential. However, the risk of failure in new activities is high, and most farmers will be unable to provide or will be unwilling to risk the financial resources required to develop appropriate varieties, technology, and farming techniques.

For all fresh produce that has the potential of being profitable in Kumia, only about 1,300 additional acres would be required to (1) displace all but the low-cost summer imports and achieve realistic levels of self sufficiency, and (2) accommodate projected resident-plus-visitor population growth to the year 2000. This estimate is high, however, in that it assumes market success and profitability for a number of crops for which declining production trends indicate otherwise. On the otherhand, the potential would be much greater if potatoes—with which Amfac has experimented near Kumia—were proven to be profitable. Displacing produce production on the Neighbor Islands and elsewhere on Oahu would also increase potential land requirements for produce production in Kumia. But in order to have a significant amount of produce production occur in Kumia, agricultural ground rents would have to be reduced significantly so that they are similar to other agricultural areas in the State.

A strong market exists for feed crops, but most of these crops are not commercially feasible for Hawaii. A possible exception is corn silage to feed cattle in feed-lots. However, at most 2,600 acres would be needed Statewide to feed all cattle in feedlots, even with an increase in cattle operations. Amfac has experimented with corn silage and other feed crops in the Barbers Point area, but returns per acre were low.

Regarding crop exports, papaya is a possibility being explored by Amfac, although the land requirement for increased production is relatively small; total Statewide plantings are a little over 2,000 acres, primarily on the Big Island. Macadamia nuts offer the potential of absorbing a significant amount of agricultural land, but increasing competition indicates that this is a high-risk venture unable to compete in those areas where other activities offer higher land rents. Other existing export crops are not agronomically suited for the Kumia area and/or require very little land. Finally, efforts for over a century indicate that it is extremely difficult to identify new export crops and develop them into new and profitable industries. Nevertheless, Amfac has experimented with a new tropical sweet corn for export to the mainland during the winter.

Livestock operations are another possibility, but the returns are low from cattle grazing; the trends are not favorable for increased dairy, egg, and swine and pork operations; and little land is required for poultry operations. Furthermore, livestock operations should not be located near the existing homes of Village Park because of odor, dust and fly problems.

Problems with freshwater prawns include low profitability, a local market that is saturated, and an export market of doubtful potential. Other potential freshwater aquaculture activities suffer from low prices, stiff competition from the mainland, a small local market, unsuitable climate, and/or other problems. Brackish or saltwater aquaculture would be unsuited for Kunia because of elevation and location over the Pearl Harbor basal water lens; it is extremely important that this freshwater supply not be contaminated by seepage of brackish or saltwater.

Many of the diversified agricultural and aquaculture activities which will generate demand for agricultural land are likely to be small, family operations which do not pay full competitive wages, overtime, benefits, and overhead expenses typical of larger operations. Under a corporate structure, many diversified agriculture and aquaculture operations would be unprofitable and unable to pay rents competitive with sugar, particularly in the Ewa area.

Outlook for Diversified Agriculture and Aquaculture

It is extremely doubtful that the Village Park Expansion combined with other major housing developments in the Ewa/Central-Oahu area (see Table 1) will affect adversely the growth of diversified agriculture or aquaculture. This conclusion derives from the fact that there is a very large amount of prime agricultural land and water that has been freed from sugar and pineapple production in recent years, the very real possibility that additional sugarcane acreage and water will be freed given the outlook for low sugar prices, and the modest land requirements for diversified agriculture and aquaculture, particularly in the Kunia area given its particular conditions. Sufficient land and water are available to accommodate development of housing, diversified agriculture and aquaculture, and continued but possibly reduced sugar operations.

A considerable amount of the fallowed land is in the Ewa/Central-Oahu area. However, many fields are at high elevations, so would require high pumping costs. However, diversified agriculture and/or aquaculture would not be a reasonable use of the lands proposed for the Village Park Expansion. If these lands should not be

developed to help meet Oahu's housing needs, then it would be best to leave these lands in sugar given their proximity to the mill.

Many diversified agriculture and aquaculture activities would not generate returns per acre to pay rents typical in the Ewa/Central-Oahu area. However, these rents are based on sugar being the highest and best (i.e., the most profitable) use when sugar was in fact profitable. But sugar is now marginally profitable at best. When the major leases of OSCo expire in the mid 1990s, continued sugar operations may require a reduction in lease rents. When this occurs, some diversified agriculture and aquaculture operations may be able to outbid sugar and afford the new rents. However, the land requirements for diversified agriculture and aquaculture will probably be modest, with sugar still providing the highest return per acre for most of the lands.

When and if OSCo should cease operations, then an enormous amount of land and water will be freed from sugar production—far more land and water than could be absorbed by urban development. At this time, land rents should drop considerably in order to accommodate what will then become the highest and best use for these lands. Low rents and proximity to Honolulu could result in rapid development of diversified agriculture and aquaculture in the Ewa/Central-Oahu area—development which probably will be at the expense of Neighbor Island farmers.

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APPENDICES

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APPENDIX A

OVERVIEW OF THE SUGAR AND SWEETENER
MARKET AND OUTLOOK FOR PRICES

The profitability of Oahu Sugar Company (OSCo) over the next decade and beyond will depend to a far greater degree on the price of sugar than it will on acreage withdrawn for urbanization. However, the price of sugar fluctuates greatly, resulting in considerable uncertainty over what future prices will be. In view of this, the outlook for sugar prices is reviewed below. This material is a selective update of that analyzed by the author and published in Hawaii's Sugar Industry: Problems, Outlook, and Urban Growth Issues (State of Hawaii Department of Planning and Economic Development, April 1981).

THE WORLD SUGAR MARKET

Mature of the World Sugar Market

Sugar is one of the most universally produced and consumed agricultural commodities in the world, with some 125 nations producing it. About five-sixths of world sugar production is traded in controlled markets which comprise such government involvement as: government ownership of all or portions of a sugar industry; quotas; price controls; subsidies; import restrictions; and long-term politically motivated trade agreements which price sugar well above world sugar prices. Most countries have used these devices to insulate themselves from the "free" international sugar market, commonly referred to as the "world market." Consequently, the internal price of sugar in most countries does not reflect the price of sugar in the world market or the average cost of production. For example, the Soviet Union pays Cuba the equivalent of an estimated 30 to 50 cents per pound for raw sugar versus the European price of about 30 cents, the U.S. price of 31.09 cents (New York price, May 1985), and the world price of 2.77 cents (F.O.B. Caribbean, May 1985). This is in contrast to average per-pound-of-raw-sugar production costs of leading sugar producers and exporters which are believed to fall in a range from the mid to high teens to the mid 20s (with Hawaii and most other U.S. sugar producers placed in the

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middle of this range). As a result of government controls, sugar plants continue to be constructed even though the per-ton cost of the sugar being produced in all of these plants will greatly exceed the price of sugar on the world market.

The so-called "free world market" for sugar is a very "thin" market that includes only about one-sixth of the world's sugar. When sugar is abundant, the free world market becomes a "distress" or "dumping" market for selling surplus sugar which is produced under subsidies and in excess of controlled market needs. Consequently, the price of sugar in this "free world market" often falls below the cost of production.

International Sugar Agreement

For over a century, unsuccessful attempts have been made by world producers and users of sugar to keep the free world market from becoming a distress market for that part of their output which cannot be sold in controlled markets. The latest mechanism used in an attempt to stabilize the world sugar market is an International Sugar Agreement (ISA) negotiated in 1977. This Agreement seeks to establish free-market prices within the range of 13 to 23 cents per pound. Price stabilization is to be achieved through this Agreement by establishing quotas on world exports and imports, and accumulating buffer stocks when prices are low and releasing them when prices rise. Most countries have signed the ISA, including the United States (Piasch, pp. 84-88).

As with nearly all international commodity agreements for all types of commodities over the last 50 years, the ISA has been unsuccessful in materially improving prices. In fact, many believe that the ISA is contributing to low sugar prices: countries which would normally cut production are instead selling at their quota limits in order to keep from having their quota reduced.

European Economic Community (EEC)

The major sugar producer which affects the world market adversely, and the major non-participant in the ISA, is the European Economic Community (EEC). The EEC is the world's leading sugar producer and exporter, with its 1984/85 production level exceeding consumption by 2.7 million metric tons (37 percent of consumption). At the same time, the EEC is a major importer of sugar (2.33 million metric tons), importing sugar which it does not need and must therefore export. This situation results from the politically motivated Lomé Agreement with former colonies (Piasch, p. 83; U.S. ITC, pp. 6, A-2, A-36; U.S. DOA, Dec. 1984, p. 18).

The subsidized price received by sugar producers in Europe is one of the highest in the world, and is needed in order to allow profitable operations for producers who are among those with the highest costs in the world. Exports are "dumped" on the world market at prices which are far below the average production cost. Hence, the EEC sugar program requires very substantial government support, and has the perverse effect of having high-cost producers drive from the market the far more efficient low-cost producers who lack the benefit of similar government support.

Sugar specialists within the U.S. Department of Agriculture, New York sugar commodity brokers, and other sugar experts forecast continuation of the current EEC sugar program. The major political force for the EEC sugar program comes from France, which has a strong farming lobby made up of many small farmers (a carry-over of the 1794 land reform introduced during the French Revolution).

World Sugar Price

For most of the years since 1950, the average annual world sugar price has, for most exporting countries, stayed below the cost of producing sugar (Piasch, p. 93). This is because the free market for sugar is a distress, or dumping, market for the subsidized sugar which is produced in excess of demands, as previously mentioned.

Dramatic price increases have occurred, however, with a 6- to 9-year cycle. The average world price for raw sugar was 9.66 cents per pound in 1979, but 41.09 cents in October 1980; by September of 1982, the price had fallen to 5.9 cents (U.S. DOA, July 1985, p. 11). By May of 1985, the world price had fallen still further to 2.77 cents per pound, the lowest price in 15 years. The occasional high world sugar prices follow a series of years when consumption exceeds production, and world sugar stocks fall well below the 25- to 30-percent of consumption regarded as normal. The estimate of the 1984/85 stocks as a percent of world consumption is 45 percent (U.S. DOA, July 1985, p. 20). The cycle reflects the built-in delays in expanding sugar capacity in response to high sugar prices. The magnitude of the sharp price increase is a consequence of the thinness of the free market for sugar; sharp price increases are needed to balance the world demand and supply of sugar. The last peak in sugar prices occurred in 1980. However, it is probable that the historical 6- to 9-year price cycle has been interrupted by the generous sugar price supports in the EEC, and by competing sweeteners, such as high-fructose corn syrup and aspartame (discussed below).

U.S. SUGAR AND SWEETENER MARKET**Types of Sweeteners**

The U.S. sugar and sweetener market consists of a variety of sweeteners which in 1984 had the following distribution in the market: sucrose sugar—88.1 percent; high-fructose corn syrup (HFCS)—35.9 percent; dextrose and glucose corn syrups—15.3 percent; saccharin—7.1 percent; the commercially new aspartame—2.5 percent; and honey and edible syrups—1.1 percent (U.S. DOA, July 1985, p. 25).

U.S. sugar suppliers include sugarcane growers in Hawaii and three mainland states (about 32.3 percent of the market), sugar beet growers in 13 mainland states (about 29.1 percent of the market), and imported sugar refined mostly in the North-eastern states (about 37.8 percent of the market). Approximately half of the mainland sugarcane and beet growers experience production costs higher than Hawaii's average production cost (U.S. DOA, March 1983, pp. 17, 19; Flisch, p. 114).

The various sweeteners can be substituted for sucrose sugar, but in most cases, the substitution is imperfect and therefore limited. But HFCS and aspartame (discussed below) are different. Because of market expansion in these two sweeteners, U.S. consumption of regular sugar is expected to drop by about 0.5 million tons raw value (6 percent) in 1985 (DOA, July 1985, p. 6). This amount is approximately half of Hawaii's sugar production.

High-Fructose Corn Syrup (HFCS)

HFCS is a relatively new substitute for sucrose sugar. It is as sweet or sweeter than regular sugar, costs less to produce, is more profitable, is very similar to liquid sugar, and can be substituted readily in many applications. It has experienced rapid growth in sales at the expense of regular sugar sales. Newer second-generation HFCS allows a reduction in calories for the same amount of sweetness as provided by sucrose sugar. Furthermore, HFCS sells at a price significantly lower than the price of regular sugar (a price which is set by Federal action to be approximately equal to the average production costs of efficient producers) for April 1985, 55 percent concentrate HFCS sold for 20.12 cents per pound on the West Coast versus 31.0 cents for refined sugar (U.S. DOA, July 1985, pp. 18, 19).

Although HFCS is similar to sucrose, it is not identical. The most serious limitation to its widespread use is that it is commercially available only in liquid form. This effectively limits its use to industrial applications. In fact, most markets are either at, or are quickly approaching, their theoretical HFCS penetration levels.

The major and most important exception is the soft drink industry where additional growth is possible. In early November 1984, both Coca-Cola and Pepsi-Cola raised to 100 percent the allowable percentage of HFCS in their colas, which foretells a continuing drop in sucrose sugar consumption (Smith). The U.S. Department of Agriculture anticipates that 1985 consumption of HFCS will increase by 0.6 million tons, refined sugar equivalent (DOA, July 1985, p. 6). Most of this increase will displace regular sugar in beverages, dropping use of refined sugar in beverages from 0.9 million tons in 1984 to an estimated 0.5 million tons in 1985, compared to 2.6 million tons used in beverages as recently as 1979.

If HFCS were to achieve maximum theoretical market penetration, which could be approached sometime during the latter half of the 1980s, the result would be about a 25-percent reduction in U.S. sugar consumption (over 2.1 million short tons of raw sugar). This would leave approximately equal market shares for sugar and HFCS. Because of the price-support program for sugar under the U.S. Farm Bill, most of the reduction in sugar consumption probably would occur with imports (3.154 million short tons, net imports in 1984) rather than with domestic production (5.888 million short tons in 1984) (U.S. DOA, July 1985, p. 14).

Market penetration would be even greater if a low-cost crystalline form of HFCS were developed. Although this is being researched, experts within the industry do not foresee success within the next decade. The Citrus Corporation of Berkeley, California announced in 1980 that they had developed a new low-cost process for producing crystalline HFCS and had financial backing from Standard Oil of California to develop the process and build a pilot plant. The project has since been abandoned, however, partially because of low sugar prices.

A second approach which the industry has pursued in an attempt to circumvent the problem that HFCS is commercially available only in liquid form is its campaign to educate the public to use liquid HFCS in the home. However, a drawback of home use is that HFCS must be stored at 80 to 100° F. Otherwise it may become brownish, and crystallization or fermentation will occur.

Aspartame

Aspartame is a new sweetener which is beginning to provide substantial competition to sucrose sugar, HFCS, and saccharin. This sweetener, which is produced by the pharmaceutical company G.D. Searle, is a combination of two amino acids which occur in many foods (Bylinsky, pp. 28-32).

Aspartame went on sale in 1982 for table-top use under the name "Equal." Also, it is sold under the name "NutraSweet" as a sweetener for drink mixes (powdered tea, Kool-Aid, etc.), dry cereals, puddings, gelatins, whipped toppings, and chewing gum. In June 1983, aspartame was approved for use in diet drinks by the Food and Drug Administration (FDA). Within a few months, Coca-Cola, Pepsi-Cola, and Royal Crown Cola announced that they would use aspartame in their diet colas. It has been projected that aspartame and other new, low-calorie sweeteners will push diet drinks from 21 percent of the soda market in 1983 to 50 percent by 1990 (Businessweek, p. 63).

The advantages of aspartame are: it tastes about as good as sucrose sugar, and much better than saccharin which many people believe leaves an unpleasant and lingering aftertaste; it has been declared safe by the FDA, which is not the case for saccharin; it is about 200 times sweeter than sugar, so provides far fewer calories than sucrose or HFCS; it is a natural flavoring agent which improves the flavor of the food to which it is added; it is easier and less expensive to handle than sugar or HFCS; and it is free of the nutrients which encourage the bacteria that can cause dental cavities.

A disadvantage of aspartame is that it loses its sweetness after about six months in a can. Also, it breaks down when subjected to heat, so is unsuitable for use in baking. However, a new version of aspartame which can withstand heat is now being tested. A third problem with aspartame is that it lacks bulk. But this problem may be solved by adding a low-calorie bulking agent.

When aspartame was commercially introduced in 1981, it sold for about 45 cents per equivalent pound of refined sugar. It is expected, however, that this price will drop eventually to a level near that of HFCS, and below that of the wholesale price of refined sugar (Bylinaky, pp. 28-32). Searle is working on technology to reduce the costs of production, and several companies are exploring how to produce aspartame more cheaply using genetic engineering (The Economist, p. 61).

A mixture of aspartame and saccharin, which is used in Diet Coke, tastes sweeter than either product alone, tastes better than saccharin, and is cheaper than using aspartame by itself (The Economist, p. 62). The combination with aspartame has significantly increased consumption of saccharin, from 7.7 pounds per person in 1980, refined sugar equivalent, to 10.0 pounds in 1984 (DOA, July 1985, p. 25).

Other Sweeteners

Another new sweetener is Hoechst's acesulfame, which has been approved for use in Britain. Acesulfame is reported to be similar to aspartame and taste just like sugar, cost one-third as much as aspartame, and does not deteriorate (The Economist, p. 61).

Also similar to aspartame is RTI-001 (DL-amino malonyl-D-lysine isopropyl ester), developed by Research Triangle Institute (Science News, p. 262). The major advantage of this sweetener is its stability in liquids.

U.S. Sugar Legislation

When Congress allowed the 49-year-old U.S. Sugar Act to expire at the end of 1974, U.S. sugar producers were exposed to the "dumping" prices which occur in the free world market. The United States was one of the few major sugar producing, and also sugar importing, countries that had no effective government regulation of the production and importation of sugar (Piasch, pp. 129-135).

Low world and U.S. sugar prices after 1976 prompted passage of various administrative and legislative measures designed to help the U.S. sugar industry. All of these measures were temporary and only marginally successful. Consequently, attempts were made to pass a new Sugar Act that could maintain an economically healthy domestic sugar industry. However, these attempts were unsuccessful, partly because the decision by the corn lobbyists to support the Act was communicated too late to key legislators. Efforts to include sugar in the U.S. Farm Act of 1981 were successful, however. Price supports are provided through a loan/purchase program, high import fees, and import quotas. However, the price-support level was set relatively low in order to gain needed votes, limit the impact on inflation, and limit the profits of HFCS producers thereby avoiding excessive growth stimulation of the HFCS industry. The market stabilization price for the 1984/85 crop year was set at 21.87 cents, raw sugar value, although actual prices have been less.

The U.S. Farm Act is currently up for renewal, and sugar is again to be included in the Act. Both the House and Senate agricultural committees have approved legislation that would set the sugar loan rate at 18 cents per pound, raw sugar (HSPA, July 29, 1985). No explicit provision is made for inflation, but the draft legislation includes authority to allow discretionary increases in the loan rate.

Regarding the long-term outlook for sugar legislation, it should be noted that many corn states have joined the sugar coalition, making it larger and stronger than

It was before, even though a number of sugar companies have closed in recent years. Also, the Farm Act is generally supported by those countries which receive a sugar quota, since they benefit from a high price for a major portion of their sugar. The considered expectation among sugar experts and lobbyists is that sugar will continue to be included in the U.S. Farm Act, but that the price-support level may be relatively low and may increase at a rate that is somewhat slower than inflation. Even though this is expected, there is a risk that efforts by sugar users and consumer groups to exclude sugar from the Farm Act or to reduce the support price will be successful.

Outlook for the U.S. Sugar Price

It is anticipated that the price of sugar on the world market will continue to be very low for a number of years until world consumption overtakes production, and the large stocks of sugar are drawn down. During this period, the price for sugar within the United States will reflect the relatively low price support provided in the U.S. Farm Act—a price of about \$340 per ton (17 cents per pound) to OSCo in August 1985. After a slight adjustment with the new U.S. Sugar Act, it is expected that this price will remain relatively level, or increase only modestly at a rate considerably less than inflation.

If the 6- to 9-year cycle for world sugar prices should continue, then a sharp and substantial upswing in the world and U.S. sugar prices can be expected before the end of the decade, followed by sugar prices falling below production costs during the first half of the 1990s. However, continuation of the world sugar-price cycle is in doubt given disruption of the world sugar market by the ECC.

Also, it is expected by the end of the decade that HFCS will have captured nearly all of the liquid sugar market, with fairly limited market penetration thereafter. At this time, sugar prices can move somewhat independently of HFCS prices and, theoretically, sugar price supports can be relatively high with respect to the production cost of HFCS without fear of greatly stimulating growth in the HFCS industry. However, it is doubtful that a sufficiently large political coalition can be assembled to achieve higher price supports for sugar only. And by this time, the sugar industry could be threatened with substantial market penetration by aspartame and other new sweeteners. Thus, considerable uncertainty exists over the U.S. price of sugar during the 1990s and beyond.

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Fresh Produce

Fruits and vegetables which are judged to be agronomically and possibly commercially feasible for Kuniia are listed in Table B-1. The judgment is based largely upon those crops which are already grown commercially in Hawaii in areas having a climate similar to that of Kuniia. The crops are categorized by those which have (1) significant import-substitution potential, and the production trends are increasing (an indicator of profitability), (2) significant import-substitution potential, but the production trends are flat or decreasing (an indicator of marginal profitability), and (3) little or no import-substitution potential.

Crops excluded from Table B-1 and the reasons for the exclusion include:

- citrus other than limes, Chinese head cabbage, head cabbage, carrots, cauliflower, celery, head lettuce, romaine lettuce: require cool temperatures or other climatic conditions not found in Kuniia.
- long- and medium-day onions: require longer days for proper growth and curing, and prices are too low for profitability.
- mangoes: a subsistence crop priced too low to justify commercial farming.
- papaya: treated as an export crop in the following section.
- potatoes: Hawaii's major food import (nearly 38 million pounds in 1983), but repeatedly proven unprofitable in Hawaii, requires cool temperatures.
- summer squash other than zucchini, and melon other than watermelon: insect and disease infestations.

The first column of Table B-1 shows the 1983 Honolulu wholesale supply for the crops listed, based on the amount sold in the wholesale market. These quantities provide a crude estimate of the current demand for these products. The estimates are crude because the data for Honolulu are for aggregates of similar products. For example, all types of bulb onions are listed as "dry onions," and both oriental and American types of cucumbers are listed as "cucumbers." Also, in some instances, imports and locally produced products may be imperfect substitutes. An example could be sweet peppers; although identical in appearance, the flesh on the imported peppers is thicker than on the locally grown peppers. These quantities will therefore reflect an overestimate of the demand for local products, since local products are not all identical to imports.

The second column of Table B-1 gives the amount of Honolulu consumption which is produced in Hawaii, including amounts from the islands of Hawaii, Kauai, Maui, Molokai, and Oahu. The percentage ratio between local production and Honolulu consumption gives the market shares shown in Column 3.

Table B-1.- HONOLULU CONSUMPTION, AND ACTUAL AND POTENTIAL SHARES SUPPLIED BY HAWAII OF PRODUCE CROPS FEASIBLE FOR KUNIIA: 1983

Crop	Honolulu Wholesale Supply (1,000 lbs)	Hawaii Production for the Honolulu Market (1,000 lbs)	Actual Market Share (percent)	Estimated Potential Market Share (percent)
Import Substitution Potential: Increasing Production Trend				
Bananas, Chinese	11,954	1,958	16	80
Broccoli	3,392	114	3	10
Corn, Sweet	342	138	40	90
Peppers, Sweet	2,262	645	29	70
Squash, Italian	1,706	455	27	50
Watermelon	7,598	3,365	31	70
Import Substitution Potential: Flat or Decreasing Production Trend				
Beans, Snap	857	758	88	95
Cucumbers	3,881	2,531	64	90
Eggplant, Round	418	300	72	90
Limes	456	45	10	50
Peas, Chinese	300	27	9	50
Squash, Togan	185	116	63	75
Taro	1,020	227	22	50
Tomatoes	12,287	4,302	35	50
Unlikely Import Substitution				
Avocados	1,454	851	59	60
Bittermelon	150	149	99	99
Cabbage, Kai Choy	840	834	99	99
Daikon	1,583	1,582	100	100
Dasheen	242	238	98	98
Eggplant, Long	567	565	100	100
Ginger Root	1,412	1,239	88	90
Lettuce, Semi-head	1,291	1,291	100	100
Onions, Dry	12,576	1,097	9	20
Onions, Green	307	607	75	90
Pumpkins	653	204	31	40
Radishes	204	194	95	95
Sweet potatoes	1,755	1,223	70	75
TOTAL	70,393	36,955	34	59

Sources: Hawaii State Department of Agriculture, "Honolulu Unloads," Market News Service.

Table B-2.- POTENTIAL HAWAII PRODUCTION FOR THE HONOLULU MARKET OF PRODUCE CROPS FEASIBLE FOR KUMIA: 1983 AND 2000 (1,000 pounds)

Crop	Actual Production, 1983	Potential Production Increase Due to		Total	Potential Production, 2000
		Import Substitution	Population Growth		
Import Substitution Potential: Increasing Production Trend	1,958	7,805	1,855	9,460	11,418
Bananas, Chinese	114	325	66	445	405
Broccoli	138	170	60	308	368
Corn, Sweet	645	938	307	1,245	1,891
Peppers, Sweet	455	398	165	563	1,018
Squash, Italian	2,365	2,854	1,032	3,986	6,350
Watermelon					
Import Substitution Potential: Flat or Decreasing Production Trend	756	58	158	214	972
Beans, Snap	2,531	1,052	695	1,747	4,278
Cucumbers	300	76	73	449	449
Eggplant, Round	45	183	44	237	272
Limes	27	123	39	152	179
Peas, Chinese	116	23	27	50	186
Squash, Togan	237	283	99	382	609
Taro	4,302	1,842	1,192	3,034	7,335
Tomatoes					
Unlikely Import Substitution	651	21	169	190	1,042
Avocados	149	--	29	39	178
Bittermelon	834	--	162	162	996
Cabbage, Kai Choy	1,582	--	307	307	1,889
Dalton	238	--	46	46	284
Dasheen	565	--	110	110	675
Eggplant, Long	1,239	32	247	279	1,517
Ginger Root	1,291	--	250	250	1,541
Lettuce, Semi-head	1,097	1,418	488	1,805	3,003
Onions, Dry	607	119	141	119	867
Onions, Green	204	57	51	108	312
Pumpkins	194	--	38	38	232
Radishes	1,223	93	255	348	1,572
Sweet potatoes					
TOTAL	26,955	19,668	8,995	25,763	49,818

1 (Honolulu Consumption x Potential Market Share) - Actual 1983 Production.
 219.4% of (Actual 1983 Production + Potential Production Increase Due to Import Substitution).

The last column of Table B-1 presents the estimated potential market share based on import substitution. Factors included when developing the estimates were: --The mix of products contained within each product group.

As mentioned, dry onions include all types of bulb onions, and cucumbers include both oriental and American types. Also local sweet peppers have thicker skins than mainland ones. For these cases, local varieties are imperfect substitutes for certain mainland varieties.

--The extent of overseas competition.
 For certain crops, Hawaii can supply all or nearly all of local demand because of weak or nonexistent mainland competition for these crops. Hawaii's market share can approach or reach 100 percent. But for those crops which face competition from the mainland, the rule of thumb is that prices will start to be depressed when local production increases the market share beyond about 70 percent. With lower prices, growing of the particular crop becomes less profitable, and some farmers begin to switch to alternative crops.

--Seasonal variation of overseas competition, and local demand and production.

Summer crops from California and elsewhere supply the Honolulu market with many fruits and melon at very low prices--prices too low for profitable operations by Hawaii farmers. When this occurs, Hawaii's market share approaches or reaches zero percent. But even though prices are stronger in the winter, the quality and yield of Hawaii's winter crops may be less than that of summer harvests (i.e., tomatoes).

The potential produce market for potential Kumia growers is derived from three sources: displacing production from other areas in the State, displacing imports, and resident-plus-visitor population growth. Estimates of the potential market size due to these three sources for those crops feasible for Kumia are shown in Table B-2. Corresponding land and water requirements are shown in Tables B-3 and 4, based on the yield and water assumptions given in Table B-5.

The most promising produce crops for Kumia would be those which have substantial import substitution potential, and show trends of increasing production in Hawaii (an indicator of profitability). These crops include Chinese bananas, broccoli, sweet corn, sweet peppers, Italian squash, and watermelon. Crops with no recent history of profitable production in Hawaii offer additional potential. However, the risk of failure in new activities is high, and most farmers will be unable to provide or

Table B-3.— POTENTIAL LAND REQUIRED TO SUPPLY THE HONOLULU MARKET WITH PRODUCE CROPS FEASIBLE FOR KUNIA: 1983 AND 2000 (acres)

Crop	Land Required, 1983	Potential Acreage Increase Due to			Potential Land Required, 2000
		Import Substitution	Population Growth	Total	
Import Substitution Potential: Increasing Production Trend					
Bananas, Chinese	98	380	93	473	571
Broccoli	3	6	2	8	10
Corn, Sweet	12	14	5	19	31
Peppers, Sweet	22	31	10	41	63
Squash, Italian	14	12	5	12	31
Watermelon	158	197	69	366	423
Import Substitution Potential: Flat or Decreasing Production Trend					
Beans, Snap	28	2	6	8	36
Cucumbers	67	28	19	47	114
Eggplant, Round	6	1	1	2	8
Limes	5	20	5	25	30
Peas, Chinese	2	8	2	10	12
Squash, Togan	4	1	1	2	6
Taro	14	18	6	24	38
Tomatoes	72	31	20	51	122
Unlikely Import Substitution					
Avocados	122	3	24	27	149
Bittermelon	6	—	1	1	7
Cabbage, Kal Choy	12	—	2	2	14
Dalton	18	—	4	4	22
Dashen	9	—	2	2	11
Eggplant, Long	14	—	3	3	17
Ginger Root	40	1	8	9	50
Lettuce, Semi-head	14	—	3	3	16
Onions, Dry	72	95	33	128	200
Onions, Green	20	4	5	9	29
Pumpkins	8	2	2	4	12
Radishes	1	—	—	—	2
Sweet potatoes	51	4	11	15	65
TOTAL	694	658	343	1,300	3,089

Sources: Derived from Tables B-3 and 5.

Table B-4.— POTENTIAL WATER REQUIRED TO SUPPLY THE HONOLULU MARKET FOR PRODUCE CROPS FEASIBLE FOR KUNIA: 1983 AND 2000 (million gallons per day)

Crop	Water Required, 1983	Potential Water Increase Due to			Potential Water Required, 2000
		Import Substitution	Population Growth	Total	
Import Substitution Potential: Increasing Production Trend					
Bananas, Chinese	0.44	1.70	0.41	2.11	2.55
Broccoli	0.02	0.04	0.01	0.05	0.07
Corn, Sweet	0.05	0.06	0.02	0.08	0.14
Peppers, Sweet	0.10	0.14	0.05	0.19	0.28
Squash, Italian	0.08	0.05	0.02	0.07	0.12
Watermelon	0.35	0.44	0.15	0.59	0.95
Import Substitution Potential: Flat or Decreasing Production Trend					
Beans, Snap	0.13	0.01	0.03	0.04	0.16
Cucumbers	0.27	0.11	0.07	0.18	0.46
Eggplant, Round	0.02	0.01	0.01	0.02	0.04
Limes	0.02	0.09	0.02	0.11	0.14
Peas, Chinese	0.01	0.04	0.01	0.05	0.05
Squash, Togan	0.02	—	—	—	0.02
Taro	0.11	0.14	0.05	0.19	0.30
Tomatoes	0.32	0.14	0.09	0.23	0.55
Unlikely Import Substitution					
Avocados	0.54	0.01	0.11	0.12	0.66
Bittermelon	0.03	—	—	—	0.03
Cabbage, Kal Choy	0.10	—	0.02	0.02	0.12
Dalton	0.12	—	0.02	0.02	0.15
Dashen	0.03	—	0.01	0.01	0.04
Eggplant, Long	0.06	—	0.01	0.01	0.08
Ginger Root	0.16	—	0.03	0.03	0.20
Lettuce, Semi-head	0.12	—	0.02	0.02	0.15
Onions, Dry	0.16	0.21	0.07	0.28	0.45
Onions, Green	0.09	0.02	0.02	0.04	0.13
Pumpkins	0.03	0.01	0.01	0.02	0.05
Radishes	0.02	—	—	—	0.02
Sweet potatoes	0.23	0.02	0.05	0.07	0.29
TOTAL	3.61	3.24	1.31	4.55	8.29

Sources: Derived from Tables B-3 and 5, using 1 acre-foot per year = 0.0008927 MGD.

Table B-5.- YIELDS AND WATER REQUIREMENTS OF PRODUCE CROPS FEASIBLE FOR KUNIA

Crop	Yield			Water (ft/crop)
	Yield per Crop (lbs/acre)	Crops per Year	Yield per Year (lbs/acre)	
Import Substitution Potentials: Increasing Production Trend				
Bananas, Chinese	20,000	1	20,000	5
Broccoli	10,000	4	40,000	2
Corn, Sweet	4,000	3	12,000	1.87
Peppers, Sweet	15,000	2	30,000	2.5
Squash, Italian	11,000	2	22,000	1.5
Watermelon	15,000	1	15,000	2.5
Import Substitution Potentials: Flat or Decreasing Production Trend				
Bears, Snap	9,000	3	27,000	1.87
Cucumbers	12,500	3	37,500	1.5
Eggplant, Round	27,000	2	54,000	2.5
Limes	9,000	1	9,000	5
Peas, Chinese	5,000	3	15,000	1.87
Squash, Togan	15,000	2	30,000	2.5
Taro	20,000	0.8	16,000	11
Tomatoes	30,000	2	60,000	2.5
Unlikely Import Substitution				
Avocados	7,000	1	7,000	5
Bittermelon	12,000	2	24,000	2.5
Cabbage, Kai Choy	12,000	6	72,000	1.87
Dalton	17,000	5	85,000	1.5
Dasheen	26,000	1	26,000	4.25
Eggplant, Long	20,000	2	40,000	2.5
Ginger Root	34,000	0.9	30,600	5
Lettuce, Semi-head	16,800	6	100,800	1.87
Onions, Green	10,000	3	30,000	1.87
Onions, Dry	15,000	1	15,000	2.5
Pumpkins	13,500	2	27,000	2.5
Radishes	11,000	12	132,000	1
Sweet potatoes	12,000	2	24,000	2.5

¹ Excludes production during the season when consumption is supplied primarily by cheaper mainland imports.

will be unwilling to risk the financial resources required to develop appropriate varieties, technology, and farming techniques.

For all fresh produce that has the potential of being profitable in Kunia, only about 1,200 additional acres would be required to (1) displace all but the low-cost summer imports and achieve realistic levels of self sufficiency, and (2) accommodate projected resident-plus-visitor population growth to the year 2000. The corresponding water requirement would be only 4.6 MGD. These estimates are high, however, in that they assume market success and profitability for a number of crops for which declining production trends indicate otherwise. On the otherhand, the potential would be much greater if potatoes—with which Amfac has experimented near Kunia—were proven to be profitable. Displacing produce production on the Neighbor Islands and elsewhere on Oahu would also increase potential land requirements for produce production in Kunia. But in order to have a significant amount of produce production occur in Kunia, agricultural ground rents would have to be reduced significantly so that they are similar to other agricultural areas in the State.

Feed Crops

A large potential exists for Hawaii production of feed crops by displacing the large volume of animal feed which is now imported. In 1982, imports totaled 167,846 tons, and included corn, barley, wheat, bran, oats, sorghum, alfalfa, cottonseed, soybean meal, beet pulp, whey, yeast, and a number of mixed feeds. The potential for displacing a major portion of grain and alfalfa imports is indicated by year-round growing conditions which, under controlled conditions, have resulted in yields of over twice those obtained on the mainland. Two feeds which have recently been grown commercially in Hawaii are corn and alfalfa. In addition, corn can be substituted for barley. Assuming Hawaii can reach 100-percent self-sufficiency in these crops, then an estimated 15,200 acres could be placed in grain production (assuming crop yields of 6 tons per acre annually to replace 91,376 tons of imported corn, sorghum, barley and mixed feeds), and 2,370 acres could be placed in alfalfa production (assuming a yield of 11 tons per acre annually to replace 26,056 tons of imports).

The market would be even larger if local production of feed were to stimulate livestock production in Hawaii. Currently, Hawaii is 30-percent self-sufficient in beef and veal, 25-percent self-sufficient in pork and chickens, 76-percent self-sufficient in eggs, and nearly 100 percent self-sufficient in milk.

However, feed grains have yet to be proven as a serious alternative for Hawaii. Unsuccessful results with past commercial attempts to grow grain crops were encountered for a number of reasons:

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- Various pests have presented a major problem--particularly birds which have eaten major portions of crops before harvesting.
- For most feed crops, Hawaii's humidity is too high (less than 12 percent is required) to allow proper drying before harvest.
- Most feed crops are hybrids which have been developed over many decades to adapt to mainland conditions and, although a number of tropical corn-grain hybrids are under development at the University of Hawaii's College of Tropical Agriculture and Human Resources, species suited to Hawaii's particular environmental conditions are yet to be perfected.
- Hawaii's year-round warm weather allows the build-up of pathogens in the soil (on the mainland, pathogens are killed during cold winter periods).
- The length of Hawaii's summer day is too short for proper growth of some crops, in particular soybeans.
- The high cost of land, labor, and imported fertilizers and other supplies makes it difficult to compete with imported feeds.

The production of alfalfa, however, has shown some promise, with Hawaii's only alfalfa farm being a 150-acre operation on Molokai. But large-scale commercial success has yet to be proven.

Another alternative for displacing feed imports is to grow corn silage to feed cattle in feedlots. Until recently, corn silage was grown on the North Shore of Oahu and fed to dairy cows, and there are some small-scale operations on the Ewa plains of Oahu. In 1982, 54,000 cattle were slaughtered in Hawaii, of which 29,400 (54 percent) were fattened in feedlots. Since cattle spend about 4.5 months in a feedlot, the average population within Hawaii's feedlots during 1982 was 11,000 cattle (29,400 x 4.5/12). Assuming that increased production of corn silage and its use in feedlots induce all 54,000 slaughtered cattle to be fattened in feedlots, then the average population in feedlots would increase to about 20,200 cattle (11,000 x 54,000/29,400). Fattening more cattle in feedlots would free pasture land for other cattle (a limiting factor to beef production), and would allow an increase in the herd size by about 12 percent. Thus, the feedlot population can increase to about 22,600 cattle (20,200 + 12%). Since an acre of silage yields about 57 tons per year and feeds about ten cattle, only 2,600 additional acres of corn silage would be needed to supply all of Hawaii's feedlots at the increased level of production plus the 3,500 dairy cattle on the Neighbor Islands ((22,600 + 3,500)/10).

Expanded corn silage operations would likely locate on Oahu because the State's major feedlot and dairies are located here, and because corn silage, which has a high

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moisture content, is heavy and can be transported economically only over relatively short distances.

Amfac has in fact experimented with feed and forage crops on its OSCo lands. Although yields were favorable, returns per acre were not.

CROP EXPORTS

Competitive Advantages of Hawaii

Because of the huge size of overseas markets compared to Hawaii's market, the financial rewards of successful export crops are far greater than those of crops grown for local consumption. The competitive advantages which Hawaii offers in developing export crops includes a subtropical climate which allows year-round growing conditions and very high yields for some crops. Also, Hawaii is politically stable and has duty-free access to the U.S. mainland market. Frequent and reliable air and shipping service is available to the U.S. mainland and elsewhere. The University of Hawaii College of Tropical Agriculture and Human Resources and the Hawaiian Sugar Planters' Association are recognized worldwide as leaders in tropical agriculture research. Finally, the State and County governments provide strong political support for agriculture.

Repeated attempts have been made for well over a century to develop export markets for a great many commodities. Some of the more notable attempts have included silk, cotton, white potatoes, wheat, rice, bananas, rubber, sisal, tea, tobacco, and corn (Plasch, Hawaii's Sugar Industry, p. 218). In addition, there have been numerous studies over the last 100 years. The limited success with these many attempts illustrate that it is extremely difficult to identify an export crop which has a competitive advantage over other areas, and then to develop that crop into a successful industry.

Reasons for the difficulty in developing export crops are many, and include:

- Many of the tropical and subtropical crops which grow well in Hawaii also grow well in similar areas of the Caribbean, Central and South America, Africa, and Asia, and many of these areas have cheaper labor, land, and water costs.
- Overseas transportation costs for both exports and imports of equipment and supplies are often higher than the corresponding costs for other tropical and subtropical countries which may be closer to major markets, and are not restricted to using expensive American shipping lines.
- Hawaii has tropical fruit flies which causes certain fruits to be banned

from the U.S. mainland and Japan, or require expensive treatment and inspection of the fruit.

- Many temperate-climate crops do not grow well in Hawaii.
- Chemical costs in Hawaii are relatively high because Hawaii soils are deficient in nutrients, and there is no cold winter to kill pests as is the case on the U.S. mainland.

In the past, sugar was able to overcome the above and other problems, and compete in an established market partly because yields in Hawaii have been the highest in the world. However, most other crops follow the development strategy of pineapple where the market is developed virtually from scratch at considerable cost and risk of failure. After the technology has been perfected and the market developed, growers in countries having lower production and/or delivery costs typically enter the market to the detriment of Hawaii growers. The export crops which are currently following this strategy with success are papaya, macadamia nuts, and cut flowers (principally anthuriums). For each of these crops, overseas competition is developing. The other diversified agricultural exports from Hawaii include coffee, seed corn, ginger root, green stock, and guava puree. Other crops may be possible for export, but they have yet to be identified and/or their overseas market developed.

Competitive Advantages of Kunia

Regarding exports, growers on Oahu, including those who may locate in the Kunia area, are favored by better transportation service than that provided to Neighbor Island farmers. Air service is cheaper and more frequent, with direct flights to many cities; similarly, shipping service is more frequent. With frequent airline and shipping service, storage costs are lower, rush deliveries of needed supplies and equipment are faster, and overseas delivery dates are more easily met before spoilage occurs. Also, the many wide-bodied jets which fly in and out of Honolulu Airport allow a reduction in packing, handling and transport costs because of the LD3 containers used in these aircraft. For Oahu farmers supplying the export market, Honolulu also provides a large and convenient standby market whenever production exceeds overseas demand.

A disadvantage of Kunia, however, is the relatively high land rent.

Papaya

Papaya exports have grown from 4.9 million pounds in 1965 to 45.1 million pounds in 1981, experiencing an average annual growth rate of about 15 percent.

However, exports fell to 35.6 million pounds by 1983. In this year, 2,130 acres were harvested in the State. Production is concentrated on the Big Island (98 percent), with Amfac being the largest exporter in the State.

Papaya is a possible export crop for Kunia. In fact, Amfac has experimented with plantings of papaya on OSCo lands withdrawn from sugar production. However, land rents favor other areas for growing papaya for export.

Macadamia Nuts

Production of macadamia nuts has grown from 8.5 million pounds in 1965 to 36.4 million pounds in 1983. In terms of acreage in crops, macadamia nuts are Hawaii's largest diversified agriculture industry (15,800 acres in 1983), with practically all production located on Hawaii Island. However, some new orchards have been planted by C. Brewer & Co., Ltd. on about 3,000 acres of former lands of Walluku Sugar Co. on Maui.

Macadamia nut farms provide a relatively high return once the orchards mature. However, the orchards require a very large financial investment, and do not bear fruit for 7 years, and reach full productivity even later. As a result, the return on the investment is marginally attractive. Given growing competition from other areas in Hawaii (C. Brewer & Co., Ltd. is also planting 8,000 acres in macadamia nuts on the Big Island) and from other countries (Brazil, Guatemala, Malaysia, Australia, and possibly Egypt), macadamia nut orchards represent a high-risk investment. This is particularly true for firms which are new to the industry and which may lack the proprietary information on optimal varieties for a given area (assuming they even have access to a supply of cuttings of the proper variety), and on optimum farming practices. If the wrong variety of tree is planted or improper farm practices followed, yields will be low and substantial losses will be suffered.

A further difficulty is that substantial acreage must be planted in order to support the necessary processing facilities; otherwise, nuts would have to be shipped off-island for processing. Macadamia nuts also require considerable water—over 7 feet per year.

In view of the high risk and high land rents at Kunia, macadamia nuts do not appear to be an appropriate crop for this area.

Coffee

Hawaii's coffee industry is, for most years, marginally profitable, and has experienced declines in production in the past, although the industry has been

relatively stable in recent years. For the 1983/84 season, production was 2.5 million pounds on 1,800 acres of land centered at high elevations in Kona on the Big Island. Kuniia has climatic conditions unsuited for coffee production.

Seed Corn and Other Seed Research

The seed corn industry is research oriented, and exports new and improved seeds by air to seed companies, universities, and private and government research organizations located in the U.S., France, Canada, South Korea, Germany, Italy, Holland, Yugoslavia, Bulgaria, Japan, and other nations. The research and seeds are provided under proprietary contract arrangements.

The amount of land used for nursery, observation, and seed production has gradually increased since its introduction to Hawaii in the late 1980s, reaching 880 acres in 1993; these lands are distributed among Kauai, Central Maui, Molokai, and Oahu. However, over half of the State's seed corn industry is located on Molokai where seven companies carry out research or produce seed corn on a permanent basis. During the winter other seed companies produce seed corn in Hawaii on an interim basis.

In addition to seed corn, considerable activity also focuses on the production of genetic material for sorghum, soybeans, and sunflowers; lesser activity focuses on millet, flax, faba beans, sesame, barley, wheat, cotton, kidney beans, black edible beans, tomatoes, cucumbers, and other vegetables. But the major focus is on seed corn, both grain and forage, for two reasons. First, it is the major crop of the United States, with far greater demand for it than exists for other seeds. Second, corn is a hybrid for which new varieties are continually under development. The other non-hybrid seeds breed true, and thus do not lend themselves to extensive development efforts.

Seed corn and other seed research is a unique industry which has a clear comparative advantage in its Hawaii site, enabling it to produce during winter months, and to be insulated from diseases that could affect the large production areas on the mainland. Nine to twelve generations of new hybrids can be produced in 3 to 4 years in Hawaii versus the 9 to 12 years on the mainland. Areas in competition with Hawaii include Mexico (which presents language and political problems), Florida (which has occasional freezes), and Puerto Rico. However, Hawaii dominates the industry; approximately 75 percent of all the corn produced in the United States can trace its development to Hawaii, and over half of it to Molokai.

As increased effort is directed to the needs of tropical areas, gradual growth in the seed corn industry is anticipated. However, the growth potential amounts to only a few hundred acres, and most of the growth is expected to occur near Kaunakakai on Molokai where climatic conditions are regarded as the best in the world for conducting seed corn research, and where agricultural land rents are generally much lower than elsewhere in Hawaii.

Ginger Root

Ginger root production for export is a new industry with a promising, but still uncertain, future. Although production is relatively small, it has grown rapidly from 1.9 million pounds in 1979 to 5.1 million pounds in 1983; this production was harvested from 160 acres. However, ginger root is not a major commodity, and so has a limited overseas market; in fact, the market was glutted in 1983, which led to a major price drop.

The farming of ginger root is labor intensive, and generally occurs in backyard farms rather than commercial operations. Also, other areas are competing for the U.S. market, including California and Fiji. As far as Kuniia is concerned, it offers no locational advantage for ginger root production compared to other areas in the State.

Guava Puree

Guava puree is a small and, at best, marginally profitable industry with exports of less than \$300,000 (Hawaii DPED, Hawaii Guava Industry; University of Hawaii CTA & HR, Guava Industry Analysis, 1983). Production is mostly in backyard operations of the Big Island, with processing performed only occasionally in expensive plants which mostly process papaya. Without sizeable papaya operations and a papaya processing plant, a guava puree export industry is unlikely to develop in the Kuniia area.

Floral and Nursery Products

Hawaii's floral and nursery industry has expanded rapidly in recent years, with most growth occurring in the sales of potted foliage plants. Because expensive heating is not required in Hawaii as it is on the mainland, it is possible for local producers of floral and nursery products to absorb the transportation cost and compete in the mainland markets. However, this is also true for the competing areas of Puerto Rico, the Caribbean, and Central America.

The outlook for continued growth exports of floral and nursery products is favorable. Expansion will be paced primarily by market development and management expertise. However, relatively little land will be required; the average size of all floral and nursery operations in the State is under 3 acres. Also, since several of the agricultural parks under development in the State make specific provisions for nurseries, adequate land is available. One of the larger nurseries in the State was started by Amfac on former sugarcane land at Waikale.

Sweet Corn

New hybrids of sweet corn have been developed recently which are specially suited for Hawaii's climate, and provide promise of exports to the mainland during the winter. Developed by the University of Hawaii College of Tropical Agriculture and Human Resources, Superweet #10 is a year-round variety which grows rapidly, stores well, is resistant to mosaic and blight diseases, and is tightly husked to help reduce damage caused by earworms. The major question is whether a large number of mainland consumers will be willing to buy high-priced fresh Hawaii corn during the winter versus low-priced frozen and canned mainland corn. Hawaii corn will have to be priced high because of shipping costs. Amfac has 50 acres in corn production at Kunia, and is exploring the export potential.

LIVESTOCK OPERATIONS

Cattle and Grazing

Cattle ranching in Hawaii continues to be an important agricultural activity, with 1983 sales of \$29.3 million. With the reduction in sugar and pineapple operations, some of the land freed has been converted to grazing which, however, provides a low return and low employment per acre. Nevertheless, this is regarded as the best use of this land until a more profitable use can be identified and developed.

The production of beef could be greatly expanded without flooding the market since about 70 percent of the beef consumed in Hawaii is imported. In order to increase beef production, cell grazing (e.g. the Savory system) has been recommended to ranchers by researchers and extension agents from the University of Hawaii, College of Tropical Agriculture and Human Resources. With this approach, which has been used successfully on the Big Island and elsewhere, the land is partitioned like a wagon wheel, with large wedges of land separated by fences. Periodically, cattle are moved from one wedge (cell) to the next, thereby giving the land in the empty wedges ample time to recover. Depending upon rainfall and irrigation practices, a two- to

four-fold increase in cattle production is possible. To be profitable, about 150 head of feeder cattle and about 450 acres of grazing land are needed. The preferred size is about 300 to 400 cattle per cell which can be managed by a single employee.

Raising cattle in the Ewa/Central-Oahu area would be attractive in terms of the proximity to the State's largest feedlot at Barber's Point. However, returns per acre are low, as previously mentioned, and intensive livestock operations would be inappropriate if located adjacent to the existing housing area of Village Park given odor, dust, and fly problems associated with livestock.

Dairy

Until recently, Hawaii was self-sufficient in milk production because of protective State legislation. However, this legislation has been successfully challenged on grounds of restraint of interstate trade, leaving local dairies exposed to competition from imported milk from the mainland West Coast. Consequently, dairy operations are likely to experience little, if any, growth, and may decline. But even if substantial growth were to occur, a dairy operation should not be located near the existing homes of Village Park because of odor, dust, and fly problems.

Poultry

Because of transportation and other advantages, egg and chicken operations serving the Honolulu market are centered on Oahu, and this is expected to continue. In recent years, Hawaii's layers have supplied between 75 and 90 percent of the State's fresh egg requirements. However, production and market-share trends are downward, with increasing market penetration from the mainland.

The potential for increased broiler production is large since less than 25 percent of the broilers consumed in Hawaii are produced locally. Production trends are up, but market-share trends are flat. However, relatively little land is required for the intensive chicken operations common in the industry.

Swine and Pork

Similar to broilers, the potential for increased swine and pork production is large since less than 35 percent of the pork consumed in Hawaii is produced locally. Oahu is favored for expansion because imported feed and marketing are cheapest here, and processing is available. However, production trends are flat, and market-share trends are down. Also, expansion on Oahu is limited by the difficulties encountered in meeting waste disposal regulations of the U.S. Environmental Protection

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Agency and the Hawaii Department of Health. Most swine and pork operations are family owned, with 80 percent of the State's industry located in the Waianae area.

As with most other livestock operations, swine and pork farms should not be located near the existing homes of Village Park because of odor, dust and fly problems.

AQUACULTURE

While Hawaiians grew fish in fishponds for centuries before the arrival of western civilization, modern aquaculture is a new and promising industry which is experiencing significant but uneven growth. In 1986, the wholesale value of all aquaculture products harvested statewide was \$2.3 million, with freshwater prawns accounting for over 80 percent of revenues. Other species comprising the aquaculture industry are oysters, shrimp, catfish, carp, tilapia, trout, mullet, eel, milkfish, bass, and frogs.

Factors Affecting Aquaculture Development

Most of the factors which affect the potential profitability and growth of agricultural activities also apply to aquaculture. Positive factors in common or comparable with agriculture, and which apply to all the major islands, include: favorable climatic conditions, overseas transportation costs which provide the equivalent of a tariff for local products, tariff-free access to the U.S. mainland, an basic and applied research organizations which contribute to Hawaii being the world leader in tropical aquaculture research. These research organizations include the Anuenue Fisheries Research Center, the University of Hawaii College of Tropical Agriculture and Human Resources, the University's Botany Department, the Hawaii Institute of Marine Biology, and the Oceanic Institute.

Aquaculture ventures on Oahu have the advantage of close proximity to Honolulu and its large consumer and supply markets, supporting research organizations, and Honolulu Airport with its frequent wide-bodied jet service to overseas markets. Because of this, most aquaculture operations are centered on Oahu.

Negative factors in common with agriculture and which apply to all the major islands include: Hawaii's small and easily glutted consumer market, high transportation costs to overseas markets, and relatively expensive labor and supplies (such as feed and fertilizer) relative to competing areas overseas. For aquaculture ventures in the Ewa/Central-Oahu area, there is the added difficulty of high land rents.

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A major factor limiting aquaculture development is that the local industry is still in the research and development stage. Because of this, most areas have few support services (such as training programs and experienced extension agents with specialized aquaculture skills) and few experienced entrepreneurs skilled in aquaculture and business. Furthermore, investment capital is difficult to obtain since aquaculture is regarded as a developing technology with a higher risk of failure than activities which have established technology and experienced managers (Ota, p. 2).

Primary Aquaculture Lands

The State has categorized lands in Hawaii as being physically suited for aquaculture (State of Hawaii Department of Planning and Economic Development, Aquaculture Development for Hawaii, 1978). This classification was based on elevation (below 3,000 feet), slope (less than 5 percent), soil type (clay, clay-loam, or loam), and State districting (other than urban). Most sugarcane lands were classified as primary lands suitable for aquaculture.

Water availability was not considered in the land classification for aquaculture. This is a major oversight in view of the limited availability of fresh water in most areas and the fact that aquaculture requires enormous amounts of water: for freshwater prawns, the requirement is about 40 feet of water per year applied to the ponded area, compared to about 4.5 feet for most crops. However, multiple-water use operations—that is, where water is first used for aquaculture, then used to irrigate crops—may be appropriate in water-short areas.

Freshwater Prawns

Following investigations in the late 1980s into techniques for farming freshwater prawns, the State's Anuenue Fisheries Research Center developed a successful "Cooperative Agreement Program" in the early 1970s to encourage people to try prawn farming. This activity experienced steady growth until 1980, and became the dominant aquaculture activity in the State. Since 1980, however, setbacks have occurred.

In 1976, Kilauea Agronomics, a subsidiary of C. Brewer and Company, placed 100 acres in freshwater prawns at Kilauea, Kauai, and had plans to expand to 300 acres. However, yields were lower than expected because of low water temperatures caused by prolonged periods of cloud cover at its north shore location. The decision was made to close operations in 1980 (Governor's Aquaculture Industry Development Committee).

In spite of the experience of Kilauea Agronomics, Amfac Aquatech, a subsidiary of Amfac, Inc., placed 35 acres in freshwater prawns in 1980, with plans to expand to 350 acres. The operation also was located on Kauai, but at Kekaha on the south shore, which is considerably sunnier and hotter than on north shore. Although yields were above industry averages, operations were closed in 1982 because the U.S. mainland market was thought to be insufficient to justify major corporate investment, and questionable product acceptance.

Additional closures were experienced by six small prawn farms in 1980 and 1981. Reasons given included a loss of interest, lack of post-larvae, poor site for the pond, and inability to negotiate a long-term lease. Some of these problems reflect the fact that freshwater prawns may be only marginally profitable in Hawaii.

Most of Hawaii's prawn production is sold locally, but some is exported to the mainland. The local prawn market is currently saturated and any increase in production will result in declining prices and decreased returns. Currently the export potential of the prawn industry appears uncertain.

Other Species

Research has been carried out on a number of other aquaculture species for commercial production, and some have progressed to commercial attempts. However, success for these other aquaculture species has been negative or limited by low prices, stiff competition from the mainland, small Hawaii market, unsuitable climate, and other reasons. Problems with these other species are:

--Catfish

Local production faces very stiff competition from low-cost imports from the mainland.

--Trout

Small Hawaii market. Also, trout grows better in cold water as found in some streams on Hawaii, Kauai and Maui.

--Tilapia

Small market and low price of about \$1 per pound, wholesale. Some pond operators on Oahu have found it cheaper to treat tilapia as trash and bury it rather than try to sell it. However, red or golden hybrids command higher prices (about \$2.50 per pound), but the market is small.

--Bull frogs

A favorable price of \$4 to \$5 per pound, but a small market.

--Ornamental koi and carp

Very limited market.

--Brackish and saltwater aquaculture

Unsuited for the Kumia area because of elevation and location over the Pearl Harbor basal water lens. It is extremely important that this freshwater ground supply not be contaminated by seepage of brackish or saltwater.

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APPENDIX E

ENGINEERING ANALYSIS FOR VILLAGE PARK DEVELOPMENT

Park Engineering, Inc.
January 1986

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ENGINEERING ANALYSIS
FOR
VILLAGE PARK DEVELOPMENT
HOAEAE, EWA, OAHU, HAWAII

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SECTION 1. PHYSICAL CHARACTERISTICS OF PROJECT SITE

1.1 SITE LOCATION

The proposed development site is located at Maikela and Hoseae, Ewa, Oahu, tax map key: 9-4-02: 30, Por. of 01 & 17. The parcel is located approximately 1900 feet north of the H-1 overpass on Kunia Road. The site is bounded on the south by the existing Village Park residential subdivisions; on the west by Kunia Road; on the east by Maikela gulch and on the north by sugar cane crop land, currently leased by Oahu Sugar. Limits of the project site are delineated in Figure 1.

1.2 SITE SIZE

The proposed development site is approximately 691.5 acres, of which 30.0 acres will be zoned Apartment, 168.2 acres Golf Course, 28.7 acres Commercial/Industrial Mix, 21.0 acres Public Park, 6.9 acres Private Park and 404.6 acres residential.

1.3 CONFIGURATION

The proposed project site is rectangularly shaped, running lengthwise along the northwestern boundary of the existing Village Park Subdivision between Kunia Road and Maikela Gulch. The area is approximately 4000 feet wide and 7000 feet long.

1.4 TOPOGRAPHY

Aerial photo contour maps of the area indicate that the site slopes downward from the northwest to the southeast at a gradient of 4 to 7 percent. Two (2) drainage ways traverse the middle section of the site. The ground elevations range from approximately 220 to 470 feet mean sea level.

SECTION 2. TRAFFIC

2.1 EXISTING STREETS AND HIGHWAYS

The proposed development is located adjacent to existing Kunia Road on its eastern boundary approximately 1900 feet north of Kunia Interchange of Interstate Route H-1, as shown on Figure 1. Between the interchange and the development, two intersections on Kunia Road give access to the existing Village Park Subdivision. The internal roads in this subdivision will make two connections to the proposed development.

The interchange has been improved to increase the capacities of the ramps and Kunia Road which serve the existing project in the two major destinations, namely Honolulu including Pearl Harbor and the airport; and Maianai including Campbell Industrial Park and the proposed West Beach resort development.

Further to the south, Kunia Road intersects Farrington Highway and connects directly to the realigned Fort Weaver Road. It also partially intersects Honowai Street and Maipahu Street. This network serves the project with interconnections with Maipahu and Ewa.

To the north, Kunia Road provides direct access to Schofield Barracks, Wheeler Field, Wahiawa and the north shore.

While existing Kunia Road is a two-lane road, conditions at the project site make it feasible to widen the roadway to provide access to the abutting land. The proposed development will have 5000 feet of frontage on Kunia Road.

2.2 PROPOSED MAJOR STREETS

The primary access to the development will be via an intersection at Kunia Road, to be located approximately two-thirds of a mile north of the existing northern intersection of Kupuna Loop and Kunia Road.

SECTION 3. WATER SYSTEM

3.1 EXISTING FACILITIES

Water for the existing Harbor View Subdivision and Village Park Subdivision is provided by Kunia Well II. Source and storage facilities at the Kunia Well II site, located about 0.8 miles above Village Park along Kunia Road, includes a 1.5 MG "440" reservoir and two deep wells. Contracts have been awarded to install an activated carbon water treatment system at the Kunia Well II site for contaminant removal and will be completed by October 1985.

3.2 WATER REQUIREMENTS

The development of the project site will require approximately 2.764 MGD (average flow) of water. The flow requirement was computed according to the Board of Water Supply Standards as follows:

Residential	500 gallons per unit per day
Apartment	400 gallons per unit per day
Commercial	3,000 gallons per acre per day
Business Park	3,000 gallons per acre per day
Golf Course	4,000 gallons per acre per day
Parks & School	4,000 gallons per acre per day

The developer has submitted a request to the Board of Water Supply and Department of Land and Natural Resources to increase the preserved use allocation from 960,000 gallons per day to 2,000,000 gallons per day for the development of the proposed project.

Collector Street #1 is the main road for the development. Two lanes in each direction will provide the capacity required for the projected 1600 vehicles per hour one way during peak hours.

Collector Street #2, a secondary road, intersects Collector Street #1 at two points, and provides a loop road for circulation. Two lanes in each direction will provide for the projected 600 vehicles per hour one way during peak hours. A school and park complex is planned at one of the intersections.

Collector Street #3 provides a secondary access to Kunia Road through the northern intersection of Kupuna Loop while providing access to business and commercial areas. Two lanes in each direction will carry the projected 200 vehicles per hour one way during peak hours.

Collector Street #4 will provide circulation for the remote areas. One lane in each direction will carry the projected 100 vehicles per hour one way during peak hours.

2.3 TRAFFIC IMPACT REPORT

A detailed Traffic Impact Report for the Village Park Expansion is bound separately.



3.3 NEW FACILITIES

The first phase improvements will consist of installing an additional 1.0 MG concrete reservoir, an additional well and additional water treatment facilities at the existing Kunia Well II site so that approximately 1000 units within the 340 foot elevation can be developed.

The second phase improvements will consist of the following:

- 1) Construct a booster pump station at the existing Kunia "228" Reservoir & Kunia Well I site. Approximately 1.724 MGD (average flow) of water will be boosted to the Kunia "440" Reservoir.
- 2) Construct a booster pump station at the Kunia Well II site. Approximately 2.076 MGD (average flow) of water will be boosted to the new Kunia "675" Reservoir.
- 3) Install approximately 9000 linear feet of 20" transmission main from the existing Kunia "440" Reservoir to the new Kunia "675" Reservoir.
- 4) Construct a 3.0 MGD Kunia "675" Concrete Reservoir.

The proposed improvements are in conformance with the Revised Board of Water Supply's master plan for the area and Department of Land and Natural Resources Pearl Harbor Groundwater Control area.

Additional onsite distribution systems will be designed to Board of Water Supply Design Standards.

SECTION 4. WASTEWATER SYSTEM

4.1 EXISTING SYSTEM

Wastewater from the existing Village Park Subdivision is collected by a network of pipes, flowing below the H-1 Highway through a 12" and 18" trunk line towards Pearl Harbor, crossing Waipahu Street and Farrington Highway and into the Kunia Pump Station, Waipahu Pump Station and finally into the Honouliuli Wastewater Treatment Plant.

Approximately 1000 units of the new development can be served by existing facilities which were installed in accordance with the sewer master plan for the existing Village Park Subdivision approved by the City Department of Public Works on October 6, 1978.

4.2 WASTEWATER FLOW REQUIREMENT

Average daily wastewater flow generated by the development of the project site will be approximately 1.4 MGD. The flow requirement was computed according to the City and County Wastewater Standards as follows:

Residential	370 gallons per unit per day
Apartment	224 gallons per unit per day
Commercial	3,200 gallons per acre per day
Business Park	11,200 gallons per acre per day
School	12,500 gallons per school per day

4.3 NEW SYSTEM

A new trunk sewer main as shown on Figure 3 will have to be constructed from the project site to the existing Waipahu Sewage Pump Station. The new trunk sewer main will be capable of handling 2.7 MGD of average daily wastewater flow, providing 1.3 MGD of capacity for future developments.

Onsite wastewater flows will be handled by onsite improvements that will be designed to current City and County Wastewater Design Standards.

SECTION 5. SOLID WASTE AND DISPOSAL

5.1 EXISTING CONDITIONS

The City and County of Honolulu is providing refuse collection service for the existing Village Park Subdivision. Within the Ewa area, the City and County operates the Waipahu Incinerator while the Palailai Sanitary Landfill (SLF) is operated by Lone Star Industries.

5.2 SOLID WASTE GENERATION

Fully developed, the proposed project would generate approximately 30 tons of mixed commercial, institutional, and residential solid waste per day. This quantity represents about one percent of the total solid waste generated on Oahu each day at the present time.

In the absence of the industrial activity, the proposed project would not generate any industrial or otherwise hazardous wastes.

5.3 COLLECTION & DISPOSAL

After the project is fully developed, it is expected that collection will be provided by both government and private work forces. Infrastructure planning will permit City and County of Honolulu refuse collection for single family residences, while commercial and business establishments will be served by private collectors. Apartment units can be served by either the City and County or private collectors.

While the Palailai SLF is expected to be closed within two to three years, the Waipahu Incinerator will be kept in service indefinitely. Furthermore, the City and County and private industry are both pursuing government approvals to establish sanitary landfills at Waimanalo Gulch and Makaiwa Gulch, respectively.

Notwithstanding implementation of the City and County's resource recovery project, it is expected that either or both sanitary landfill projects will be approved. Planning and design of sanitary landfills at both sites include provisions for future growth in Leeward Oahu, and both will be able to accommodate the proposed project.

SECTION 6. DRAINAGE AND GRADING

6.1 EXISTING CONDITIONS

Approximately 60% of the new development, the westerly portion along Kuni Road, slopes toward the existing Village Park Subdivision. The remaining 30% of the new development, the easterly portion, slopes toward Waialeale Stream.

There is an existing ponding earth reservoir within the proposed development site that is being utilized for agricultural purposes. The incoming and outgoing flows are controlled by Oahu Sugar Co. and there are no danger concerning overflows. The reservoir will be filled and used as part of the Golf Course.

The flood insurance hazard rating for this area is Zone C, areas of minimal flooding.

6.2 PROPOSED IMPROVEMENTS

A Drainage master plan has been approved by the Department of Public Works for this area.

Approximately 60% of the storm runoff (1900 cfs) generated by the new development will discharge through the existing Village Park Subdivision. The drainage improvements within the existing Village Park Subdivision have been installed to handle this additional storm runoff. The runoff then flows into improved drainage facilities that are maintained by the City and County of Honolulu and discharges into Pearl Harbor.

Approximately 40% of the storm runoff (1275 cfs) generated by the new development will be discharged to Waialeale Stream.

Development of the project site is not expected to have any noticeable impact upon the configuration of Waikale Stream. Flow levels and water quality of Waikale Stream are not expected to be altered or changed to any noticeable or measurable degree. This conclusion is based on the relatively small area of that portion of the project site that presently drains directly into Waikale Gulch as compared to the large area of the Waikale Stream hydrological basin (275 acres and 29,000 acres, respectively).

Storm runoff will be handled by onsite improvements that will be designed to current City and County Drainage Design Standards.

6.3 GRADING

Grading will be performed in accordance with Chapter 23, Grading, Soil Erosion and Sediment Control, of the revised Ordinances of Honolulu, 1978 as amended. Grading is expected to encompass the entire project site. Erosion control measures will be implemented as outlined in the City and County Grading Ordinance. Strict compliance to City ordinances should minimize any potential environmental impact.

Erosion and dust control measures that can be implemented are as follows:

1. Temporary and permanent interceptor ditches, sediment traps and sediment basins.
2. Temporary and permanent vegetative cover.
3. Mulching.
4. Spraying of Chemicals or Liquid Asphalts.
5. Temporary wind barriers.

SECTION 7. ELECTRIC AND TELEPHONE SYSTEMS

7.1 EXISTING SYSTEMS

The electric and telephone services for the existing Village Park Subdivision are available from HECO and HICO facilities on Kunia Road.

7.2 POWER AND TELEPHONE SERVICE REQUIREMENTS

The existing HECO Hoosaa substation which is servicing the existing Village Park substation will not be able to service the Village Park Expansion. HICO facility is also inadequate to service the proposed expansion.

7.3 PROPOSED IMPROVEMENTS

A new HECO substation is proposed to be located within the project site adjacent to Kunia Road. A low profile substation will be considered (approximate land area required is 120' x 180'). A primary overhead 46 KV feeder is proposed along Kunia Road to service the substation.

HICO is proposing to install a remote switching unit within the new site. This facility will be housed in a small building. Total land area is estimated at less than 5000 square feet.

As Kunia Road is widened, both HECO and HICO facilities are proposed to be relocated underground. HECO has a 12 KV feeder that needs to be placed underground and HICO has the responsibility to underground the existing WOLFE cable. Work for all HECO and HICO facilities will be planned to coincide to the needs of the proposed expansion.

SECTION 8. EXISTING AIR QUALITY

8.1 EXISTING CONDITIONS

The air quality of the region within which the proposed project is located is generally clean and low in pollutants. However, in certain urbanized areas, such as Waipahu Town, and during certain periods associated with sugar cane cultivation, such as harvesting and pre-planting field preparation, deterioration in air quality may be of concern. The principal pollutants of concern are carbon monoxide from vehicular engine exhaust, and particulates emitted during the burning of cane, as well as windblown particulates from exposed soil surfaces prior to substantial cane growth.

8.2 IMPACT

With the completion of the proposed project, three impacts are readily identifiable:

1. Displacement of sugar cane cultivation within the 691.5 acre site by urban development will eliminate the particulate emissions that are presently discharged during harvesting and field preparation operations. This impact is considered long-term.
2. Site development required for project implementation will generate fugitive dust and exhaust from heavy construction equipment. This impact is considered short-term.
3. Completion of the proposed project will increase vehicular traffic within the area, resulting in an expected increase in vehicular exhaust emissions, principally carbon monoxide.

Inasmuch as air emission screening and dispersion modeling were not performed in this assessment, the magnitude of these impacts have not been quantified and this evaluation remains qualitative. Notwithstanding this limitation, for purposes of this assessment, it can be concluded that 1) the long-term air quality impact may be a net reduction in particulates, and a net increase in carbon monoxide and other vehicular exhaust emissions, and 2) the short-term air quality impact will be an increase in construction-derived fugitive dust. In the absence of any major point source of air pollution, i.e., refinery, incinerator, etc., associated with the proposed project, the change in air quality is not expected to cause any existing air quality standards, Federal or State, to be exceeded.

8.3 MITIGATIVE MEASURES

The short-term construction-related impacts that have been identified can be mitigated through adherence to established construction standards, guidelines, and practices. This includes minimizing, to the extent possible, massive grading which exposes large areas of soil; timely paving and re-vegetation of exposed areas; and suppressing dust formation through the conscientious application of water or other dust suppressants. Experience has shown that construction-generated dust can be effectively controlled to levels that are not adverse or that create nuisance conditions.

With respect to the long-term traffic-related impacts, mitigative measures are limited to Federal regulations requiring engine controls to reduce carbon monoxide and oxides of nitrogen, as well as the required use of unleaded gasoline in new vehicles. Absent a relaxation in these Federal regulations, vehicular emissions are expected to decrease significantly by the year 2000 as older, unregulated models are removed from the total vehicle fleet. However, even if a relaxation in regulations occurs, it is not unreasonable to expect a decrease in

vehicle emissions because of the production of more fuel-efficient vehicles. Clearly, the mere fact that the new models tend to burn less fuel per mile traveled will result in a decrease in vehicular emissions for a given fleet size.

SECTION 9. PROJECT DEVELOPMENT COSTS

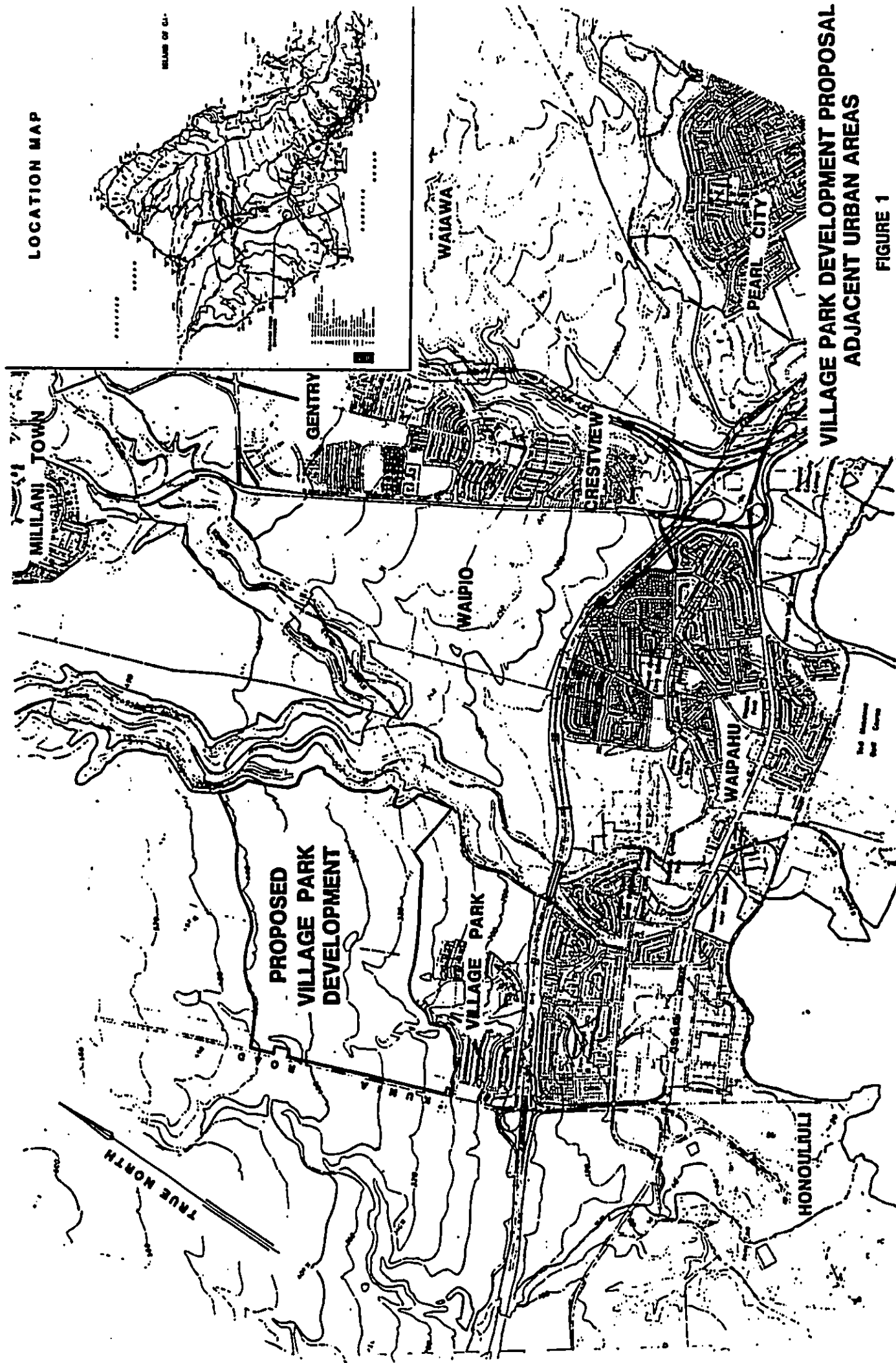
9.1 OFFSITE COSTS (OVERALL COSTS)

1) Major Roadways	\$ 3,200,000
2) Kumia Road Improvements	1,400,000
3) Water Facilities	7,600,000
4) Wastewater Facilities	4,000,000
5) Drainage Systems	<u>8,000,000</u>
TOTAL	\$24,200,000

9.2 ONSITE COSTS

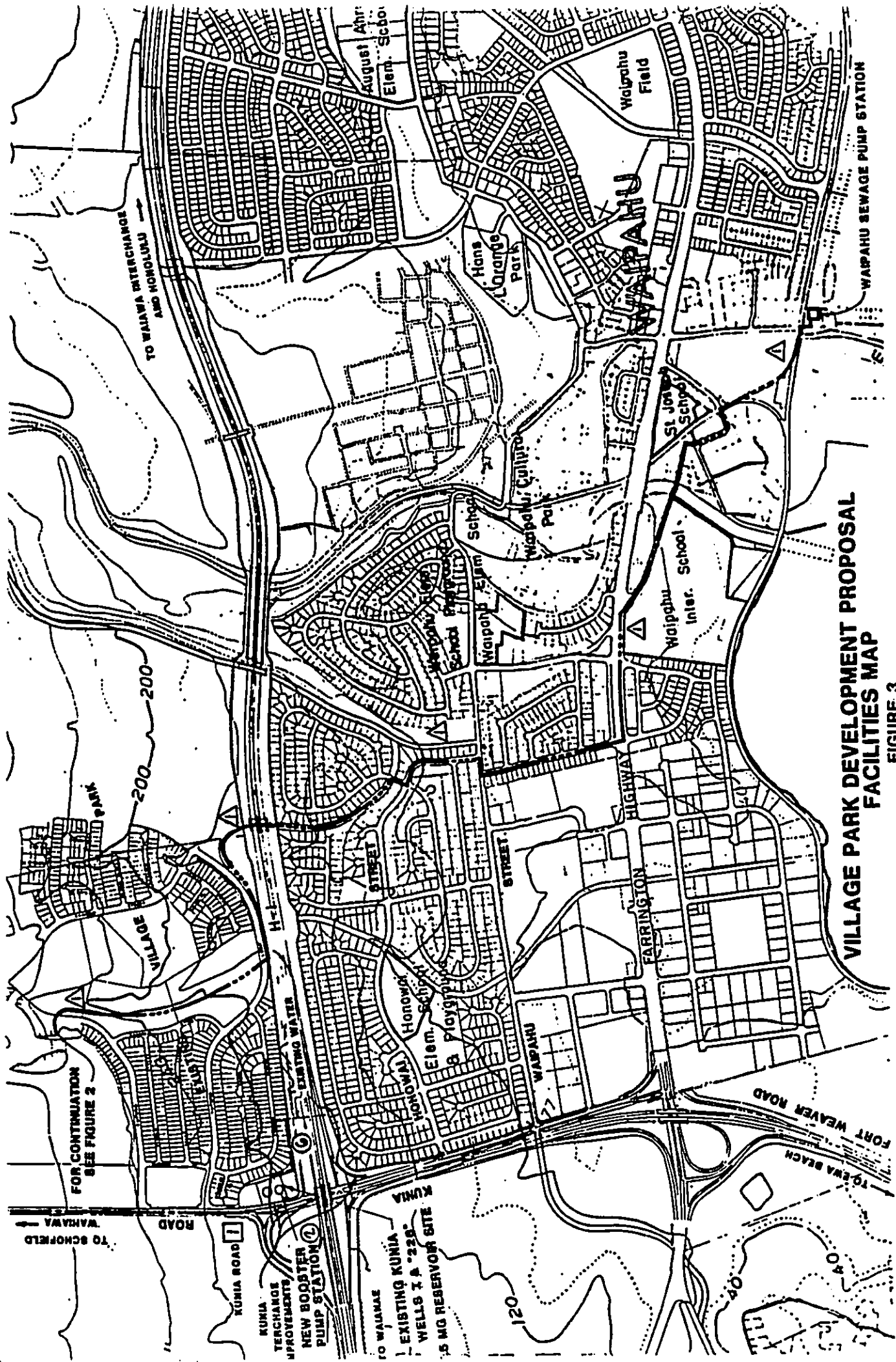
1) Residential Areas	\$41,000,000
2) Commercial Areas	1,000,000

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



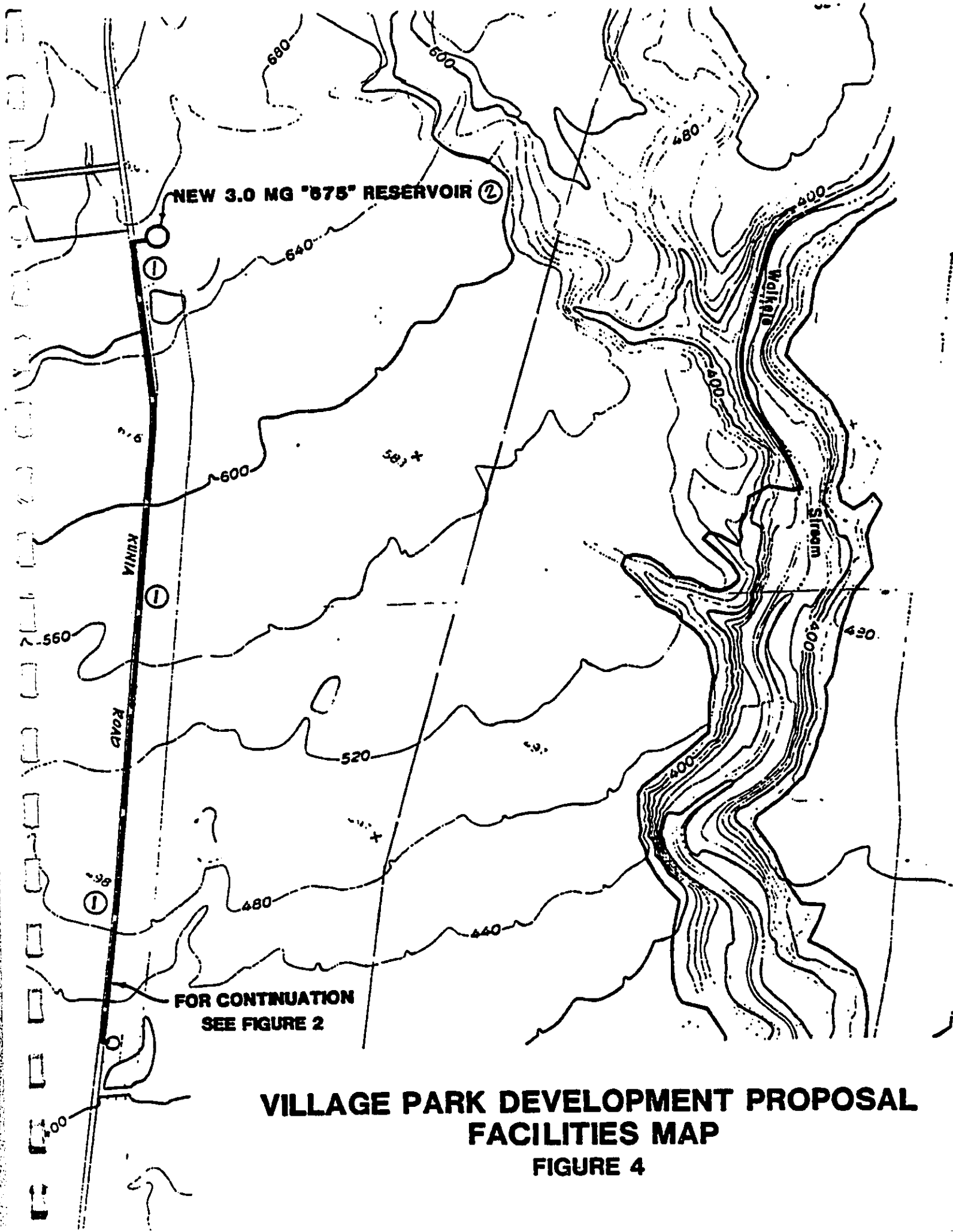
VILLAGE PARK DEVELOPMENT PROPOSAL
ADJACENT URBAN AREAS

FIGURE 1



VILLAGE PARK DEVELOPMENT PROPOSAL
FACILITIES MAP

FIGURE 3



**VILLAGE PARK DEVELOPMENT PROPOSAL
FACILITIES MAP
FIGURE 4**

APPENDIX F

TRAFFIC IMPACT REPORT FOR THE PROPOSED VILLAGE PARK EXPANSION

**Park Engineering, Inc.
February 1986**

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TRAFFIC IMPACT REPORT
FOR
THE PROPOSED VILLAGE PARK EXPANSION
MOEALE, EVA, OAHU, HAWAII

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567 SOUTH KING STREET, SUITE 300
HONOLULU, HAWAII 96813

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FEBRUARY 1986

I. INTRODUCTION
 Waitec Development, Inc. proposes to expand its existing 300-acre plus Village Park Residential Community by 691.5 acres and approximately 3480 housing units including 480 rental units to be developed by the City and County of Honolulu. This expansion would have a dominating traffic impact on existing Kunia Road in the vicinity, a substantial impact on the existing Kunia Interchange and on Interstate Route H-1.

A. Purpose
 The purpose of this report is to estimate and assess the traffic impact on these existing transportation facilities. Specific mitigating measures are recommended for each problem area up to but not including the regional problems.

B. Scope
 Traffic impact is estimated from: 1) Historical traffic data obtained from the State Highways Division, 2) Methods and criteria developed in Highway Capacity Manual, Special Report 209 (1985) by the Transportation Research Board of the National Research Council.

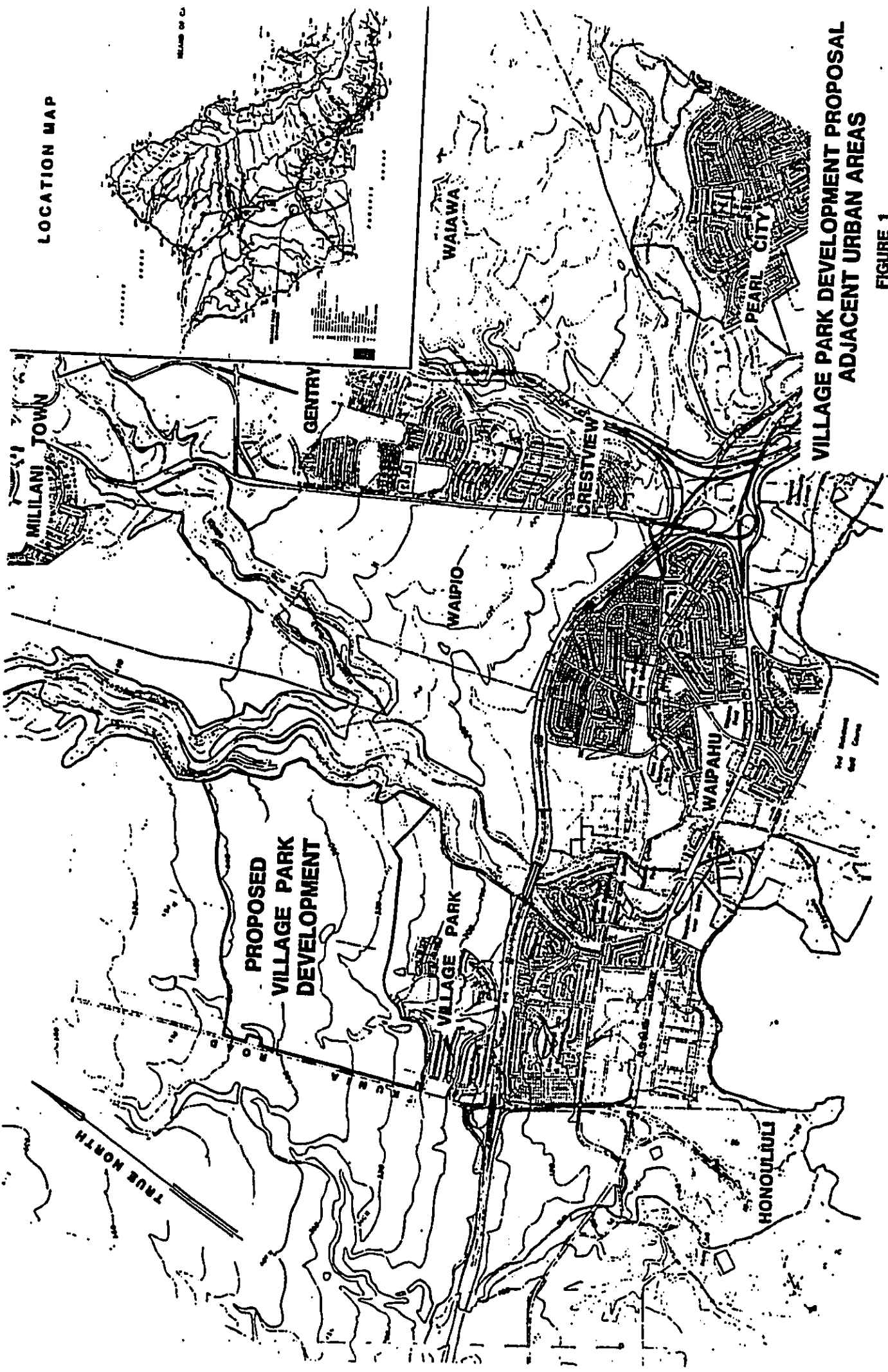
Evaluations are made on the existing conditions and on improved conditions and also include the quality of service provided by the facilities.

II. THE DEVELOPMENT
 The proposed development (expansion) is on 691.5 acres situated on the east side of Kunia Road and north of an on-going development which is adjacent to the north boundary of Interstate Route H-1 (see Figure 1). The present development is scheduled to be completed by 1987.

The expansion will include 2,760 single residential units, 480 low income units and 240 attached units for a total of 3,480 units. Also included are business and commercial sites, a school and open space for parks and a golf course.

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VILLAGE PARK DEVELOPMENT PROPOSAL
ADJACENT URBAN AREAS

FIGURE 1

The following is the time schedule of the incremental development:

TABLE 1.

CONSTRUCTION SCHEDULE

	<u>Units</u>	<u>Cumulative Units</u>
1988	980*	980
1989	487	1467
1990	480	1947
1991	410	2357
1992	395	2752
1993	383	3135
1994	345	3480

*Including 480 rental units by the City.

The design year used for traffic volume projections is 1995.

III. LAND USE

A. General Area

The predominant land use of the general area is agricultural, specifically for raising sugar cane. This use is expected to continue in the areas within several miles to the north and west of the development for the next ten to fifteen years.

Waikale Gulch is on the eastern boundary and is an ammunition storage area for the U.S. Navy. The Oahu General Plan designates the gulch for continued military use.

The area adjacent to the southern boundary is currently being developed for 1,740 residential units and a limited commercial use. It also contains an elementary school and a park.

IV. THE EXISTING ROAD SYSTEM

As shown on Figure 1, existing Kunia Road runs along the frontage of the development. It varies in width from two lanes along the frontage and widens to five lanes at the southern end of existing Village Park. Two intersections provide access to this existing residential area. All Kunia Road widening from the original two lanes up to five lanes and intersections were constructed by the developer in conjunction with its existing Village Park development.

Kunia Road forms the Kunia Interchange with the Interstate Route H-1 at the southern end of the existing residential area. This interchange provides all required movements to and from the freeway with ramps which provide connections to Pearl Harbor, the International Airport, Honolulu, Barber's Point Naval Air Station, Campbell Industrial Park and Waianae. Three of the eight ramp movements require left turns across the Kunia Road through movements. Two of those left turns are controlled by traffic signals.

Kunia Interchange was also improved by the developer in conjunction with its existing Village Park. Kunia Road was widened one lane in each direction and Ramps KA-1 and KI-A (see Figure 2) were widened from one to two lanes.

Kunia Road continues past H-1 and is connected to Fort Weaver Road with an overpass over Farrington Highway. It also makes connection with Farrington Highway and partial connections (right turns only) with Honowai and Waipahu Streets. This leg of Kunia Road provides the development with circulation with Waipahu and Ewa.

V. TRAFFIC DATA

A. Trip Generation During Peak Hours

The number of trips generated from the development was calculated from a factor of 0.8 vehicles per unit during the peak hours. This factor is deemed conservative, considering that an elementary school, commercial and recreational facilities are planned on the site.

The total number of units in the combined new and existing developments is 5,220 including the City's rental units.

B. Trip Distribution During Peak Hours

The civilian population is estimated by market analysis to be 78% and the number of trips is distributed to work centers in proportion to the densities as listed in Table 2. These proportions have been adjusted to the anticipated shift in densities towards leeward Oahu. The military population is estimated to be 22% and the work trips are distributed to the military bases as shown in Table 2. Directional distribution is 80% outbound and 20% inbound for the morning peak hour and vice-versa for the afternoon peak hour.

C. Traffic Projection

The through traffic on Kunia Road in the design year of 1995 is projected from traffic counts made by the State Highways Division. The traffic counts of 1980 through 1984 made at Station C-9-D, 2.8 miles northwest of H-1 Freeway were averaged out to determine a credible growth rate.

The 1980 count is the first count made after the opening of H-2 Freeway in 1977. The volume on Kunia Road dropped to less than half of what it was just before H-2 was opened.

The calculations for the 1995 projections and peak hour proportions are shown in Appendix (A-2).

TABLE 2.
1995 PEAK HOUR
VILLAGE PARK TRAFFIC
INTERSECTION DISTRIBUTION

TO & FROM	% CIV	% MIL	CIV. TRAFFIC	MIL. TRAFFIC	TOTAL	SOUTH KUPUNA LP.		NORTH KUPUNA LP.		COLLECTOR STREET # 1
						100	100	100	100	
1 HONOLULU & WINDWARD	15	0	490	0	490	100	100	180	210	210
2 HONOLULU INT. AIRPORT	15	0	490	0	490	100	100	180	210	210
3 PEARL HARBOR & HICKAM	5	15	162	138	300	300	62	96	142	142
4 PEARL CITY	20	0	650	0	650	134	240	276	276	276
5 WAIPAHAU	10	0	330	0	330	68	120	142	142	142
6 BARBERS POINT	5	40	163	367	530	110	194	226	226	226
7 CAMPBELL IND. PARK	20	0	650	0	650	134	240	276	276	276
8 WHEELER & SCHOFIELD	10	45	325	415	740	154	146	440	440	440
TOTAL	100	100	3260	920	4180	862	1396	1922	1922	1922

TOTAL UNITS = 3480 + 1740 = 5,220 UNITS
 5,220 X 0.8 VEH./UNIT = 4,180 VEH. X 0.8 = 3344 PK. HR.
 CIVILIAN = 4,180 X 78% = 3,260 VEH.
 MILITARY = 4,180 X 22% = 920 VEH.

D. Traffic Assignment

1. Traffic Generated by the Development

Major adjustment are made in the route out of and into the development. Because of the proximity of intersections and street pattern of the development, it is expected that the motorists will select their routes according to the congestion and convenience at each of the intersections; namely, the new Collector Street No. 1 and the existing North Kupuna Loop.

Based on this principle, the assignments are approximately equally divided between the two intersections. Modifications are proposed for the North Kupuna Loop intersection which make it possible to pass through the assignments. These modifications are described under "Proposed Improvements".

2. Through Traffic on Kunia Interchange

The 1995 projected through traffic on Kunia Road was assigned to the ramps of the interchange in the same proportion used in the Fort Weaver Road Realignment and Widening project.

VI. TRAFFIC IMPACTS

Level of service is defined in the Highway Capacity Manual, as a qualitative measure of the effect of a number of factors which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort, and convenience. This term is used hereafter to indicate the degree of traffic congestion on a segment of road, at an intersection, on a weaving section or on a merging section.

Levels of service are classified A, B, C, D, E or F where level A is a condition of low traffic volume and higher speeds. The degree of congestion and the volume accommodated increases progressively in levels B through E. Level E, although highly congested yields the greatest volume which can be accommodated by the roadway; it represents

capacity. Level F is a condition of extreme congestion in which the volume is below capacity because of very low speeds and stoppages of more than momentary durations. A more detailed classification is given in the Highway Capacity Manual.

Service Flow Rate is the maximum number of vehicles that can pass over a given section of a lane in one direction on multilane highways (or in both directions on a two- or three-lane highway) during a specified period of time (normally one hour) while operating conditions are maintained corresponding to the selected or specified level of service. The service flow rate for each level of service in two and four lane highways are given in Appendix A-1.

The levels of service for signalized intersections are defined in terms of delay. A table of levels of service excerpted from the Highway Capacity Manual is given in Appendix (A-1)(Cont'd).

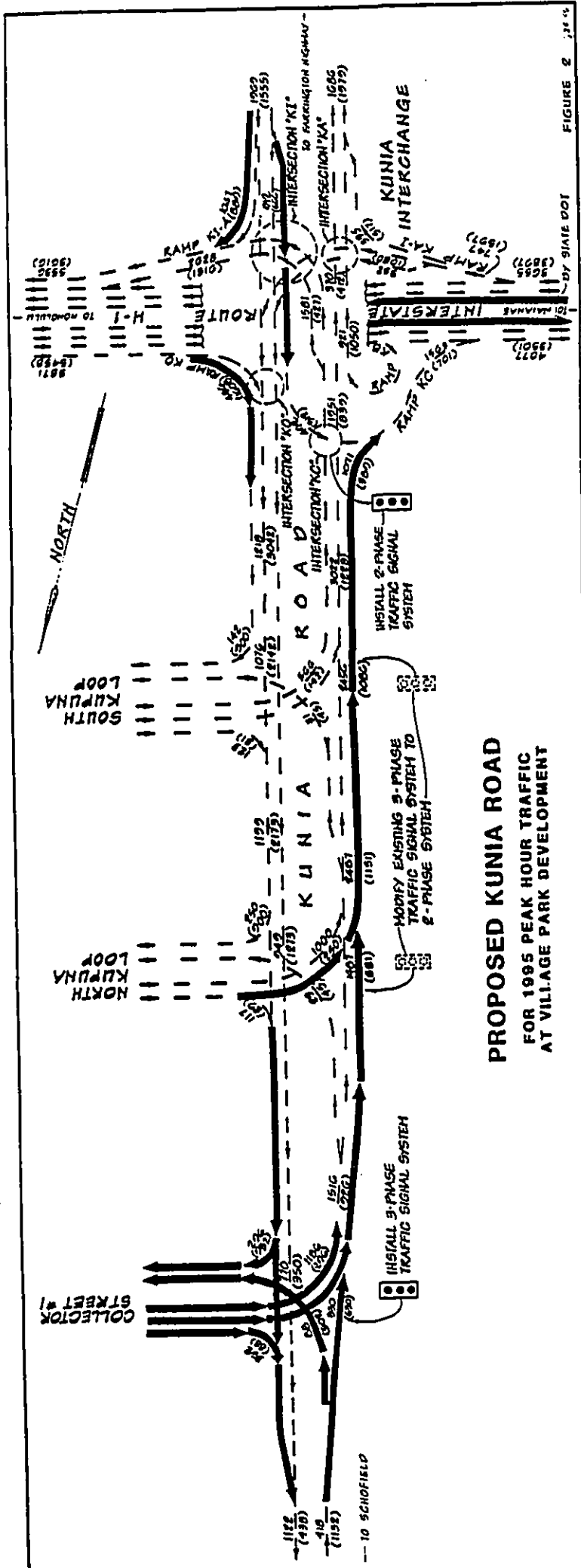
A level of service C is the desirable minimum for the design year; however, a level D is acceptable if further improvements are costly and not cost effective.

A. Kunia Road

Kunia Road is shown schematically in Figure 2 by traffic flow diagrams with estimated 1995 peak hour volumes.

1. Proposed Intersection with Collector Street No. 1

By 1995, the increased traffic generated by the development and the normal growth of the through traffic on Kunia Road would overload the existing two lanes of Kunia Road and a proposed intersection with Collector Street No. 1 resulting in a level of service F. The major impact is during the morning peak hour when the heavy left turn movement from the development into Kunia Road (home to work travel) conflicts with the substantial northbound movement as indicated in Figure 2. The afternoon peak hour would also overload the



PROPOSED KUNIA ROAD
 FOR 1995 PEAK HOUR TRAFFIC
 AT VILLAGE PARK DEVELOPMENT

- LEGEND**
- 000 - A.M. PEAK
 - (000) - P.M. PEAK
 - - - EXISTING TRAFFIC LAINE
 - PROPOSED ADDITIONAL TRAFFIC LAINE

existing two-lane road due to the conflict between substantial volume of left turns from the Schofield work to home travel and the heavy volume of Kunia Road work to home travel from H-1. The latter movement, albeit a right turn at the intersections, in combination with the through movement, exceeds the capacity of the one lane approach. Also, without a separate left turn lane, the southbound lane would be restricted severely.

The estimated average delay would be more than 60 seconds per vehicle and the peak traffic period would be extended to more than three hours in the morning.

2. Existing Intersections with North Kupuna Loop

A substantial portion of the traffic generated by the development will be diverted to the existing North Kupuna Loop because of the congestion at the proposed intersection with Collector Street No. 1 during the morning peak. This diverted traffic and the increased traffic would add 120% more to the existing and exceed the capacity of this existing intersection in the morning. The delays are estimated to be more than 60 seconds per vehicle and the peak traffic period would extend to three hours.

3. Existing Intersection with South Kupuna Loop

At this intersection, the 1995 traffic volume would be increased by 60% over the volume of the design year (1990) for the existing Kunia Road improvements during the morning peak by traffic generated by the development. The capacity of the existing southbound lane of Kunia Road would be exceeded for more than a four hour period. There would be long delays and long traffic backups.

B. Kunia Interchange (See Figure 2 for schematic drawing)

1. Intersection of Ramps and Kunia Road

The projected 1995 traffic is estimated to increase by 65% over the projected volume of the design year (1990) for the existing Kunia Interchange improvements. This increase will cause congestion in the existing Kunia Interchange at intersections "KI", "KO" and "KC" shown in Figure 2. The congestion would result in level of service E during the morning peak hour at Intersection "KI" which is a signalized intersection. Intersection "KC", which is unsignalized, would be interfered by traffic backups. The existing "yield" movements of Ramp "KO" will operate at a level of service F. Intersection "KA", a signalized intersection, which is already widened for the future increase in traffic, will operate satisfactorily at a level of service B during the morning peak and at C during the afternoon peak. The peak traffic period is not expected to last longer than one hour.

2. Ramp Terminals at H-1

a. Ramp KI-A, the on-ramp to Interstate Route H-1 in the eastbound direction is two lanes wide throughout its length including the ramp terminal at (connection to) the through lanes. The right lane connects directly to an added lane of the four eastbound lanes of H-1. The 1995 morning peak hour traffic is estimated to increase by 120% over the projected volume for the design year (1990) of the existing improvements. The ramp would operate near capacity at the terminal, where the ramp traffic merges with the H-1 freeway traffic. At near capacity, merge movements create significant turbulence, but continue without noticeable freeway queuing. On-ramp queues, however, may be significant. (Description of operation near capacity from the Highway Capacity Manual.) (See calculations in Appendix A-24 for the morning peak.)

The afternoon peak traffic would be light.

- b. Ramp KO, the ramp from H-1 westbound, is one lane wide and a through lane is dropped at this ramp terminal. The afternoon peak hour traffic at this terminal would be over capacity and turbulence would be created as vehicles attempt to change lanes to avoid diverge areas. Considerable delay is encountered in the vicinity (Description of condition from the Highway Capacity Manual.) (See calculations on Appendix A-25.)

VII. PROPOSED IMPROVEMENTS

It is proposed that the improvements on Kunia Road and Interchange described below be constructed to alleviate the traffic impact estimated under Section VI above. These improvements would upgrade the traffic conditions during the 1995 peak hours to a level of service C or D at the intersections which are the critical segments of the road system. However, although the ramp terminals at the H-1 Freeway will become congested, no improvement is proposed for these terminals at the H-1 Freeway because regional problems are involved. (See last paragraph of this section).

At level of service C, the range of stopped delay per vehicle is 15 to 25 seconds at the intersection and 25 to 40 seconds at level of service D. As stated in Section VI above, level C is the desirable minimum for the design year, but a level D may be acceptable if further improvements are costly.

The proposed improvements of the intersections north of the Kunia Interchange would also meet the capacity requirements of the projected traffic volumes.

A. Kunia Road (See Figure 2 for schematic drawing)

Kunia Road needs the following improvements:

1. The northbound lane needs to be widened to two lanes from North Kupuna Loop to the proposed Collector Street No. 1 intersection. From thence the widening transitions back to the existing roadway.
2. For the southbound lane, beginning from the end of the northbound taper, flare out to effect a widening to two lanes at the proposed Collector Street No. 1 intersection. Of these two lanes, one is to be designated for left turns only and the other for southbound through traffic. The widening is to continue through North Kupuna Loop, South Kupuna Loop and to Ramp KC of the Kunia Interchange.
3. The South Kupuna Loop intersection is proposed to be improved as follows:
 - a. An additional southbound lane as covered in paragraph A.2 above.
 - b. The traffic signal system is to be converted to a two-phase system from the existing three-phase system. One phase will be for the movements on Kunia Road and the other for the movement out of South Kupuna Loop. The left-turn traffic from Kunia southbound to South Kupuna will make the turns through the gaps in the opposing traffic or during the amber light. This should limit the number of left turns to be made at this intersection to one or two per cycle. It would encourage the left turns to be made at the Collector Road No. 1 intersection where the left turns will have a separate phase in a three phase system. Also, the congestion would be less at that intersection.

a. Collector Street No. 1, 56 feet wide, curb to curb:
(1) Westbound: Two inside lanes for left turns only.
One outside lane for right turns only.

(2) Eastbound: One inside lane for left turn from
Kunia southbound. One outside lane for
right turn from Kunia northbound.

b. Kunia Road
(1) Northbound: Two through lanes.
(2) Southbound: One through lane and one left-turn lane.

With substantial traffic diverted to the North Kupuna Loop
intersection and with improvements as described above, the
Collector Street No. 1 intersection would operate at level of
service C during the AM peak and PM peak in 1995. (See
calculations in Appendices A-3 to A-4).

B. Kunia Interchange
As discussed under Section VI, the ramp intersections "KI", "KO"
and "KC" without improvements will become congested during the
1995 peak hours. The following are the proposed improvements to
alleviate the congestion:

1. Intersection "KI"
Add another lane to Kunia northbound lanes for the left-turns
into Ramp KC and another lane to the right turn lane into
Ramp KI-A. These additional lanes will improve the
intersection operation from a level of service F to D during
the 1995 AM peak hour. (See calculations in Appendices A-13
to A-16.) Adding still another lane to Kunia northbound
lanes would improve the operation to level C; however, doing
this would necessitate adding two lanes at Intersection "KO"
(see below), which would affect the Board of Water Supply

The South Kupuna intersection would be more efficient
with the two phase system as it can pass through more
vehicles during the peak hours.

The level of service for the peak hour operation in 1995
can be upgraded to level C for the AM peak and B for the
PM peak with the proposed improvements. (See
calculations in Appendices A-9 to A-12).

4. North Kupuna Loop intersection is to be improved by the
following:

a. An additional southbound lane on Kunia Road.

b. The right lane on North Kupuna Loop coming out of the
development to be converted to an optional right-turn/
left-turn lane. This improvement will provide double
left-turns out of North Kupuna Loop.

c. The signal system is proposed to be converted to a two
phase system from the existing three-phase for the same
reasons and results given above in paragraph 3 for the
South Kupuna Loop intersection.

These improvements are proposed at this intersection in order
that a substantial portion of the traffic generated by the
new development can be accommodated at this intersection as
alluded to under Section V.D. above. The intersection would
then be able to operate at a level of service C during the
1995 peak hour traffic. (See calculations in Appendices A-5
to A-8).

5. Collector Street No. 1 intersection is to be constructed as
follows:

This freeway section will become inadequate not only with the increased traffic from the Village Park expansion as indicated here, but also from the traffic volume increase caused by other major developments proposed in Ewa, West Beach and Makakilo.

VIII. ALTERNATIVES

A. Minimal or No Roadway Improvements
The Hall 2000 Study (See Reference 4) states that expanded public transit services, regardless of transit mode, would not attract a sufficiently large increase in transit use to offset the substantial increase in travel from the Ewa and Central Oahu areas. It goes on to point out that in order to improve highway conditions on the Pearl City-Aiea and Iwilei-Downtown area roadways, increased public transit service should be supplemented with roadway widenings, traffic operations modifications (HOV facilities or reversible lanes), etc.

The planning of Village Park for the immediate future must accommodate substantial automobile use increases and therefore it must include access roadway improvements.

B. Alternate Routes
An alternate route for access requires a new right-of-way and a new interchange with H-1. Both items are costly in terms of change in land use and construction. It is obvious that the improvement of existing Kunia Road and Kunia Interchange is the more feasible alternative. The construction of a local road such as a connector to the Amfac Waikale development would conflict with the existing Navy ammunition storage area and also, it would be very costly.

well adjacent to Kunia Road. Drilling a replacement well would be costly; therefore, a one-lane addition is recommended.

2. Intersection "KO"
Add another lane to Kunia northbound lanes on the right side to increase the number of weaving lanes to three from Ramp KO to South Kupuna Loop. This addition will improve the traffic movements so that the weaving can be done at a minimum average speed of 30 mph and the non-weaving speed can be 43 mph. The improvement is satisfactory for the 1995 afternoon peak hour. The morning peak is not critical. (See calculations in Appendices A-21 to A-23).

3. Intersection "KC"
This intersection needs signalization in order to insure a level of service commensurate with the adjoining intersections.

It is the developer's intention to construct and fund the above-mentioned improvements. The estimated time table based on the development time table would be completion by the end of 1988. (See calculations in Appendix A-27 to A-30.) Plans and specifications for the proposed improvements will be coordinated with and subject to approval by the State Highways Division.

The ramps proper (the segment between the intersection at Kunia Road and the connection to H-1) are estimated to be adequate for the 1995 peak hour traffic. Ramps KI-A and KA-1 are two lanes wide and Ramps KO, KC and KB are all one lane wide. However, the ramp terminals of KI-A and KO at the H-1 Freeway would not be up to the minimum requirements for the 1995 traffic (See paragraph VI.B.2.a. & b.).

IX. PUBLIC TRANSPORTATION

As mentioned above in paragraph VIII A., an expanded public transit service, regardless of transit mode, would not offset the substantial increase in travel from the Ewa area. Nonetheless, public transit service has an impact in traffic operations; also, development has impact on existing transit service. It is to cover these impacts and to present on-going transit studies that this section is included.

A. Existing Service

At present, Village Park is served by two (2) express buses in conjunction with service to Makakilo. There are two (2) runs to Honolulu starting at 5:35 A.M. and 6:05 A.M., respectively from Makakilo and arriving for pick up at Village Park at 6:02 and 6:32. The destination is the intersection of Alapai and Hotel Streets at 6:47 and 7:20. The afternoon runs leave at 4:15 p.m. and 4:45 p.m., respectively and arrive at Village Park at 4:51 and 5:21 p.m.

The ridership as of July 1985 is approximately 25 persons from Village Park per run, which is about one-half of the seating capacity and one-third of the total capacity of a standard bus.

B. Impact of Development on Existing Bus Service

Present Village Park has approximately 850 occupied units and the proposed development will raise the total to 5,220 dwelling units including the unfinished units of the present development. The increase would be six fold.

The route would be extended 0.6 mile mauka on Kunia Road from Kupuna Loop (mauka). The collector street network extends one mile east of Kunia Road.

C. Ongoing Studies

Presently, the Hall 2000 Study (See Reference 4) is addressing the feasibility and effectiveness of the following public transportation alternatives: (1) bus system expansion emphasis, (2) at-grade light rail system, or (3) partially grade-separated light rail and (4) fully grade-separated rapid transit.

1. The bus system expansion alternative provides for major expansion in bus fleet size, services, and reserved bus lanes on the H-1 Freeway. Village Park, already being serviced, will benefit from the expansion. In conjunction, a marine ferry service between Ewa Beach Marinas and downtown is a part of this alternative. This would also benefit Village Park.

2. The at-grade light rail system and partially grade-separated light rail system use street car sized vehicles which can be operated as single units or coupled into trains. Operating speeds can vary from those typical of local buses to speeds similar to rapid transit trains, depending upon the degree of separation from traffic conflicts and the spacing between station stops.

3. The light rail line being considered would run between West Beach and the University of Hawaii-Manoa area, with a branch line extending through Waikiki. The line between Pearl Harbor and West Beach would run on the former Oahu Railway and Land (OR&L) alignment which runs near the intersection of Fort Weaver Road and Farrington Highway. The public bus system would be modified to provide "feeder" service to the rail line while existing parallel bus line service would be reduced or eliminated. Village Park can be served quite effectively by this system.

4. The fully grade-separated rapid transit operates on a guideway which avoid all vehicular and pedestrian conflicts through the use of elevated and subway alignments, and location within freeway rights-of-way. Stations would be spaced far apart to reduce the frequency of stops and permit higher travel speeds. The guideway would run from Kahala to Aloha Stadiums, with a possible four (4) mile extension to Pearl City.

"Feeder" buses would service the outlying residential areas to make connections to stations on the guideway line. Village Park would benefit from this "feeder" bus-rapid transit system.

D. Status of Public Transit Planning
The Hall 2000 Study is still in the process of alternative(s) selection. At this time, this step is not expected to be completed in time for this report.

E. Impact of Public Transit
For Leeward Oahu, the Hall 2000 study shows that the percent trips by transit in major corridors range from 9.1% to 10.6% for the four (4) alternative public transit systems. Even for the best case of 10.6%, the diversion of trips away from the highway is not sufficient to make a difference in the Kunia Road or the interchange improvements needs. However, increased public transit use would make the traffic operation of the improvements significantly better by reducing the congestion.

X. REGIONAL TRAFFIC PROBLEMS

The developer has been advised of the projected regional traffic problems presented in the Hall 2000 study. The projected problems are substantiated by the proposed large developments in Ewa, West Beach and Makakilo as well as the Village Park expansion.

As pointed out at the end of Section VII, the existing Interstate Route H-1 at Kunia Road will be inadequate to convey the anticipated additional traffic generated by the proposed developments in the region. This report is prepared to present the Village Park expansion's effect on the problem.

The State Highway's Division has the following projects under design:

1. Widen H-1 Freeway from four lanes to six lanes, Kunia Interchange to Palailai Interchange (Campbell Industrial Park access road).
2. Widen and/or restripe H-1 Freeway for an additional lane in each direction as follows:
 - a. In the eastbound direction, from Malava Interchange to Malava Interchange, except through Malau Interchange.
 - b. In the westbound direction, Malava Interchange to the Pearl City off-ramp.

The State is also developing conceptual plans of other highway improvements.

Also, the developer has been apprised of measures being considered which will require his participation, such as "park and ride" systems for carpooling and mass transit systems.

REFERENCES

1. HIGHWAY CAPACITY MANUAL, Special Report 209, 1985, Transportation Research Board, National Research Council, Washington, D.C.
2. TRAFFIC COUNTS, Stations No. TS 82-2 (July 14-20, 1982), TS 84-1 (March 13-14, 1984), and C-9-D (January 25-26, 1983 and April 9-10, 1984), Highways Division, Department of Transportation, State of Hawaii.
3. TRAFFIC STUDY REPORT FOR VILLAGE PARK, December 1976, Park Engineering, Inc.
4. HALI 2000 STUDY, ALTERNATIVE ANALYSIS, Final Report, June 1984, prepared for Oahu Metropolitan Planning Organization by Wilbur Smith and Associates.

APPENDICES

LEVEL OF SERVICE AND MAXIMUM SERVICE FLOW RATE

(Passenger Cars Per Hour)

60 MPH Design Speed

LEVEL OF SERVICE	TRAFFIC CONDITIONS	TWO LANE HIGHWAY*		FOUR-LANE HIGHWAY**	
		AVERAGE TRAVEL SPEED	MAX. SERVICE FLOW RATE BOTH DIRECTIONS	AVE. TRAVEL SPEED	MAX. SERV. FLOW RATE (PER LANE, ONE DIRECTION)
A	Free Flow	≥ 57 mph	140	≥ 50 mph	650
B	Stable flow (upper speed range)	≥ 54 mph	480	≥ 48 mph	1,000
C	Stable flow	≥ 51 mph	900	≥ 44 mph	1,300
D	Approaching Unstable flow	≥ 49 mph	1,340	≥ 40 mph	1,600
E	Unstable flow	≥ 40 mph	2,550	≥ 30 mph	2,000
F	Forced flow	< 40 mph	variable 0 - 2,550	< 30 mph	variable 0 - 4,000

* In rolling terrain, 60% no passing zones

** Under ideal conditions

(Excerpted from Highway Capacity Manual)

TABLE 9-1. LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTION

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	<5.0
B	5.1 to 15.0
C	15.1 to 25.0
D	25.1 to 40.0
E	40.1 to 60.0
F	>60.0

(Excerpted from the Highway Capacity Manual)

(A-1)
(Cont'd)

Part of
(A-1)

KUNIA ROAD TRAFFIC PROJECTION

STATE HIGHWAYS DIVISION
 24-HOUR ACCUMULATION TRAFFIC COUNT
 AT STATION C-9-D
 KUNIA ROAD 2.8 MILES NORTHWEST OF H-1
 (OPP MAIAHOLE RESERVOIR)

	TOTAL-2 DAY	AVERAGE
DEC. 1980	5,212	5,744 (AUG 1981)
JUN 1982	6,277	
JAN 1983	5,682	6,120 (AUG. 1983)
APR. 1984	6,598	

GROWTH:
 $\frac{6120 - 5744}{2 \text{ yrs}} = 3.3\% \text{ PER YEAR}$

PROJECTED 1995 TRAFFIC:
 $14 \times 0.33 \times 5744 + 5744 \approx 8,400 \text{ VPD}$

JAN. 25-26, 1983 VTC COUNT:
 SOUTH BAND: A.M. PEAK = 9.2% NORTH BAND: A.M. PEAK = 6.5%
 P.M. PEAK = 6.4%

1995 PEAK
 SOUTH BAND: A.M. = $8,400 \times 0.32 \approx 270 \text{ VPH}$
 P.M. = $8,400 \times 0.64 \approx 540 \text{ VPH}$
 NORTH BAND: A.M. = $8,400 \times 0.63 \approx 530 \text{ VPH}$
 P.M. = $8,400 \times 0.34 \approx 290 \text{ VPH}$

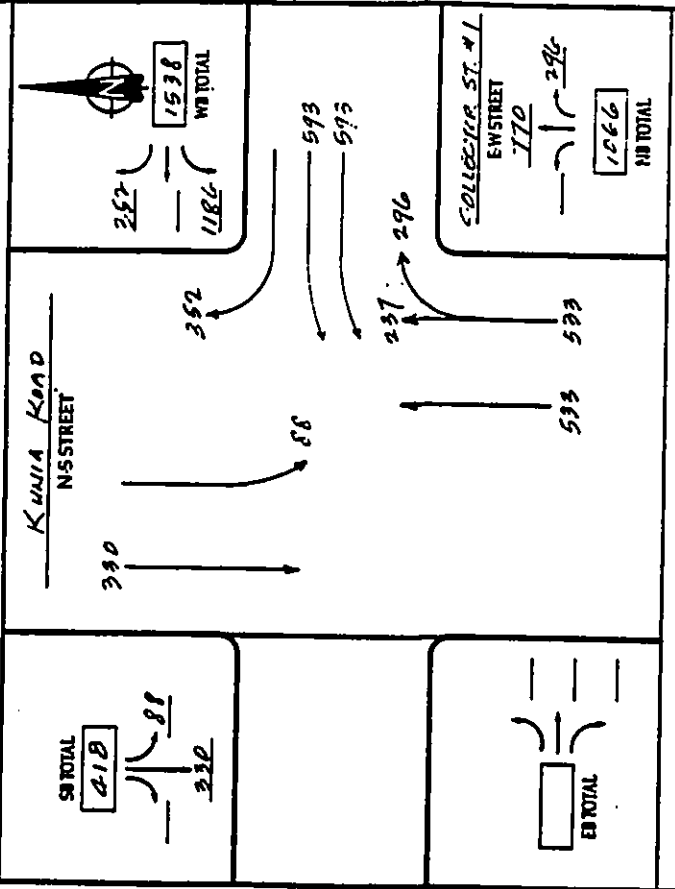
PROJECT: VILLAGE PARK TRAFFIC STUDY
 KUNIA BL. TRAFFIC STUDY
 PARK Engineering, Inc. (A-2) 1011 BIRCH STREET SUITE 205, HONOLULU, HI 96813

BY: YN DATE: 7/10/85
 REV. BY: YN DATE: 12/13/85
 CHKD: YN DATE: 12/13/85

JOB NO. _____
 SHEET NO. _____ OF _____

PLANNING APPLICATION WORKSHEET

Intersection: COLLECTOR STREET #1 Rev: 1/10/85
 Analyst: YN/YN Date: 12/13/85
 Project No. VILLAGE PARK City/State: _____
 Time Period Analyzed: AM PEAK HOUR

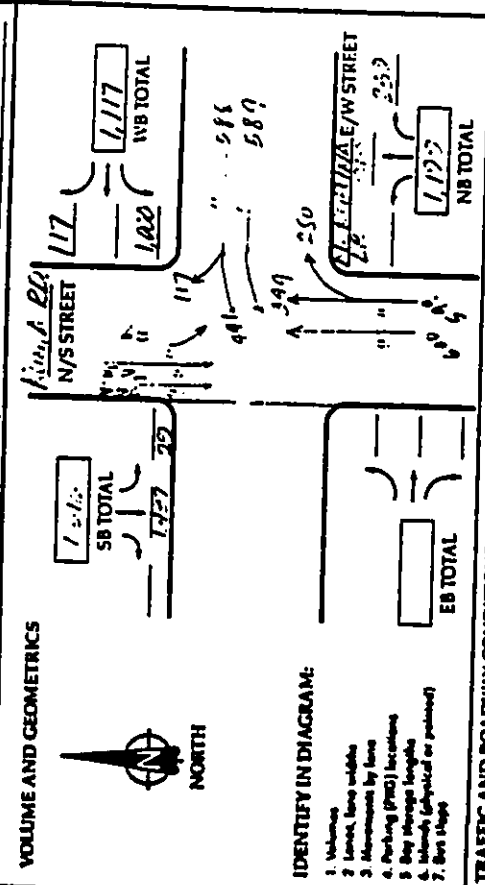


EW CRITICAL		NS CRITICAL		SUM OF CRITICAL VOLUMES		CAPACITY LEVEL		
EB LT	0	NB LT	0	0 TO 1,200	UNDER			
WB TH	0	SB TH	330	1,201 to 1,400	NEAR			
WB LT	0	SB LT	120	> 1,400	OVER			
EB TH	0	NB TH	533					
	593		1214					

STATUS: ACCEPTED
 (Signature)

INPUT WORKSHEET

Intersection: KUNIA RD. & N. KULUWA LP Date: NOV 25 1985
 Analyst: L. LYN Time Period Analyzed: AM PEAK REV: JAN. 15, 1986
 Project No.: VILLAGE PARK T-3 City/State: HAWAII Area Type: CBD Other



TRAFFIC AND ROADWAY CONDITIONS

Approach	Grade (%)	% HV	Adj. Pkg Lane	PHF	Buses (N)	Conf. Peds. (peds/hr)	Arr. Type
			Y or N				Min. Timing
EB	11	5	N	0.90			
WB	-1	5	N	0.90			
NB	16	5	N	0.90			
SB	-6	5	N	0.90			

Grade: + up, - down
 HV: veh. with more than 4 wheels
 N: pkg. maneuver/hr
 Conf. Peds. Conflicting peds/hr

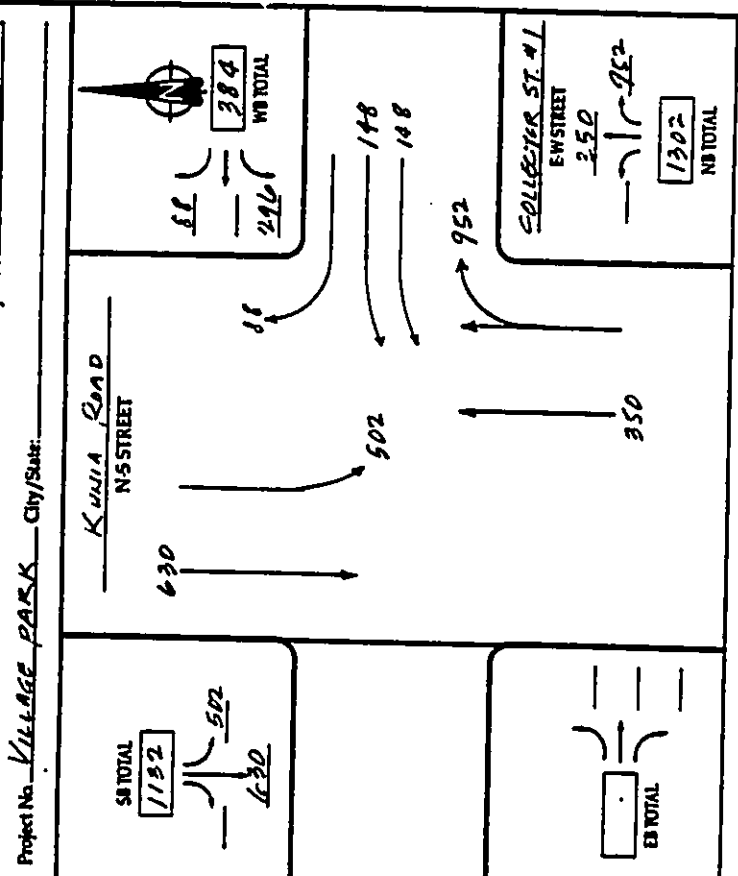
Min. Timing: min. green for pedestrian crossing
 Arr. Type: Type 1-5

PHASING

Phase	Individual turns	Y or R	Y or R	Y or R	Y or R	Y or R	Y or R	Y or R	Y or R
1									
2									
3									
4									
5									
6									
7									
8									
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PLANNING APPLICATION WORKSHEET

Intersection: COLLECTOR STREET #1 Rev: 1/10/86 Date: 12/13/85
 Analyst: YN/MN Time Period Analyzed: PM PEAK HOURS
 Project No.: VILLAGE PARK City/State: _____



Direction	Volume	Capacity Level
EB LT	0	UNDER
EB TH	0	UNDER
WB LT	0	UNDER
WB TH	0	UNDER
SB LT	0	UNDER
SB TH	620	NEAR
NB LT	0	UNDER
NB TH	350	NEAR
EW LT	0	UNDER
EW TH	0	UNDER
EW LT	0	UNDER
EW TH	0	UNDER

MAXIMUM SUM OF CRITICAL VOLUMES: 0 TO 1,200 UNDER; 1,201 to 1,400 NEAR; > 1,400 OVER

EW CRITICAL: 148 (1/4) NS CRITICAL: 100 (1/4) STATUS: Wise



Lane Group	First Term Delay				Second Term Delay				Total Delay & LOS		
	v/c Ratio X	Green Ratio R/C	Cycle Length C (sec)	Delay d ₁ (sec/veh)	Lane Group Capacity C (veh)	Delay d ₂ (sec/veh)	Progression Factor PF Table 9-13	Lane Group Delay (sec/veh) (R+G) X C	Lane Group LOS Table 9-1	Approach Delay (sec/veh)	Approach LOS Table 9-1
EB											
WB	0.96	0.45	120		1359	35.88	0.55	305	D		
NB	0.84	0.50	120	120	1770	22.66	1.98	19.3	C		
SB	0.90	0.50	120	120	1497	25.21	0.72	18.2	C		

Intersection Delay 22.2 sec/veh

Intersection LOS C (Table 9-1)

(A-5a Sb & Sc omitted from report)

A-6

Intersection: KUMHILL & N. KILPATRICK LP. Date: 11/21/11
 Analyst: DE/SYN Time Period Analyzed: PM PE Revision: 13.1916
 Project No.: VILLAGE MILK T S City/State: IL/IN Area Type: CBD Other

VOLUME AND GEOMETRICS
 N/S STREET: 226 SB TOTAL: 226
 E/W STREET: 212 WB TOTAL: 212

IDENTIFY IN DIAGRAM:
 1. Volume
 2. Left, through, right
 3. Movements by lane
 4. Parking (P) locations
 5. Stop storage lengths
 6. Signals (signal or point)
 7. Bus stops

TRAFFIC AND ROADWAY CONDITIONS

Approach	Grade (%)	% HV	Adj. Pk Lane Y or N	Adj. Pk Lane N _o	PHF	Conf. Peds. (ped/h)	Pedestrian Facility Y or N	Min. Timing	Att. Type
EB	-0.5	5	N		0.93				
WB	10.5	5	N		0.91				
NB	1.6	5	N		0.99				
SB	-0.6	5	N		0.99				

Grade: + up, - down
 HV: vch. with more than 4 wheels
 N_o: pfg. maneuvers/hr
 Conf. Peds.: Conflicting peds/hr
 Min. Timing: min. green for pedestrian crossing
 Att. Type: Type 1-5

PHASING
 Diagram: A-7
 Protected turns: -----
 Permitted turns: -----
 Pedestrian: -----
 Cook Length: -----

INPUT WORKSHEET

Intersection: KUNIA RD. @ VILLAGE PACK TS Date: Nov 25 1985
 Analyst: DE/vn Time Period Analyzed: AM PE Area Type: SCBD (Urban)
 Project No.: VILLAGE PACK TS City/State: Honolulu

N/S STREET

2,427
SB TOTAL

2,427
WB TOTAL

E/W STREET

1,213
NB TOTAL

1,213
WB TOTAL

VOLUME AND GEOMETRICS

NORTH

IDENTIFY IN DIAGRAM:

- Volume
- Control, being vehicle
- Maneuvers by lane
- Parking (PM) locations
- Bay storage lengths
- Islands (physical or painted)
- Bus stops

TRAFFIC AND ROADWAY CONDITIONS

Approach	Grade (%)	% HV	Adj. Pk. Line	Y or N	N _b	PHF	Conf. Peds. (peds/hr)	Y or N	Min. Timing	Art. Type
EB	-1	5	N			0.95				
WB	11	5	N			0.95				
NB	10	5	N			0.95				
SB	-6	5	N			0.95				

Grade: + up, - down
 HV: veh. with more than 4 wheels
 N_b: pfg. maneuvers/hr
 Min. Timing: min. green for pedestrian crossing
 Conf. Peds.: Conflicting peds./hr
 Art. Type: Type 1-5

PHASING

Phase	Y+R	G	Y+R	G	Y+R	Y+R	G	Y+R	Y+R	G	Y+R
D											
J											
A											
R											
A											
M											

LEVEL-OF-SERVICE WORKSHEET

Lane Group	First Term Delay			Second Term Delay			Total Delay & LOS		
	v/c	Green Ratio	Delay	Progression Factor	Delay	Line Group Delay	Line Group Delay	Appr. Delay	LOS
Appr.	X	G/C	d ₁	PF	d ₂	(v/c) × d ₁	(v/c) × d ₂	Table 9-1	Table 9-1
EB									
WB	0.54	0.50	120	0.85	28.5	0.85	28.5	D	
NB	1.05	0.75	120	0.75	31.43	0.75	31.43	D	
SB	0.38	0.75	120	1.08	4.8	1.08	4.8	A	

Intersection Delay 24.0 sec/veh

Intersection LOS C (Table 9-1)

(A-7a, 7b & 7c omitted from report)

LEVEL-OF-SERVICE WORKSHEET

Lane Group	First Term Delay				Second Term Delay			Total Delay & LOS	
	v/c Ratio X	Green Ratio G/C	Cycle Length C (sec)	Delay d ₁ (sec/veh)	Lane Group Capacity c (vph)	Delay d ₂ (sec/veh)	Progression Factor PF	Lane Group Delay (sec/veh)	Approach Delay (sec/veh)
EB									
WB	0.95	0.31	120	52.28	661	0.85	44.4	E	
NB	0.95	0.31	120	32.07	598	0.85	27.2	D	
SB	0.58	0.74	120	5.01	255	1.08	5.4	B	
	0.15	0.74	120	3.46	1076	1.08	9.7	A	
			120	47.85	70	0.62	59.7	D	
	1.08	0.74	120	27.66	2680	0.75	21.6	C	

Intersection Delay 20.5 sec/veh Intersection LOS C (Table 9-1)

(A-9a, 9b & c) *noted from 9-11*

A-10

INPUT WORKSHEET

Intersection: KAILUA RD. @ S. KUPUNA LP Date: NOV. 25 1985
 Analyst: DELYN Time Period Analyzed: PM PK For Jans: 12, 14, 16
 Project No.: VILLAGE PARK T.S. City/State: HON. HAWAII Area Type: OCBD R/Otht

VOLUME AND GEOMETRICS

N/S STREET: 1131 SB TOTAL: 1131 NB TOTAL: 173
 KAILUA RD.

E/W STREET: 192 NB TOTAL: 192
 KAILUA E/W STREET

IDENTIFY IN DIAGRAM:

- Volume
- Control type
- Intersections by lane
- Parking (PM) locations
- Bay storage lengths
- Islands (signal or police)
- Bus stops

TRAFFIC AND ROADWAY CONDITIONS

Approach	Grade (%)	% HV	Adj. Pkg. Lane	PHF	Bus Stop (No)	Conf. Ped. (ped/s/hr)	Pedestrian Button	Arr. Type
			Y or N				Y or N	Min. Timing
EB	-1	5	N	0.90				
WB	11	5	N	0.90				
NB	10	5	N	0.90				
SB	-6	5	N	0.90				

Grade: + up - down N_b: buses stopping/hr
 HV: veh. with more than 4 wheels PHF: peak-hour factor
 N_b: pkg. maneuvers/hr Conf. Ped.: Conflicting peds/hr Arr. Type: Type 1-5

PHASING

Timing	G ₁ Y+R	G ₂ Y+R	G ₃ Y+R	G ₄ Y+R	G ₅ Y+R	G ₆ Y+R	Cycle Length
Permitted or Prohibited							
Permitted turns							
Prohibited turns							

A-11

LEVEL-OF-SERVICE WORKSHEET

Lane Group	First Term Delay			Second Term Delay			Total Delay & LOS		
	v/c Ratio X	Green Ratio B/C	Cycle Length C (sec)	Delay d ₁ (sec/veh)	Line Group Capacity C (veh)	Delay d ₂ (sec/veh)	Programmer Factor PF Table 9-13	Line Group Delay LOS Table 9-1	Approach Delay LOS Table 9-1
EB	0.90	0.15	120	39.56	532	33.6	2.85	D	
WB									
NB	0.85	0.25	120	36.63	1157	31.1	0.85	D	
SB	0.99		120	49.36	1167	36.9	0.85	D	
	1.02	0.50	120	44.65	1717	44.1	1.00	G	

Intersection Delay 36.2 sec/veh

Intersection LOS D (Table 9-1)

(A-12.4, 13.6 & 12.0 controlled from report)

A-14

INPUT WORKSHEET

Intersection: KUNIA INTERCHANGE INTERSECTION Date: NOV 25 1986
 Analyst: DE/YN Time Period Analyzed: PM PK Area Type: DCBD Other: REV JAN 18, 1986
 Project No.: VILLAGE PARK I.S. City/State: HON. I-I, I, I, I

VOLUME AND GEOMETRICS

N/S STREET: N.S. 5112/1
 E/W STREET: E.W. 1525

IDENTIFY IN DIAGRAM:

1. Volume
2. Lane, lane width
3. Interchange by lane
4. Parking (P) locations
5. Bay storage lengths
6. Islands (physical or painted)
7. Bus stops

TRAFFIC AND ROADWAY CONDITIONS

Approach	Grade (%)	% HV	Adj. Pkg. Lane Y or N	N ₂	Buses (N ₂)	PHF	Conf. Peds. (peds./hr)	Arr. Y or N	Min. Timing	Type
EB	-4	5	N	-	-	0.85				
WB										
NB	14	5	N	-	-	0.85				
SB	-4	5	N	-	-	0.85				

Grade: + ups - down
 HV: veh. with more than 4 wheels
 N₂: pkg. maneuvers/hr
 Min. Timing: min. green for pedestrian crossing
 Arr. Type: Type 1-5

PHASING

Timing: G₁ Y+R₁ G₂ Y+R₂ G₃ Y+R₃ G₄ Y+R₄ G₅ Y+R₅ G₆ Y+R₆ G₇ Y+R₇ G₈ Y+R₈

Peak Length: 120

URBAN STREETS

LEVEL-OF-SERVICE WORKSHEET

Lane Group	First Term Delay			Second Term Delay			Total Delay & LOS		
	① Lane v/c Ratio X	② Green Ratio R/C	③ Cycle Length C (sec)	④ Lane Group Capacity C (vph)	⑤ Delay d_1 (sec/veh)	⑥ Progression Factor PF Table 9-13	⑦ Lane Group Delay d_2 (sec/veh)	⑧ Lane Group LOS Table 9-1	⑨ Approach Delay (sec/veh)
EB	0.89	0.30	120	1011	25.70	0.85	21.6	E	
WB									
NB									
SB	0.61	0.65	120	2334	9.58	0.62	5.9	E	

Intersection Delay 7.3 sec/veh

Intersection LOS E (Table 9-1)

(A-17a, 17b & 17c omitted from report)

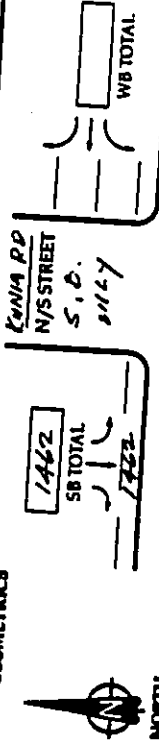
A-18

SUMMARIZED DIRECTIONS

INPUT WORKSHEET

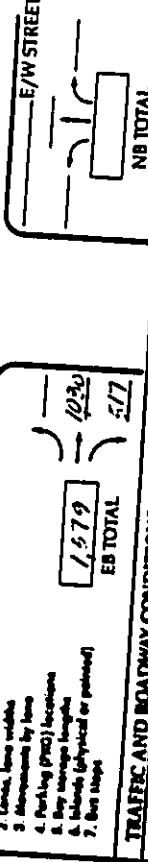
Intersection: KANNA INTERCHANGE INTER "KA" Date: 12/14/81
 Analyst: YN Time Period Analyzed: PM PK Rev: 1/13/86
 Project No.: VILLAGE PARK Area Type: CBD Other
 City/State: _____

VOLUME AND GEOMETRICS



IDENTIFY IN DIAGRAM

1. Volume
2. Lane, lane width
3. Intersections by lane
4. Parking (P) locations
5. Bay storage lengths
6. Islands (physical or painted)
7. Bus stops



TRAFFIC AND ROADWAY CONDITIONS

Approach	Grade (%)	% HV	Adj. Pk Lane		Buses (N)	PHF	Conf. Peds. (ped/s/ln)	Pedestrian Station Y or N	Min. Timing (Type)
			Y or N	N ₂					
EB	-4	5	11	-	-	0.95			
WB									
NB									
SB	-11	5	N	-	0.41				

Grade: + up - down
 HV: veh. with more than 4 wheels
 N₂: pbs & maneuvers/hr
 N₁: buses stopping/hr
 PHF: peak-hour factor
 Conf. Peds.: Conflicting peds./hr
 Min. Timing: min. green for pedestrian crossing
 Arr. Type: Type 1-5

PHASING

Diagram: SEE A-11, PK

Timing (Protected or Actuated)	Protected turns		Permitted turns		Pedestrian		Cycle Length (Sec)
	G-Y-R	G-Y-R	G-Y-R	G-Y-R	G-Y-R	G-Y-R	

A-17

LEVEL-OF-SERVICE WORKSHEET

Lane Group	First Term Delay				Second Term Delay				Total Delay & LOS			
	① Lane Group Move-ments	② v/c Ratio X	③ Green Ratio G/C	④ Cycle Length C (sec)	⑤ Delay d _l (sec/veh)	⑥ Lane Group Capacity C (vph)	⑦ Delay d _l (sec/veh)	⑧ Progression Factor PF Table 9-13	⑨ Lane Group Delay (sec/veh) (⑤) X (⑧)	⑩ Lane Group LOS Table 9-1	⑪ Approach Delay (sec/veh)	⑫ Lane Group LOS Table 9-1
EB	→	0.82	0.43	120	25.78	1400	4.55	21.9	C			
WB												
NB												
SB	↑↑	0.84	0.55	120	19.77	1218	0.96	19.0	C			

Intersection Delay 20.2 sec/veh Intersection LOS C (Table 9-1)

(A-19a, 19b & 19c omitted from report.)

A-20

INTERSECTION "KO"

P.M. PEAK

REF: HIGHWAY CAPACITY MANUAL, CHAP. 4

FIND:
 OP. SPEED FOR W/AVE MANUEVER TYPE "A" (Table 8-1)
 PHF = 0.95
 f_{av} = 1.0
 f_u = 1.0
 f_p = 1.0

① INTERSECTION "KO"

$$V = \frac{V}{PHF \times f_{av} \times f_u \times f_p} = \frac{485}{0.95 \times 1 \times 1 \times 1} = 511 \text{ pcph}$$

$$V = \frac{1019}{0.95 \times 1 \times 1 \times 1} = 1073 \text{ pcph}$$

$$V_{w1} = \frac{745}{0.95 \times 1 \times 1 \times 1} = 784 \text{ pcph}$$

$$V_{w2} = \frac{415}{0.95 \times 1 \times 1 \times 1} = 437 \text{ pcph}$$

$$V_w = 784 + 437 = 1,221 \text{ pcph}$$

$$V = 511 + 1,073 + 1,221 = 2,805 \text{ pcph}$$

$$D = \frac{437}{1,221} = 0.36$$

PROJECT: VILLAGE PARK
 TRAFFIC STUDY: INTERSECTION "KO" PM PEAK
 PARK Engineering, Inc. (A-21) 507 SOUTH KING STREET, SUITE 300, HONOLULU, HAWAII 96813

BY: DE DATE: 1/11/11
 CHECKED BY: DATE: 2/11/11
 PRINTED: 1/11/11

$$VR = \frac{1,221}{2,805} = 0.44$$

$$L = 800'$$

$$N = 3 \text{ lanes}$$

$$S_w = 15 + \frac{50}{1 + 0.226(1 + VR)^{0.75} (V/N)^{1.0}} / L^{0.9}$$

$$S_w = 15 + \frac{50}{1 + 0.226(1 + .44)^{0.75} (2,805/3)^{1.0}} / 800^{0.9} \sim 38.3 \text{ mph}$$

$$S_{NW} = 15 + \frac{50}{1 + 0.02(1 + VR)^{2.0} (V/N)^{1.0}} / L^{1.0}$$

$$= 15 + \frac{50}{1 + 0.02(1 + 0.44)^{2.0} (2,805/3)^{1.0}} / 800^{1.0} \sim 43.1 \text{ mph}$$

$$N_w = 2.19 N V R^{0.571} L_h^{0.234} / S_w$$

$$= 2.19 \times 3 \times 0.44^{0.571} \times 8^{0.234} / 38.3 = 1.36$$

$N_w = 1.36 \text{ lanes} < 1.4 \text{ lanes} \therefore$ the section will operate in the unconstrained mode.

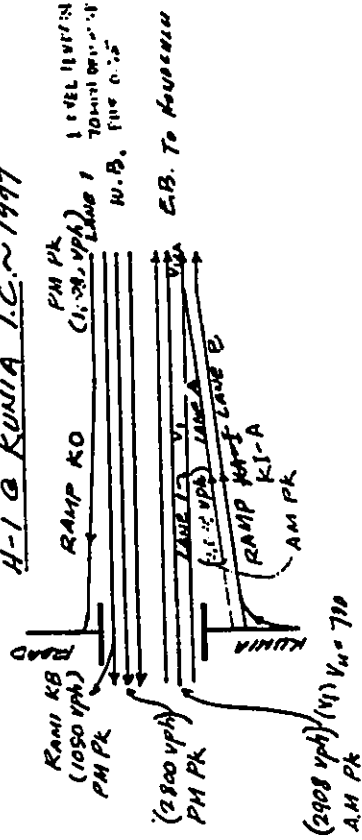
$$S_w \sim 38.3 \text{ mph}$$

$$S_{NW} \sim 43.1 \text{ mph}$$

PROJECT: VILLAGE PARK TRAFFIC STUDY	JOB NO.	BY DE DATE 11/24/05
		CHKD DE DATE 11/24/05
		SHT. NO. 8
PARK Engineering, Inc. (A-22) 581 SOUTH KING STREET 1. SHEET 10 OF 10		

PROJECT: VILLAGE PARK TRAFFIC STUDY	JOB NO.	BY DE DATE 11/24/05
		CHKD DE DATE 11/24/05
		SHT. NO. 8
PARK Engineering, Inc. (A-22) 581 SOUTH KING STREET 1. SHEET 10 OF 10		

H-1 G KUNIA I.C. ~ 1997



① FIND V/C FOR RAMP KA-A DURING AM PK.
 REF: HWY. CAPABILITY, Sp. Rep. # 207 (P. 5-7)

Assume $f = 0.95$ (Table 5-1) LOS E
 $V_0 = 2000 \times 0.95 = 1900$ vph $1700 \times 0.95 = 1662$
 $V_A = 2628 - 1900 = 728$ $2628 - 1662 = 966$
 $V_1 = 1060$ (Fig I.5-1) 1025
 $V_{1A} = 1060 + 728 = 1788$ vph $(2000 \times 0.95 + 966) = 1991$ vph > 1750 N.G.
 OK

Item	Volume	PIUF	(V_p) Basic Capacity	(C) Capacity	V/C
V_1	1060	0.95	1116	2,500	0.56
V_{1A}	1788	0.95	1,882	2,500	0.94
V_A	728	0.95	766	2,000	0.38
V_0	1,900	0.95	2,000	2,000	1.00
V_1	5,540	0.95	5,838	8,000	0.73

THE MERGING TRAFFIC FROM RAMP KA-A AND LANE 1 WILL OPERATE NEAR CAPACITY.

(V_{1A})

PROJECT: VILLAGE PARK
 TRAFFIC STUDY
 KUNIA INTERCHANGE RAMP LPS
 PARK Engineering, Inc. (A-24) 587 SOUTH KING STREET, SUITE 301, HONOLULU, HAWAII 96813

BY: DE DATE: 1/15/86
 CHD: JLD DATE: 1/15/86
 REV: YW 1/15/86
 SHT. NO. 17 OF 17

② FIND V/C FOR DROPPING A LANE AT OFF-RAMP KO
 $V_1 = 5458$ vph PM PK

$V_1 = 3850 \times 0.10 + (1,000) = 1,945$ vph

Item	Vol.	PIUF	(V_p) Basic Capacity	(C) Capacity	V/C
V_1	1,945	0.95	2,098	2,000	1.05
V_0	1,608	0.95	1,693	2,000	0.85
V_1	5,458	0.95	5,745	8,000	0.72

LANE 1 OPERATES OVER CAPACITY.
 DIVERGING TRAFFIC ON RAMP KO OPERATES BELOW CAPACITY.

PROJECT: VILLAGE PARK
 TRAFFIC STUDY
 PARK Engineering, Inc. (A-25) 587 SOUTH KING STREET, SUITE 301, HONOLULU, HAWAII 96813

BY: DE DATE: 1/15/86
 CHD: JLD DATE: 1/15/86
 REV: YW 1/15/86
 SHT. NO. 18 OF 18

PERCENTAGE OF TRAFFIC VOLUME ON H-1 GENERATED BY VILLAGE PARK (1995):

a. EAST OF KUNIA ROAD:
 RAMP KI-A VOL. (AM) 2,628
 THRU TRAFFIC (T.T.) 1,084
 FROM VILLAGE PARK (V.P.) 1,544

% GENERATED BY V.P. = $\frac{1544}{(H-1) 2908 + 2628} = 28\%$

RAMP KO VOL (PM)
 T.T. 64
 V.P. 1,544

% GENERATED BY V.P. = $\frac{1544}{3950 + 1608} = 28\%$

b WEST OF KUNIA ROAD:

RAMP KC VOL (AM)
 T.T. 1,563
 V.P. 619
 944

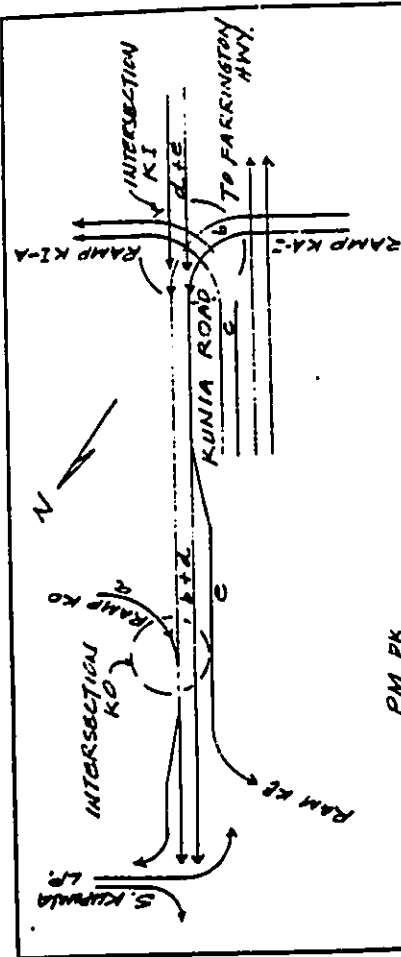
% GENERATED BY V.P. = $\frac{944}{2514 + 1563} = 27\%$

RAMP KA-I VOL. (PM)
 T.T. 1,597
 V.P. 653
 944

% GENERATED BY V.P. = $\frac{944}{2908 + 1597} = 24\%$

PROJECT: VILLAGE PARK
TRAFFIC STUDY
 PARK Engineering, Inc. (A-26) 547 SOUTH KING STREET, SUITE 300, HONOLULU, HAWAII 96813

BY: DE DATE: 1/27/97
 JOB NO. _____
 CHKD. BY: YV DATE: 1/29/97
 SHT. NO. _____ OF _____



1990 PM PK		1995		1998	
V.P.	T.T.	Total	V.P.	T.T.	Total
(V.P.)	(V.P.)	(V.P.)	(V.P.)	(V.P.)	(V.P.)
45%	45%	55	500	55	955
20%	47%	710	487	113	680
45%	150	308	260	36	296
9%	270	266	140	74	214
7%	335	335	289	279	279

V.P. = Village Park Traffic
 T.T. = Thru Traffic
 * See Worksheet
 $1990 \text{ PM PK } V_{90} = C \text{ during inters. KI } \frac{944}{1990} = .47 + .02 = 0.49$
 $V_{95} = C \text{ during inters. KI } \frac{944}{1995} = .47 + .02 = 0.49$
 ** See 1990 Signal. inters. comp.
 From Unsig. inters. comp.
 Ramp KO capacity = $0.64 \times 1175 + 0.56 \times 340 = 795 < 1141 \text{ yph N.G.}$
 TR-1988 PM PK
 $V_{88} = C \text{ during inters. KI } \frac{944}{1988} = .47 + .02 = 0.50$
 *** See 1988 road inters. comp.
 From Unsig. inters. comp.
 Ramp KO capacity = $0.52 \times 1175 + 0.48 \times 460 = 692 < 853 \text{ yph C.K.}$
 ∴ IMPROVE INTERSECTIONS KO & KI BY THE END OF 1998

PROJECT: VILLAGE PARK
TRAFFIC STUDY - THRESHOLD YEAR
 FOR KUNIA I.C./INTER'S IMPROVEMENTS
 PARK Engineering, Inc. A-27 547 SOUTH KING STREET, SUITE 300, HONOLULU, HAWAII 96813

BY: YV DATE: 1/29/97
 JOB NO. _____
 CHKD. BY: _____ DATE: _____
 SHT. NO. _____ OF _____

WORKSHEET FOR ANALYSIS OF INTERSECTIONS

LOCATION: KUNIA INTERCHANGE
HOURLY VOLUMES (1981) NAME: YN REV/YN 1/24/86

Major Street: Kaula Road **VOLUMES IN PCH**

Grade: 0.1% **PHF:** 0.91 **Grade:** 0% **RAMP:** NO

Date of Counts: _____
 Time Period: AM
 Average Running Speed: _____

VOLUME ADJUSTMENTS

Movement No.	2	3	4	5	7	9
Volume (vph)	814	0	0	0	0	853
Vd (pcph), see Table 10-1						

STEP 1: RT From Minor Street

Conflicting Flow, V_c _____
 Critical Cap. T_c , and Potential Capacity, C_p _____
 Actual Capacity, C_a _____

STEP 2: LT From Major Street

Conflicting Flow, V_c _____
 Critical Cap. T_c , and Potential Capacity, C_p _____
 Percent of C_p Utilized and Impedance Factor (Fig. 10-5) _____
 Actual Capacity, C_a _____

STEP 3: LT From Minor Street

Conflicting Flow, V_c _____
 Critical Cap. T_c , and Potential Capacity, C_p _____
 Percent of C_p Utilized and Impedance Factor (Fig. 10-5) _____
 Actual Capacity, C_a _____

SHARED-LANE CAPACITY

$SH = \frac{V_1 + V_2}{(v/c_a) + (v_1/c_{sa})}$ if lane is shared

Movement No.	v (pcph)	c_a (pcph)	c_{sa} (pcph)	C_p	LOS
7					
9					
4					

A-28

INPUT WORKSHEET

Intersection: KUNIA INTERCHANGE INTERS KI Date: Jan 11, 1986
Analyt: YN Time Period Analyzed: PM Pk Area Type: LICBD 2/Other
Project No.: Village Park T.S City/State: Honolulu Hawaii

VOLUME AND GEOMETRICS

IDENTIFY IN DIAGRAM:

- Volume
- Lanes, lane widths
- Measurements by lane
- Parking (PCH) locations
- Stop sign locations
- Islands (physical or painted)
- Bus stops

TRAFFIC AND ROADWAY CONDITIONS

Approach	Grade (%)	% HV	Adj. Pch. Lane		Busch (N)	PHF	Conf. Peds (ped/hr)		Pedestrian Station Y or N	Min. Timing	Arr. Type
			Y or N	N ₂			Y or N	Min. Timing			
EB	-4	5	N	-	-	0.91					
WB											
NB	+4	5	N	-	-	0.91					
SB	-4	5	N	-	-	0.91					

Grade: + up - down
 HV: veh. with more than 4 wheels
 N₂: pkg. maneuvers/hr
 N₁: buses stopping/hr
 PHF: peak-hour factor
 Conf. Peds: Conflicting peds./hr
 Arr. Type: Type 1-5

PHASING

DIAGRAM

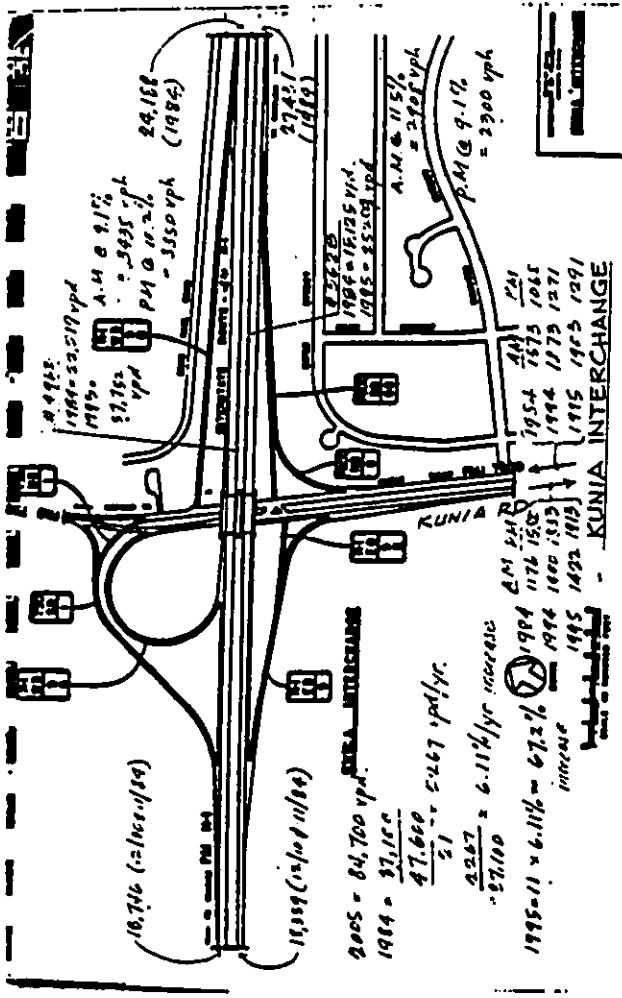
Protected turns	Permitted turns	Pedestrian	Cycle Length / 2.7 Sec
			2.29

LEVEL-OF-SERVICE WORKSHEET

Lane Group	First Term Delay				Second Term Delay			Total Delay & LOS		
	① v/c Ratio X	② Green Ratio G/C	③ Cycle Length C (sec)	④ Delay d ₁ (sec/veh)	⑤ Lane Group Capacity c (vph)	⑥ Delay d ₂ (sec/veh)	⑦ Progression Factor PF Table 9-13	⑧ Lane Group Delay LOS (sec/veh) ⑥+⑦ X ⑦	⑨ Lane Group Delay LOS Table 9-1	⑩ Approach Delay LOS Table 9-1
EB	0.81	0.25	120		874	36.24	1.03	37.3	D	
WB										
NB	0.96	0.18	120		604	46.69	0.85	91.4	E	
SB	0.75	0.78	120		1110	7.45	0.88	6.3	B	
	0.16	0.49	120		1683	12.84	1.00	12.8	F	

Intersection Delay $\frac{43.9}{296}$ sec/veh Intersection LOS C (Table 9-1)

(A-27, 296 & 290 omitted from report)



RAMP I.D.	NR #	DESCRIPTION	SURVEY DATE	VOLUME
H1-EB-5	#5680	EB H-1 Frwy Off Ramp to Kunia Rd	03/13-14	3252
7600-SB-6P	#5658	EB H-1 Frwy On Ramp from Kunia Rd	03/13-14	12306
H1-WB-5B	#5685	WB H-1 Frwy Off Ramp to NB Kunia Rd	03/13-14	1609
H1-WB-5A	#5694	WB H-1 Frwy Off Ramp to SB Kunia Rd	03/13-14	8756
750-SB-1	#5659	WB H-1 Frwy On Ramp from Kunia Rd	03/13-14	4433
H-1 Frwy (E)	#5628	EB H-1 Frwy to Honolulu	03/13-14	15125
H-1 Frwy (W)	#4963	WB H-1 Frwy to Malanese	03/13-14	22579

1/17/06

APPENDIX G

**PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES**

**Decision Analysts Hawaii, Inc.
February 1986**

**PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES**

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Capital Improvements	4
Operations and Maintenance (O&M) and Services	4
SUMMARY	4
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Decision Analysts Hawaii, Inc.

February 1986

EXECUTIVE SUMMARY

The Village Park Expansion involves single-family and attached homes, land donated for low- to moderate-income rental housing, commercial and industrial areas, a golf course, a recreation area, and three park areas. State and County revenues derived from this project are expected to be significant, and sufficient to allow government to easily afford the capital improvements and services needed to accommodate the Village Park Expansion. The revenues are expected to be sufficient to (1) finance park and school improvements; (2) provide the same level of per-unit services as are currently provided; and (3) serve other community needs with the remaining net revenues. Furthermore, government is expected to be exposed to little, if any, risk since major government investment need not be made until the success of the project is proven, and increased tax revenues are already being derived.

In terms of 1985 dollars and at project completion, County revenues derived from the Village Park Expansion are estimated to be about \$4.8 million per year, and expenditures to support the project are estimated to be about \$3.1 million per year, for an estimated net income of about \$1.5 million per year.

For the State, revenues during construction are estimated to average \$4.3 million per year over the 7-year construction period, resulting in total construction-generated revenues of \$29.9 million. This sum greatly exceeds the estimated \$1.7 million for State-financed school improvements. Upon completion of the project, State revenues derived from the Village Park Expansion are estimated to be about \$6.8 million per year, and expenditures to support the project are estimated to be about \$5.7 million per year (including debt service on school improvements), for a net income of about \$1.1 million per year.

The resulting combined fiscal impact on the State and County is that revenues are expected to exceed expenditures by an estimated \$2.5 million per year upon completion of the Village Park Expansion.

TABLES

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2. Village Park Expansion, Impact on State and County Finances: Revenues	8
3. Village Park Expansion, Impact on State and County Finances: Expenditures	10
4. Village Park Expansion, Impact on State and County Finances: Summary	11

PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES

2

- 30 acres of land donated to the City and County of Honolulu for low- to moderate-income rental housing.
- 145,000 square feet of commercial area on 10 acres of land,
- two business parks which cover 18.7 acres of industrial land,
- an 18-hole golf course of 188.3 acres,
- a recreation area of 6.9 acres, and
- three neighborhood parks totalling 31.9 acres.

Construction is projected to take place over 7 years with average construction employment of 310 jobs. Assuming the average Statewide salary of \$34,400 per year for a full-time construction worker, the total amount to be paid to construction workers by the Village Park developer is estimated to average \$10.7 million per year. However, actual construction employment and payroll will fluctuate greatly over time, and will deviate greatly from their respective averages from one year to the next.

When the project is fully developed, the Village Park Expansion is expected to house about 10,000 people, assuming three people per home for single-family and attached homes, and two people per home for the rental housing. On-site employment is projected to be 710 jobs; this is based on one job per 300 square feet of commercial space, ten jobs per acre for the business park, and 40 jobs at the golf course (including a manager, office staff, pro shop, restaurant, and groundskeepers).

The property tax base for the Village Park Expansion is projected to total \$430.8 million, assuming: an average value of \$150,000 for the single-family and attached homes, and \$20,000 in homeowner exemptions; \$100 per square foot for commercial space; and \$20 per square foot for industrial land. The property tax base will increase by \$20,000 for each home that is occupied by renters as opposed to owners.

Retail sales are estimated to be \$27.9 million per year, based on an average of \$180 per square foot per year for the commercial area, and 300 golfers per day spending an average of \$25 each. Sales by wholesalers are estimated to be \$24.0 million per year, based on \$1 million per year per acre.

Total payroll for the on-site employees is expected to total \$12.5 million per year, assuming the estimated Statewide average annual salary of \$17,550. For Village Park residents, total household income is expected to be \$128.7 million per year; this is a conservative estimate in that it is based on the estimated minimum qualifying incomes of \$43,500 and \$36,000 for the single-family and attached homes, respectively. Household income will include a portion of the payroll paid by on-site businesses.

PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES

INTRODUCTION

The impact of the proposed Village Park Expansion on the State of Hawaii and the City & County of Honolulu finances are summarized in this report, with all values expressed in 1985 dollars. The analysis covers growth assumptions, revenues, expenditures, and a summary of net impacts.

As discussed in greater detail in the following section, the Village Park Expansion involves single-family and attached homes, land donated for low- to moderate-income rental housing, commercial and industrial areas, a golf course, a recreation area, and three park areas. However, the financial impact analysis is restricted to the fiscal impacts associated with the improvements provided by the developer and, except where noted, exclude the impacts of the rental housing which may be provided by the County.

The on-site economic activities are expected to service the needs of Village Park residents and nearby residents and businesses. As such, the commercial and industrial activities are expected to depend on—but are not—"primary" economic activities which drive Hawaii's economy, such as tourism, defense expenditures, and agriculture and other exports. Because of this, the financial impact analysis addresses only the direct impacts on State and County revenues and expenditures, since the indirect impacts are correctly assigned to the driving primary economic activities.

The revenue estimates include all sources of government revenues including taxes (property, excise, income, and other taxes), user charges and fees, earnings, etc. The revenue estimates are therefore larger than those which would be based simply on tax revenues. Similarly, the analysis covers capital improvements, operations and maintenance, and services required to directly support the Village Park Expansion.

GROWTH ASSUMPTIONS

Details of the Village Park Expansion and corresponding growth assumptions are summarized in Table 1. The development includes:

- 3,000 single-family and attached homes,

1

REVENUES

The translation of the growth assumptions to State and County revenues is shown in Table 2. Construction activity is estimated to generate a total of \$29.9 million in tax revenues to the State, or about \$4.3 million per year during the 7-year construction period. This estimate includes 4 percent excise tax on finished development, excise taxes on building materials, 0.05 percent conveyance tax, and State income taxes.

During full operations, the estimate for the added County revenues is \$4.6 million per year, with \$2.9 million per year derived from property taxes assessed at \$6.75 and \$9 per \$1,000 value for residential and commercial/industrial property, respectively. The remaining \$1.7 million per year derives from a variety of sources directly related to population. These revenues, which are estimated at \$185 per resident based on analysis of City & County finances, include non-business licenses and fees for motor vehicles, bicycles, animals, sanitation, highways, bikeways, sewers, water, and public transportation. Federal and State transfers to the County based on population formulae are not included in the estimate of County tax revenues.

The increase in State tax revenues is expected to be \$8.8 million per year, with the largest revenues coming from income taxes of \$4.0 million per year (based on the average State income-tax rate of 3.1 percent applied to household income). This estimate of income-tax revenues is conservative since residents of Village Park expansion are expected to have higher than average incomes and, therefore, higher than average income-tax rates. Other State taxes include \$1.1 million per year from the 4 percent excise tax on retail sales, and \$0.1 million per year from the 0.5 percent tax on sales by wholesalers. The remaining \$1.6 million per year derives from a variety of sources directly related to population. These revenues, which are estimated at \$177 per resident based on analysis of State finances, include: inheritances and estate taxes; conveyance taxes; licenses and permits; fines, forfeits and penalties; charges for services; and other revenues. The estimated State revenues are also low in that they do not include corporate income taxes to be paid by on-site businesses. Also not included in the estimate of State revenues are income taxes from on-site employees since this would amount to double counting, and Federal-to-State transfers based on population formulae.

The combined State and County revenues during full operations is expected to total \$11.4 million per year.

EXPENDITURES

Estimates for State and County expenditures required to accommodate and support the Village Park Expansion are given in Table 3.

Capital Improvements

Most of the major capital improvements for Village Park are to be provided by the developer, including four collector streets within the project, widening of Kumia Road from two to four lanes between the project and the H-1 Freeway, improvements to the Kumia/H-1 Freeway on- and off-ramps, six wastewater mains, two deepwell water sources, a water booster station, a 3.0 million-gallon reservoir, a water treatment facility, five water mains, and land for two parks.

The only major capital improvements required by the County to support the project are park improvements on land that is to be donated by the developer. Such improvements may include a recreation center, basketball courts, tennis courts, etc. The estimated cost for these improvements is \$1 million; the debt service is about \$0.1 million per year, assuming financing with a 8.5 percent, 30-year bond.

For the State, the only major capital improvements required to support the project are school improvements. Such improvements may include the building of an elementary school on land donated by the developer. Including elementary, intermediate, and high schools, at most eleven classrooms are expected to be needed (see Proposed Village Park Expansion: Public Benefits and Costs, pp. 4 and 9). The cost for these classrooms and associated improvements is estimated at \$150,000 per classroom, for a total of \$1.7 million for all eleven; the debt service on this sum is about \$0.2 million per year.

Operations and Maintenance (O&M) and Services

An approximate estimate for O&M and service expenditures needed to support the residents at the Village Park Expansion at full development is \$8.5 million per year, with \$3.0 million of this allocated to the County and \$5.5 million to the State. These expenditures are estimated at \$333 and \$615 per resident for the County and State, respectively, and are based on analysis of County and State finances, with appropriate adjustments for Federal and State grants and transfers. These expenditure rates are expected to provide approximately the same level of per-unit services to residents as is currently the case with locally generated revenues, or possibly more given economies of scale (e.g., a 10-percent increase in population is likely to require an increase in general government of much less than 10 percent). The expenditures cover general government, public safety, health, sanitation, education, culture and recreation, water, highways and streets, and public transportation.

PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES

SUMMARY

The net impact on State and County finances of the Village Park Expansion is summarized in Table 4. For the County, revenues are expected to exceed expenditures by about \$1.5 million per year upon project completion.

For the State, revenues during construction are estimated to average \$4.3 million per year over the 7-year construction period, resulting in total construction-generated revenues of \$29.9 million. This sum greatly exceeds the estimated \$1.7 million for State-financed school improvements. Upon completion of the project, State revenues are expected to exceed expenditures by about \$1.1 million per year if debt service on the school is included, or \$1.3 million per year if it is not.

The resulting combined fiscal impact on the State and County is that revenues are expected to exceed expenditures by an estimated \$2.6 million per year upon completion of the Village Park Expansion if debt service is included.

To summarize the previous discussion and the results of Tables 2 through 4, State and County revenues derived from the proposed Village Park Expansion are expected to be significant, and sufficient to allow government to easily afford capital improvements and services needed to accommodate the project. The revenues are expected to be sufficient to: (1) finance park and school improvements; (2) provide the same level of per-unit services as are currently provided; and (3) serve other community needs with the remaining net revenues. Furthermore, government is expected to be exposed to little, if any, risk since major government investment need not be made until the success of the project is proven, and increased tax revenues are already being derived.

PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES

Table 1.--VILLAGE PARK EXPANSION, IMPACT ON STATE AND COUNTY FINANCES: GROWTH ASSUMPTIONS

Item	Amount	Units
PROPOSED DEVELOPMENT^{1,2}		
Single-family and Attached Homes	3,000	homes
Land Donated to the County for Rental Housing	30.0	acres
Commercial Area	145.0	1,000 sq. ft.
Industrial Areas	18.7	acres
Golf Course	168.3	acres
Recreation Area	6.9	acres
Parks	21.0	acres
CONSTRUCTION PHASE		
Duration of Construction	7	years
Average Employment ³	310	jobs
Average Payroll (\$34,400 per job, 1985) ⁴	\$ 10.7	million per year
FULL DEVELOPMENT		
Population Housed		
Single-family and Attached Homes (3 people per home) ³	9,000	people
Rental Housing (16 units/acre, 2 people per home) ³	960	people
Total Homes	9,960	people
On-site Employment		
Commercial Area (1 job per 300 sq. ft.)	480	jobs
Industrial Area (10 jobs per acre)	190	jobs
Golf Course	40	jobs
Total Jobs	710	jobs

¹ Wanket, William E., Development Plan Amendment Request, Village Park, Central Oahu, William E. Wanket, Inc., Honolulu, Hawaii, June 1985.

² Brooks, Jr., Wendell and John Zepotocky, Market Analysis for the Proposed Village Park Expansion, Chaney, Brooks & Company, Honolulu, Hawaii, June 1, 1985, and Supplemental Report, October 30, 1985.

³ Waitec Development, Inc.

⁴ Based on the average hourly rate for construction workers in 1983, adjusted to 1985 for inflation. DPED Data Books 1984, p. 372.

PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES

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Table 1.— VILLAGE PARK EXPANSION, IMPACT ON STATE
AND COUNTY FINANCES: GROWTH ASSUMPTIONS
(continued)

Item	Amount	Units
Property Tax Base (1985 \$):		
Single-family and Attached Homes (\$130,000 per home) ^{6,7}	\$380.0	million
Commercial Area (\$100 per sq. ft.)	14.5	million
Industrial Area (\$20 per sq. ft., or \$0.87 million per acre)	16.3	million
Golf Course and Recreation Area	n.e.	
Total Property Tax Base	\$430.8	million
Sales, Retail (1985 \$):		
Commercial Area (\$180 per sq. ft.) ⁸	\$ 26.1	million per year
Golf Course Area (200 customers per day, and \$25 per customers for green fees, golf cart, and food, etc.)	1.8	million per year
Total Sales, Retail	\$ 27.9	million per year
Sales, Wholesale (\$1 million per acre of industrial land, 1985 \$)		
	\$ 18.7	million per year
Payroll (\$17,350 per job, 1985 \$)⁸		
	\$ 12.5	million per year
Household Income (1985 \$):		
Single-family and Attached Homes (\$42,000 per home) ⁹	\$128.7	million per year
Rental Housing	n.e.	million per year
Total Household Income	\$128.7	million per year

n.e.: not estimated.

⁶ Brooks, Jr., Wendell and John Zapotocky, Market Analysis for the Proposed Village Park Expansion, Chaney, Brooks & Company, Honolulu, Hawaii, June 1, 1985, and Supplemental Report, October 30, 1985.

⁷ All homes are assumed to be owner occupied, which provides a \$20,000 exemption. Thus, the average value for homes will be \$20,000 more than that shown.

⁸ Average State salary for 1985, adjusted to 1985 for inflation. DPED Data Book, 1984, p. 389.

⁹ Weighted average of \$43,500 per year income for the families of 2,760 single-family homes, and \$36,000 per year income for the families of 240 attached homes.

PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES

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Table 2.— VILLAGE PARK EXPANSION, IMPACT ON STATE
AND COUNTY FINANCES: REVENUES¹
(In 1985 dollars.)

Item	Amount	Units
CONSTRUCTION PHASE		
Total State Revenues		
Homes (7.9825% of property tax base) ²	\$ 27.6	million
Commercial and Industrial Facilities (7.58125% of property tax base) ³	2.3	million
Total State Revenues	\$ 29.9	million
Average Annual State Revenues	\$ 4.3	million per year
FULL OPERATIONS		
County Revenues		
Property Taxes:		
Homes (\$6.75 per \$1,000 assessed value)	2.6	million per year
Commercial and Industrial Facilities (\$8 per \$1,000 assessed value)	0.3	million per year
Total Property Tax Revenues	\$ 2.9	million per year
Other Revenues (\$185 per resident) ^{4,5,6}	\$ 1.7	million per year
Total County Revenues	\$ 4.6	million per year
State Revenues:		
Excise Tax (4% of on-site retail sales)	\$ 1.1	million per year
Wholesale Tax (0.5% of on-site sales of wholesalers)	0.1	million per year
Income Tax (3.1% of household income) ⁷	4.0	million per year
Other Revenues (\$177 per resident) ^{8,9}	1.6	million per year
Total State Revenues	\$ 6.8	million per year
Total State and County Revenues	\$ 11.4	million per year

PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES

Table 2.— VILLAGE PARK EXPANSION, IMPACT ON STATE
AND COUNTY FINANCES: REVENUES
(continued)

- ¹ Includes tax and non-tax revenues.
- ² Includes 4% for excise tax on finished development, 0.1125% for excise tax on building materials, 0.05% for conveyance tax, and 2.92% for income tax. C&C of Honolulu, "Impact of Construction on Employment and Tax Revenues," April 1978; and Table 1 for property tax base.
- ³ Includes 4% for excise tax on finished development, 0.13125% for excise tax on building materials, 0.05% for conveyance tax, and 3.4% for income tax. C&C of Honolulu, "Impact of Construction on Employment and Tax Revenues," April 1978; and Table 1 for property tax base.
- ⁴ Includes: non-business licenses and fees for motor vehicles, bicycles, and animals, sanitation, highways, bikeways, sewers, water, and public transportation. Derived from Comprehensive Annual Financial Report, Fiscal Year Ended June 30, 1984.
- ⁵ Excludes Federal and State transfer payments.
- ⁶ Excludes residents of rental housing.
- ⁷ Average tax rate on personal income, DPED, Data Book 1983.
- ⁸ Includes: inheritance and estate taxes; conveyance taxes; licenses and permits; fines, forfeits and penalties; charges for services; and other revenues. Derived from Annual Financial Report of the State of Hawaii for the Fiscal Year Ended June 30, 1984.
- ⁹ Excludes Federal transfer payments.

PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES

Table 3.— VILLAGE PARK EXPANSION, IMPACT ON STATE
AND COUNTY FINANCES: EXPENDITURES
(In 1985 dollars.)

Item	Amount	Units
MAJOR CAPITAL IMPROVEMENTS		
County:		
Park Improvements	\$ 1.0	million
Annual Debt Service (6.5% interest, 30-year bond)	0.1	million per year
State:		
School Improvements ¹	\$ 1.7	million
Annual Debt Service (6.5% interest, 30-year bond)	0.2	million per year
Total State and County Annual Debt Service	\$ 0.3	
OPERATIONS AND MAINTENANCE (O&M), AND SERVICES, FULL OPERATIONS		
County (\$333 per resident) ²	\$ 3.0	million per year
State (\$915 per resident) ³	5.5	million per year
Total State and County	\$ 8.5	million per year

- ¹ Eleven classrooms and associated improvements at \$150,000 per classroom (see Proposed Village Park Expansion Public Benefits and Costs, pp. 4 and 5.)
- ² Includes County-funded share for general government, public safety, highways and streets, sanitation, health, culture and recreation, water, and public transportation. Derived from Derived from Comprehensive Annual Financial Report, Fiscal Year Ended June 30, 1984.
- ³ Includes State-funded share for general government, public safety, health, education, culture and recreation, highways, transfers to counties, and miscellaneous. Derived from Annual Financial Report of the State of Hawaii for the Fiscal Year Ended June 30, 1984.

PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES

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PROPOSED VILLAGE PARK EXPANSION:
IMPACT ON STATE AND COUNTY FINANCES

Table 4.- VILLAGE PARK EXPANSION, IMPACT ON STATE AND COUNTY FINANCES: SUMMARY
(in 1985 dollars)

Item	Amount	Units
COUNTY, Full Operations		
Revenues ¹	\$ 4.6	million per year
Expenditures:		
Debt Service	0.1	million per year
O&M, and Services ²	3.0	million per year
Total County Expenditures	\$ 3.1	million per year
Net County Revenues	\$ 1.5	million per year
STATE:		
Construction Phase, Average Revenues	\$ 4.3	million per year
Full Operations:		
Revenues ¹	\$ 6.8	million per year
Expenditures:		
Debt Service	\$ 0.3	million per year
O&M, and Services ²	5.5	million per year
Total State Expenditures	\$ 5.7	million per year
Net State Revenues	\$ 1.1	million per year
STATE AND COUNTY, Full Operations		
Revenues ¹	\$ 11.4	million per year
Expenditures ²	8.8	million per year
Net State and County Revenues	\$ 2.6	million per year

¹ Excludes State and Federal transfers to the County, and Federal transfers to the State.
² Assumes the same level of per-capita government services as currently.

U.S. DEPARTMENT OF COMMERCE, BUREAU OF ECONOMIC ANALYSIS

APPENDIX H

**PROPOSED VILLAGE PARK EXPANSION:
PUBLIC BENEFITS AND COSTS**

**Decision Analysts Hawaii, Inc.
February 1986**

**PROPOSED VILLAGE PARK EXPANSION:
PUBLIC BENEFITS AND COSTS**

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Decision Analysts Hawaii, Inc.

February 1966

EXECUTIVE SUMMARY

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workers. Similarly, it is extremely doubtful that the Village Park Expansion will adversely affect growth of diversified agriculture and aquaculture in Hawaii.

Also, the greenery of sugarcane will be replaced in large part by the lawns, trees, and shrubbery typical of suburban neighborhoods.

However, the Village Park Expansion will contribute to traffic congestion, particularly going to and from downtown. But this congestion will be equal to or, in most cases, much less than the traffic congestion caused by housing developments elsewhere on Oahu.

EXECUTIVE SUMMARY

The Village Park Expansion will provide a number of benefits and will impose certain non-economic costs to residents of Oahu. The principal benefit of the project will be its contribution to an improved housing market on Oahu—an increased supply of homes, increased competition with other land owners and housing developers, a variety of homes at prices which range from affordable to moderately expensive, land to be provided to the City and County of Honolulu for low- to moderate-income rental housing, conveniently located homes, and timely development. Beneficiaries would be home buyers throughout Oahu, but particularly those in Ewa and Central Oahu. Competing land owners and developers will be impacted negatively in terms of decreased profits.

Recreational benefits will include the addition of three parks, a recreational area, and a golf course. Residents of Village Park will be predominate (but not exclusive) users of the parks and golf course. Nevertheless, other Oahu residents will benefit indirectly in terms of reduced congestion at other parks and golf courses.

The increased population in the area will justify expanded government services (schools, police and fire), with Village Park residents paying their fair share for these services through State and County taxes. If the Village Park Expansion should increase the elementary-school population sufficiently to justify the building of a neighborhood school, then this will have safety and convenience benefits in terms of eliminating the need to bus the younger neighborhood children to more distant schools.

The increased population will also support the planned commercial area, which will provide neighborhood conveniences.

An additional benefit will be increased employment at the commercial, business, and recreational areas to be developed, as well as construction employment during development.

The Village Park Expansion, individually or in combination with major projects planned and proposed for Ewa and Central Oahu, will not adversely affect the economic viability of Oahu Sugar Company, Ltd., nor will it require layoffs of sugar

1970s for greatly increasing housing densities for Honolulu (Piasch, court testimony and exhibits regarding Hawaii's Land Reform Act). The result of the restricted housing supply are home prices which are among the highest in the world.

In order to meet the projected housing demand, a very large portion of the housing development must occur in the Ewa/Central-Oahu area. Reasons for this assessment are:

- infill of Honolulu is limited by the small number of vacant parcels with affordable development costs;
- redevelopment of Honolulu to higher densities is a slow process characterized by strong local opposition, and which generally requires expensive and disruptive infrastructure improvements;
- construction of single-family homes in the Hawaii Kai area is nearing completion, and political opposition to development is growing because of the traffic congestion on Kalaniana'ole Highway;
- substantial development on the windward side is limited by highway capacity, legal opposition to developing the H-3 Freeway, and community opposition;
- developments in the rural areas of Waimanalo, Waianae, and the North Shore are limited primarily by the relatively long commutes;
- both private and public development costs are relatively low in Ewa and Central Oahu given gradual grades, access to the H-1 Freeway, and proximity to Honolulu Sewer System;
- Honolulu's urbanization trend is westward; and
- current City and County policy is to direct urban development to Ewa.

The Village Park Expansion will contribute about 430 homes per year over 7 years to Oahu's housing supply, for an eventual total of 3,000 new homes, all fee-simple. The homes will be segmented into five markets, as follows:

	Number	Price (1965)
Custom and semi-custom single-family homes	270	\$200,000 to \$295,000
Upgraded single-family homes	445	\$165,000 to \$195,000
Traditional single-family homes	1,055	\$125,000 to \$165,000
Starter single-family homes	980	\$120,000 to \$140,000
Attached homes	240	\$100,000

PROPOSED VILLAGE PARK EXPANSION:
PUBLIC BENEFITS AND COSTS

INTRODUCTION

The Village Park Expansion will provide a number of benefits and impose certain non-economic costs to residents of Oahu. These benefits and costs are summarized below. Subjects discussed include housing, parks and recreation, government services, neighborhood conveniences, employment, diversified agriculture and aquaculture, greenery, and traffic.

HOUSING

The principal benefit to be provided by the Proposed Village Park expansion is its contribution to an improved housing market on Oahu. This contribution will be in the form of an increased supply of homes, increased competition with other land owners and housing developers, a variety of homes at prices which range from affordable to moderately expensive, land to be provided to the City and County of Honolulu for low- to moderate-income rental housing, conveniently located homes, and timely development. Beneficiaries would be home buyers throughout Oahu, but especially those in Ewa and Central Oahu. Competing land owners and developers will be impacted negatively in terms of decreased profits.

As argued in the Market Analysis for The Proposed Village Park Expansion and the Supplemental Report, there is a need for a substantial increase in the supply of housing on Oahu, with a recommendation that the City and County plan for over 6,000 homes per year to be developed. This reflects the finding that there is not now, nor has there been during the past 25 years, an adequate supply of housing to meet the needs of Oahu's growing population--particularly in view of economic and social trends which favor smaller households. A principal cause of the housing shortage has been on the one hand successful implementation of government policy to prevent urban development of prime agricultural lands, but on the other hand failure to implement land-use and transportation plans of the 1960s which were designed to direct growth to the Windward side, Waianae, and the North Shore; and plans of the

The actual mix of homes and when they are built will depend on their market acceptance and on the economic conditions at the time of sale. By offering a range of homes, the developer is able to match the homes more closely to individual buyers' desires and budgets. Similarly, prices will be based on market conditions at the time of sale. However, in terms of 1985 costs, prices will range from \$100,000 to \$295,000 per home, with an average price of \$151,900.

Most purchasers of single-family homes will be first-time buyers, with a smaller number having previously owned either a condominium residence or single-family home. Also, most will be small families (about three people per home) with the husband and wife in their late 30s to late 40s, and both working. For the attached units, typical buyers will include young marrieds where both the husband and wife work, singles living alone or in pairs, divorcees with children, and mature couples.

In addition to the above homes to be offered by the developer, 30 acres of improved land will be provided to the City and County of Honolulu for affordable rental housing. The land will be graded and ready for construction, with connections to sewer, water, electrical lines, and fronted with improved roadways and sidewalks. It is projected that 480 low-to-moderate-income homes will be built on this land.

The Village Park Expansion will compete with other housing projects in the Ewa/Central-Oahu area. Projects which are in various stages of planning and/or development include Ewa Marina, Ewa Plantation, Makakilo, Melemanu Woodlands, Millini Town, Waiawa Ridge, Waikole, Waipahu Civic Center Complex, Waipio Gentry, Waterfront Manor, West Beach Resort, and Whitmore Village. In addition, Campbell Estate recently released an updated land-use plan which proposes eventual urbanization of most of the Ewa Plain. The amount of proposed and planned development in the Ewa/Central-Oahu area is substantial, with the potential that some projects may not be approved and/or developed, and less urbanization of agricultural lands may occur over the next two decades than the total of the projects would otherwise indicate. Nevertheless, the more housing developments which are granted development approvals, the better it will be for home buyers with respect to the increased supply and competition among land owners and housing developers, and the resulting contribution to lower prices and a wider selection of homes than would otherwise be the case. In the past, such competition has been restricted significantly by government.

As a development, the Village Park Expansion offers a number of advantages which will make it very competitive compared to other projects. The project is in an acceptable location, being within commuting distance to jobs in downtown Honolulu,

Pearl Harbor and Hickam Air Force Base, Waipahu, Schofield Barracks and Wahiawa, Ewa Beach and the planned Ewa Marina, Barbers Point Naval Air Station, Campbell Industrial Park, Barbers Point Harbor, and the planned West Beach Resort; many homes will have views of Pearl Harbor and the Pacific Ocean; the development has the momentum of an ongoing project with a proven team able to deliver quality homes at moderate prices and without delay; financial arrangements are in place; and infrastructure improvements (including water and sewers) are already in place for the first 1,000 homes, and can be expanded readily for the remaining units.

PARKS AND RECREATION

The Village Park Expansion will also benefit Oahu residents through its contribution to the park and recreational resources of the island. Land will be provided for three parks of 10.3, 5.3, and 5.3 acres, with all homes being within walking distance of at least one of the parks. A private recreation area of 8.9 acres, and an 18-hole golf course will also be included. Residents of Village Park will be predominate (but not exclusive) users of the parks and golf course. Nevertheless, other Oahu residents will benefit indirectly in terms of reduced congestion at other parks and golf courses.

GOVERNMENT SERVICES

Schools

According to the State of Hawaii Department of Education (September 10, 1985 letter from Vernon Honda, Assistant Superintendent to William E. Mankel), the existing Village Park subdivision and the proposed Village Park Expansion will generate the following student enrollments:

School	Grade	Approximate Enrollment
Kanoelani/Hoesea	K-6	600 to 900
Waipahu Intermediate	7-8	150 to 300
Waipahu High	9-12	250 to 400

Further, the Village Park Expansion will not require an additional school site since the Department already has the Hoesea Elementary School site in the existing Village Park Subdivision. This site is sufficient to accommodate the projected elementary enrollment from the entire Village Park development. Nevertheless, the developer has agreed to set land aside for a 3-year period in case the State decides to build an elementary school within the Village Park Expansion.

Assuming an average of 20 students per class, four classes per day for elementary school, five classes per day for intermediate and high school, and 60 percent of the students from the Village Park Expansion (with the remainder in the existing subdivision), then the number of classrooms and teachers required to accommodate the proposed Village Park Expansion is, at most, eleven. Regarding Waipahu Intermediate, replacement of old and development of new classrooms is already programmed. "An 11-classroom building will be completed in November 1985 and a 10-classroom building is scheduled for completion in 1987." (July 31, 1985 letter from Vernon Honda, Assistant Superintendent to Roy Y. Takeyama). As discussed in Proposed Village Park Expansion Impact on State and County Finances, State tax revenues from Village Park residents should be more than adequate to pay for their fair share of the required expansion in school services.

If the Village Park Expansion should increase the elementary-school population sufficiently to justify the building of a neighborhood school within the Village Park, then this will have safety and convenience benefits in terms of eliminating the need to bus the young neighborhood children to more distant schools.

Police

The expansion also will create a need for additional police officers in the Ewa/Central-Oahu area. An increase in the number of officers may benefit nearby residents in two ways: average response times may be faster, and more officers can be made available for emergency situations. As discussed in Proposed Village Park Expansions Impact on State and County Finances, County tax revenues from Village Park residents should be more than adequate to pay for their fair share of improvements in police protection.

Fire

According to Frank K. Kahoonohano, Fire Chief of the City and County of Honolulu, the Village Park Expansion will not require additional fire-protection services (July 25, 1985 letter to Roy Y. Takeyama). "Waipahu Fire Station is 3.5 miles to the farthest point of the development. Pearl City and Makakilo Fire Stations are 5 and 6 miles from the proposed development site, respectively. The proposed Waikole/Gentry Waipio fire station would be about the same distance as Pearl City because of Waikole Gulch."

However, "(further development in the surrounding area would require an additional fire station site in the upper Kunia areas." When such a station is built, then

all residents in and near Village Park should benefit by having faster response times in case of fire. As discussed in Proposed Village Park Expansion Impact on State and County Finances, County tax revenues from Village Park residents should be more than adequate to pay for their fair share of improvements in fire protection.

NEIGHBORHOOD CONVENIENCES

Also to be provided in the Village Park Expansion is a commercial area of 10 acres sufficient for 145,000 square feet of floor space. The commercial center will be anchored by a supermarket and/or super drug store, with other tenants including variety stores, regular and fast-food restaurants, personal-service establishments, hardware and garden shops, medical and community offices, etc. Some of these activities will be economical only with the larger population provided by the Village Park Expansion.

The commercial activities primarily will benefit residents of Village Park, including existing and future residents. The benefit will be in terms of increased convenience to the residents, with less travel required to outside areas.

EMPLOYMENT

Construction

Employment will be another benefit provided by the Village Park Expansion. During development, construction and related employment will average approximately 300 direct jobs plus 500 indirect jobs. However, these numbers will fluctuate greatly over time, reflecting the demand for housing, interest rates, etc.

Operations

Upon completion of the project, it is estimated that on-site employment at the commercial area and two business parks will be approximately 710 jobs. However, it should be noted that Village Park is not a primary generator of jobs; rather, the jobs at Village Park will be indirect jobs generated by the primary economic activities which drive Hawaii's economy (tourism, defense and other Federal expenditures, and agricultural and other exports).

Sugar

The Village Park Expansion will result in the urbanization of approximately 691.5 acres of sugarcane lands under cultivation by Oahu Sugar Company, Limited (OSCo), a subsidiary of Amfac. This amount of land is about 5 percent of the 14,200 acres of sugarcane under cultivation by OSCo.

A major question is whether the Village Park Expansion—combined with other developments such as Ewa Marina, Ewa Plantation, expansion of Campbell Industrial Park, and development of most of the Ewa Plain as proposed by Campbell Estate—will reduce OSCo's sugarcane acreage and economies-of-scale sufficiently to cause the closing of OSCo. However, OSCo has concluded that the Village Park Expansion will not adversely affect operations of OSCo. Part of the reason for this is that the cost for relocating cane-haul roads, irrigation ditches and pipes, an earthen reservoir, and power poles will be absorbed by the developer of Village Park.

Over the long term, the survival of OSCo will depend primarily on the price of sugar, for which the outlook is pessimistic. In the world market, the average price of sugar is expected to remain well below the production costs for all countries. This is because sugar in excess of various trade agreements is dumped on the world market, particularly by the European Economic Community (EEC) which, because of generous price supports to local sugar-beet growers and generous trade agreements with former colonies, is a major sugar producer, importer, and exporter, even though the EEC is one of the highest-cost sugar producers in the world, is self-sufficient in sugar and has no need to import it, and must sell its excess sugar on the world market at enormous losses. In the U.S., Federal legislation protects sugar from the low world prices by import quotas, tariffs, and import fees. However, U.S. sugar prices are managed so that they are fairly low in order to prevent accelerating the growth of high-fructose corn syrup (HFCS), which costs less to produce than normal sugar. In addition, the new sweetener aspartame is capturing market share and putting additional downward pressure on U.S. sugar prices.

In view of the poor outlook for sugar prices, Amfac has developed a strategy for the survival of OSCo which amounts to a holding action to gain time to find as many replacement crops as possible before OSCo must cease operations. Key components of the strategy are to urbanize Amfac-owned sugarcane lands in order to derive revenues to help support sugar operations, and to experiment with a variety of crops, including papaya, sweet corn, potatoes, forage and feed crops, etc. Other components include efforts to increase sugar yields and reduce production costs.

An important component of OSCo's cost reduction is a continued decline in the labor force. This is to be accomplished by attrition—that is, employees who retire or leave OSCo for other voluntary reasons generally will not be replaced. According to Amfac, over at least the next decade (to the end of the major leases), no combination of the major projects planned and proposed for the Ewa/Central-Oahu area, and resulting loss in sugarcane acreage, will require layoffs of sugar workers. This is

because of the expectation for relatively gradual reduction in sugarcane acreage, partial or complete compensation of this acreage loss by increasing yields, and rapid employment loss by attrition.

For the longer term, it should be noted that OSCo runs two mills in parallel, with greatly reduced acreage and operations, only one mill would need to be operated. Because of this, nearly all of the major developments planned and proposed for the Ewa/Central-Oahu area can be accommodated safely without OSCo losing its economies of scale and being forced to close.

When and if OSCo is forced to cease operations for whatever reason (most likely because of low sugar prices), the loss of jobs would be less than 600 direct jobs and 600 indirect jobs, with the actual number depending upon the reduced employment made possible by continuing productivity increases. However, most of the vast amount of land and water freed from sugar production will remain available for diversified agriculture and other economic activities, with only a portion absorbed by housing and other urban development. Immediately following the mill closing, there would be a significant economic loss and social disruption. But over the long term, the number of jobs which will be generated by these new activities will greatly exceed the number of jobs lost due to the demise of sugar. For example, the new hotels at West Beach will be the equivalent of over seven OSCos in terms of direct plus indirect jobs and—when tip income and all indirect jobs are considered—will provide higher average wages (based on analysis using the State Economic Model). Other new jobs in the Ewa area will be provided by Barbers Point Harbor expansion of the Campbell Industrial Park; the growth of diversified agriculture and aquaculture; and other economic activities which may be attracted to the area because of the availability of land and water, and home prices which should be lower than most other areas on Oahu. Thus most, but possibly not all, sugar employees can be expected to find other employment. However, unskilled sugar workers and those having non-transferable skills may receive reduced pay when and if they should be forced to find non-sugar jobs.

DIVERSIFIED AGRICULTURE AND AQUACULTURE

The development of Village Park Expansion on sugarcane acreage will also eliminate the possibility of using these lands for diversified agriculture and/or aquaculture. However, it is extremely doubtful that this will adversely affect growth of diversified agriculture and aquaculture in Hawaii. There are two reasons for this assessment: (1) the very large amount of sugar and pineapple acreage which has gone

fallow throughout the State in recent years due to mill closings and reductions in operations, and the very real possibility of additional fallowing of sugarcane acreage given the outlook for low sugar prices; and (2) the comparatively small amount of acreage required to achieve a realistic level of food self-sufficiency (on the order of a few thousand acres), and to grow proven and promising feed and export crops.

GREENERY

An additional impact of urbanizing sugarcane land will be a loss of greenery. Lawns, trees, shrubbery and other greenery to be planted throughout the Village Park Expansion will compensate for this loss to a large extent.

TRAFFIC

At full development, the Village Park Expansion will house approximately 10,000 people, and nearly 4,000 workers (assuming the Oahu average of 1.4 workers per household). Some of these people will work within Village Park at the commercial area, the business parks, and the golf course. But most will work outside the area and commute by automobile, thereby contributing to traffic congestion. To minimize congestion, traffic will be routed inside the development to the maximum extent possible, and Kuniia Road will be expanded from two to four lanes between the project and the H-1 Freeway. In addition, improvements will be made by the developer to the Kuniia Road/H-1 Freeway on- and off-ramps since they have insufficient capacity to accommodate the increased traffic.

Nevertheless, traffic congestion on the H-1 Freeway is likely to become an issue of increasing importance to all H-1 commuters given continued urban development in the Ewa/Central-Oahu area, with the Village Park Expansion projected to add an estimated 650 vehicles to the peak-hour traffic congestion to the east on the H-1 Freeway (Park Engineering, Inc.). This is because the current transportation capacity is inadequate to accommodate proposed development given current commuting patterns, and expanding the capacity will be very expensive and disruptive. But all other existing and potential residential areas share these same problems—high density development downtown causes severe local traffic congestions for streets generally designed for lower densities; development in Hawaii Kai will further congest Kalaniana'ole Highway; development on the Windward side will further congest the Pal and Likelike Highways; and development in Waianae and the North Shore will further congest the H-1 Freeway and Moanalua Road. The problem is potentially less burdensome, however, for Ewa/Central-Oahu because of increasing

employment opportunities at Barbers Point Harbor, the West Beach resort, Campbell Industrial Park, and developing urban areas throughout the Ewa/Central-Oahu area. With increased employment, less commuting to downtown is required. In addition, ongoing improvements to the H-1 Freeway and Moanalua Road, and possibly a mass transit system along the old railroad right-of-way of the Oahu Railway Company, will increase the capacity of these transportation arteries, and make it possible to accommodate more growth in Ewa/Central-Oahu area than is the case for other areas of Oahu.

The transportation situation between the Ewa/Central-Oahu area and downtown Honolulu is very analogous to the development of many cities which started on one side of a river. As land becomes scarce on the town side of the river, a bridge or tunnel may be built to open up new lands which, generally, are developed to house commuters. Soon, however, the bridge or tunnel capacity is reached, requiring additional transportation capacity which, in turn, allows additional commuting and housing development, and so on. Eventually, it becomes too expensive to continue expanding the transportation capacity, and congestion builds to increase peak-hour commute times. The scarce land on the town side of the river will command higher and higher rents and prices compared to land on the other side of the river. Eventually, many businesses which do not need to be on the town side will locate or relocate to the other side of the river to gain the advantages of the cheaper land, and/or to realize the gains from selling expensive land on the town side. Thus, jobs are moved to the side of the river where land is more plentiful and cheaper. This results in less commuting, and two separate housing and land markets—one tending towards expensive land and high-rise development, the other towards cheaper land and greater urban sprawl. Those who pay the very expensive time toll to travel between the two zones do so only when there is a strong reason to do so. Such is the development expected for the Ewa/Central-Oahu area in relationship to downtown Honolulu—increasing traffic congestion to downtown will help divert economic growth to the Ewa/Central-Oahu area, thereby moderating the increase in traffic congestion.

PROPOSED VILLAGE PARK EXPANSION; PUBLIC BENEFITS AND COSTS 11

REFERENCES

- Brooks, Jr., Wendell and John Zapotocky, Market Analysis for the Proposed Village Park Expansion, Chaney, Brooks & Company, Honolulu, Hawaii, June 1, 1985.
- Brooks, Jr., Wendell and John Zapotocky, Market Analysis for the Proposed Village Park Expansion, Supplemental Report, Chaney, Brooks & Company, Honolulu, Hawaii, October 30, 1985.
- Hawaii Department of Planning and Economic Development, The State of Hawaii Data Books 1985, Honolulu, Hawaii, February 1985.
- Park Engineering, Inc., Village Park Facilities Proposed for C&C Facilities Map, Honolulu, Hawaii, May 1985.
- Piasch, Bruce S., Hawaii Land Reform Act: Critique of Legislative Findings and Declaration of Necessity Contained in Acts 307 (1987), 184 (1975), and 188 (1975), Decision Analysis Hawaii, Inc., Honolulu, Hawaii, May 1985.
- William E. Wanket, Inc., Development Plan Amendment Request, Village Park, Central Oahu, Honolulu, Hawaii, June 1985.

APPENDIX I

LETTERS FROM AGENCIES AND ORGANIZATIONS:

1. State of Hawaii, Department of Transportation
2. State of Hawaii, Department of Education
 - a. July 31, 1985
 - b. September 10, 1985
 - c. January 16, 1986
3. City & County of Honolulu, Department of Housing and Community Development
4. City & County of Honolulu, Police Department
5. City & County of Honolulu, Fire Department
6. Waipahu Neighborhood No. 22
7. Oahu Sugar Co., Ltd.
8. Hawaiian Dredging & Construction Co.
9. Pacific Construction Co., Ltd.

Francis M. Hatanaka
Superintendent



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2700
HONOLULU, HAWAII 96813

September 10, 1985

GEORGE B. ANTONIO
Assistant Superintendent

OFFICE OF BUSINESS SERVICES

July 31, 1985

Mr. Roy Y. Takeyama

-2-

The capital improvements program is based on student enrollment in the service area served by the school. Because of limited CIP funds, the many proposed housing projects are closely monitored for activity before actual commitment of school construction is made.

We hope that this information will be helpful in the Environmental Assessment for Village Park.

Sincerely,

Vernon K. Honda

Vernon Honda
Assistant Superintendent
Office of Business Services

Mr. William E. Manket
1001 Bishop Street, Suite 1010
Honolulu, Hawaii 96813

Dear Mr. Manket:

SUBJECT: Village Park Development

Our review of the existing Village Park subdivision and the proposed Village Park Expansion indicates that the following student enrollment will be generated:

SCHOOL	GRADE	APPROXIMATE ENROLLMENT
Kaioelani/Hoaeae	K-6	600 - 900
Waipahu Intermediate	7-8	150 - 300
Waipahu High	9-12	250 - 400

The proposed elementary school site in the Village Park Expansion area is not required as the Department already has the Hoaeae Elementary School site in the existing Village Park subdivision. This site is sufficient to accommodate the projected elementary enrollment from the entire Village Park development.

WH:HL:J1

cc: T. Nakai, Fac. Br.
W. Araki, Leeward Dist.

We would appreciate being kept informed of the status of the Village Park development to gain sufficient lead time to provide the necessary school facilities for the expected student enrollment.

Sincerely,

Vernon Honda

Vernon Honda
Assistant Superintendent

WH:HL:J1

cc F. Hatanaka, Supt.
W. Araki, Leeward Dist.

AN EQUAL OPPORTUNITY EMPLOYER



GEORGE A. ANTONIO
SUPERVISOR



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2009
HONOLULU, HAWAII 96820

OFFICE OF THE SUPERINTENDENT

January 16, 1986

Mr. Cal Kawamoto, Chairman
Maipahu Neighborhood Board No. 22
P.O. Box 103
Maipahu, Hawaii 96797

Dear Mr. Kawamoto:

This is in response to your letter of January 8, 1986 expressing your organization's concern on the deletion of the elementary school in the Village Park Extension development.

Our response of September 10, 1986 to Mr. William E. Manket on the subject of student enrollment for the Village Park subdivision cited a low of 600 to a high of 900 students in the K-6 or elementary level grades. Enrollment in the range of 600 to 900 would justify the implementation of only one elementary school.

The calculations used to arrive at these projections are based on student factors experienced at other comparable subdivisions. To arrive at the high projection of 900, we used a student factor of 0.19 per unit multiplied by the planned 4,750 units. This 4,750 total includes the 1,750 units from the existing Village Park subdivision and the 3,000 units from the Village Park Extension.

The 0.19 factor is slightly lower than the experience factor of 0.21 for the existing Village Park subdivision but higher than the Gentry-Waipio factor of 0.15. This adjustment was necessary because the Village Park Extension includes homes in the \$250,000 range. Homes in the Royal Summit development at Newtown which cost an average of \$250,000 have a student factor of 0.08 per unit.

Mr. Cal Kawamoto

-2-

January 16, 1986

The low side of the projection of 600 students reflects the inevitable aging of communities and a factor of 0.12 was used. To illustrate the aging of communities, we have listed below the decline in enrollment of sample communities:

COMMUNITY	PERCENT DECLINE FROM PEAK ENROLLMENT
Pearl City	- 40%
Kailua	- 40%
Ewa Beach	- 40%
Aiea/Haina/Maile	- 50%
Palolo/Auenue	- 70%
Palisades	- 70%
Manana	- 56%
Moanalani	- 40%
Makakilo	- 25%

As further illustration of this aging of communities, we have attached a table showing the actual enrollment of the elementary schools servicing the Hawaii Kai area. Initially, five elementary schools were planned to service the Hawaii Kai area. Only three schools were built and the other two school sites have been deleted.

With respect to the Village Park development, the Koaee Elementary School in the existing Village Park Subdivision will be adequate to service the entire area. The expected peak or high of 900 students will be within the capacity of the school and as aging occurs, enrollment will decline and plateau at about 600 students.

We hope that this explanation of the basis upon which our projections are being made will allay your concerns that educational facilities will be lacking in your area.

Thank you for your interest and continued support of our public schools.

Sincerely,

Francis M. Hatanaka
Francis M. Hatanaka
Superintendent

FMH:j1 (H)
attachment

cc V. Honda, OBS

W. Araki, Leeward Dist.

Sen. Charles Ioguchi

Sen. Patsy Young

Sen. Joe Kuroda

Sen. Ben Cayetano

Rep. Mits Shiro

Rep. Mike Crozier
Rep. Paul Oshiro
Rep. Dan Kihano
Councilmember Arnold Morgado
Councilmember Randy Iwase
Mr. Randall Yoshida, BOE
Mr. Craig Champton, MAITEC
Neighborhood Commission

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 523-5151



FRANK S. BARR
MAIL ROOM

Mr. Craig S. Champion
Page 2
December 11, 1985

ALVIN K. H. PANG
DIRECTOR

review and comment to achieve a harmonious design compatible to the Village Park Development.

December 11, 1985

Mr. Craig S. Champion
Executive Vice President
Waitec Development, Inc.
828 Fort Street Mall, Suite 604
Honolulu, HI 96813

Dear Mr. Champion:

Subject: 691.5-acre Development
Above Village Park

The Department of Housing and Community Development (DHCD) has received your written proposal to provide 30 acres of fee simple land above Village Park to satisfy the following requirements:

1. Unilateral housing requirement for the proposed rezoning of 691.5-acres above Village Park.
2. Use of a 5.3-acre site in Village Park that had formally been designated as a public park.
3. Remaining unilateral housing requirement for rezoning action taken earlier in connection with the present Village Park area.

It is our understanding that Waitec is prepared to deliver two 15-acre sites. Both sites will have offsite improvements to adequately support an apartment development. The offsite improvements shall include road, sewer, water, electric and cable TV service and be available at the property line. The sites shall be graded and ready for construction.

If required, Waitec agrees to take measurements of air and noise quality.

It is our understanding that the first 15-acre site will be delivered free and clear of all encumbrances on or about April 30, 1986. The second 15-acre site will be delivered at a later date, zoned A-1 and to be located in an area mutually agreed upon. Throughout the planning and design stage, the City or its development entity will submit plans to Waitec for

Sincerely,

ALVIN K. H. PANG
Director

CONCUR:

Waitec Development, Inc.
Craig S. Champion
Executive Vice President

This date is a target date, not a commitment date, as government approvals beyond our control must be prior obtained.

STYLING

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1655 KALANIANA'OLEHI BOULEVARD
HONOLULU, HAWAII 96813



FRANK F. FAN
MAYOR

OUR REFERENCE EC-DB

July 11, 1985

Mr. Roy Y. Takeyama
Attorney
1188 Bishop Street, Suite 3404
Honolulu, Hawaii 96813

Dear Mr. Takeyama:

Subject: Environmental Assessment (EA) for Village Park
Expansion, Hoesae, Oahu, Hawaii

We are reluctant to estimate the impact individual developments may have on the demand for police services especially in the Ewa and Central Oahu areas. The large number of planned and proposed developments in these areas, along with projected increases in the population, require that we address this concern in a more general framework.

Since the delivery of police services is based on the availability of sufficient personnel, equipment (primarily vehicles), and communications, we feel that adequate police service can be maintained in the Village Park area as long as these resources keep pace with population growth.

Our greatest concern over further development in the Ewa and Central Oahu areas is in relation to increased traffic and its impact on public safety. We believe that if new developments are allowed in Ewa and Central Oahu prior to an increase in road capacity and improved mass transportation between those areas and Honolulu proper, a serious traffic problem will result. As planning proceeds on the expansion of Village Park, we recommend that proper consideration be given to this matter.

Thank you for allowing us to comment on the environmental assessment for the Village Park expansion.

Sincerely,

Douglas G. Gibb
DOUGLAS G. GIBB
Chief of Police

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1655 KALANIANA'OLEHI BOULEVARD
HONOLULU, HAWAII 96813



FRANK F. FAN
MAYOR

July 25, 1985

Mr. Roy Y. Takeyama
Attorney
A Law Corporation
Century Square, Suite 3404
1188 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Takeyama:

Subject: ENVIRONMENTAL ASSESSMENT (EA) FOR
VILLAGE PARK EXPANSION, HOESAE, OAHU, HAWAII

The fire protection for the proposed development is adequate at the present time. Waipahu Fire Station is 3.5 miles to the furthest point of the development.

Pearl City and Makakilo Fire Stations are 5 and 6 miles from the proposed development site respectively. The proposed Waikale/Centry Waipio fire station would be about the same distance as Pearl City because of Waikale Gulch.

Further development in the surrounding area would require an additional fire station site in the upper Kunia area.

Should you need additional information on this matter, please contact Captain James Akiona of the Administrative Services Bureau at 943-3848.

Sincerely,

Frank K. Karooiawohano
FRANK K. KAROOIAWOHANO
Fire Chief

FKK:sb

cc: Captain James Akiona

WAIPAHU NEIGHBORHOOD BOARD NO. 22
P.O. BOX 183
WAIPAHU, HAWAII 96797



Mr. Donald Clegg,
Chief Planning Officer
Department of General Planning
650 S. King St., 8th Floor
Honolulu, HI 96813

January 7, 1986

Donald Clegg
Department of General Planning
Page 2

Mahalo Nui Loa for your time and attention.

Most sincerely,

Cal Kawamoto
Cal Kawamoto
Chairman

SUBJECT: DP AMENDMENTS FOR THE EXPANSION OF VILLAGE PARK
(85/CO-1 AND -1A)

Dear Mr. Clegg:

The Waipahu Neighborhood Board listened and read with much encouragement recent announcements from your department that Waipahu is being targeted as the site for major growth. The Waipahu community has long supported and been committed to having Waipahu become a planned growth center on Oahu. With this growth, along with Waipahu's colorful history, revitalization of Waipahu will take place which will enhance the quality of its environment and become a town of great potential and creditability.

In view of this growth, for the last four months the Waipahu Neighborhood Board has met and discussed the expansion of Village Park, subject amendment, with its developer, WAITEC. On December 19, 1985, at our regularly scheduled meeting, the Waipahu Neighborhood Board No. 22 unanimously voted to endorse the Village Park expansion. The basis for this endorsement was: Developer's commitment to build and price homes for the much needed first time home owners; Developer will commit 30 acres of land designated for density apartments to use for low income housing; Developer will provide necessary land, as required, for elementary school education; Developer will arrange for the entire project to have public sewerage and disposal services; A water master plan for the expansion has been submitted to the Board of Water Supply; Developer was instrumental in opening Kunia Well at their own expense; Developer proposes three park sites and last, but not least, this project has the potential to provide over 1,000 full time jobs in an area where agriculture employment has declined.

Therefore, please be advised that the Waipahu Neighborhood Board strongly supports the DP Amendments for the expansion of Village Park. Representatives of this community elected group would be most happy to express our support at any public forum.

cc: Councilmember Patsy Mink
Councilmember Leigh-Mai Doo
Councilmember Randy Iwase
Craig Champion, WAITEC Development, Inc.
Kenneth Hakamura, WAITEC Development, Inc.
Neighborhood Commission

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

OAHU SUGAR COMPANY, LIMITED

P.O. BOX "O"
WAIPAHU, HAWAII 96787
TELEPHONE

June 20, 1985

Waitec Development, Inc.
Suite 604
James Campbell Building
828 Fort Street
Honolulu, Hawaii 96813

Attention: Mr. Craig S. Champion,
Executive Vice President

Re: Proposed Expansion of the Village Park Project
Comprising Approximately 692 Acres

Gentlemen:

Based upon our discussions and agreements, we have no objections to your proposed expansion of the existing Village Park Project comprising approximately 692 acres, the general location of which is shown on the map attached hereto as Exhibit "A" and made a part hereof for all purposes.

We concur with your proposed phasing plan for the project and the gradual withdrawal of the land from active sugar cultivation.

Finally, the proposed expansion will not adversely affect the operations of Oahu Sugar Company, Limited.

Sincerely,

OAHU SUGAR COMPANY, LIMITED

By: *W.D. [Signature]*

Its:

A. [Signature]

SEP 19 1985

Hawaiian Dredging & Construction Company

WALTER I. KAWANO
President

September 16, 1985

Mr. Ken Nakamura
Project Manager
Waitec Development Company
2024 N. King Street
Honolulu, Hawaii 96817

Dear Mr. Nakamura:

Re: Village Park Industrial Development

Referring to our telephone conversation of August 19, 1985, Hawaiian Dredging would appreciate being kept informed of the progress of the development of industrial land in the Village Park Development.

Hawaiian Dredging is aware of the growth that is taking place in the Ewa and Central Oahu areas. The Village Park Development, because of its central location, would be of interest to Hawaiian Dredging in the future for relocation of existing facilities and/or the development of satellite facilities to service the area.

Very truly yours,

Walter I. Kawano
Walter I. Kawano

WIK:mike

9/18/85 - c: Craig Champion
Roy Takeyama
John Zapotocky
Bill Manket
IWH

A. [Signature]



Pacific Construction Co., Ltd.

August 20, 1985

Mr. Craig Champion
Executive Vice President
Weitec Development, Inc.
828 Fort Street, 6th Floor
Honolulu, Hawaii 96813

Re: INDUSTRIAL PARK AT VILLAGE PARK

Dear Craig:

Please be advised that Pacific Construction Co., Ltd. would be interested in leasing approximately six to eight acres at your planned industrial park to facilitate Housing Operations as well as our Equipment and Storage Yard. For your information, the lease expires at our Kapunapuna Yard in December of 1987.

We realize it might be three years before your plans materialize, but it is our hope that either your timing can be expedited or temporary arrangements can be made which would allow us to move in.

Very truly yours,

William E. Patridge
William E. Patridge
President

dmm

copy to: Pepe J. D'Bayan

APPENDIX J

EFFECTS OF CENTRAL AND LEEWARD OAHU DEVELOPMENTS
UPON THE STATE HIGHWAY SYSTEM

State of Hawaii Department of Transportation
Design Branch

March 1986

Table 1
CONSTRUCTION COSTS

		\$(1,000,000)
Phase 1.	HOV LANE...H-1 Waiawa to Halawa	5*
Phase 2.	HOV LANE...H-1 Palailai to Kunia	15*
Phase 3.	HOV LANE...H-2 Mililani to Waiawa	2
	CONTRAFLOW LANE...H-1 Waiawa to Halawa	3
Phase 4.	OR&L BUS WAY	30
Phase 5.	BUS LANES Mililani to Waiawa	40
Phase 6.	OR&L BUS WAY West Beach to Pearl City	60
Phase 7.	HIGH CAPACITY TRANSIT SYSTEM Halawa to Pearl City	?
Phase 8.	EXTEND SYSTEM TO EWA AND MILILANI	?

*Already Budgeted

State of Hawaii
Department of Transportation
Design Branch

Effects of Central and
Leeward Oahu Developments
Upon the
State Highway System

March 1986

I. CONCLUSIONS AND RECOMMENDATIONS

Although the Development Plan allows the development of many residential units in Central and Leeward Oahu, the actual rate of development of these units may not be more than 1,000 units per year, which has been the historical average over the past five years. Therefore, the Department of Transportation (DOT) recommends the implementation of a program of transportation improvements that can be incrementally upgraded to be responsive to the growing traffic demands of new developments as they are constructed and occupied and can be flexible enough to adjust to any changes in growth.

These improvements consist of a short range program of High Occupancy Vehicle (HOV) lanes, a medium range program of a busway along the ORL right-of-way and a long range program of a higher capacity mass transit system.

This program will be flexible enough that incremental phases could be accelerated or delayed according to traffic demand.

The transportation improvements represent only one element of a total program to solve the transportation needs of Central and Leeward Oahu. The solution requires the cooperation and participation of government, private enterprise and the general public. Government will provide the physical improvements such as, HOV lanes, busways, better bus service and the initiation of incentive programs to encourage ridesharing and bus usage.

Private enterprise must do its share in encouraging and participating in ridesharing programs for its employees, providing park and ride facilities, manpower and funds for a rideshare coordinator for their developments or for a ridesharing authority whose primary function is to promote and facilitate ridesharing and bus usage in the community.

Private enterprise can also help relieve traffic by developing job centers that will counteract the current trend of Central and Leeward Oahu residents commuting to their jobs in downtown Honolulu.

The general public must do its share by actually participating in ridesharing programs and by riding the buses.

The carrying capabilities of transportation facilities must be maximized by transporting more persons per hour than the present facilities are handling. Commuters now travelling by themselves in an automobile will have to carpool and others will have to begin riding the buses.

II. NEED FOR IMPROVEMENTS

The City and County's Development Plans for Central and Leeward Oahu allow the construction of approximately 51,500 additional dwellings in Leeward and Central Oahu. The 1985/86 amendments propose another 60,000 dwelling units.

However, final review and approval of these proposals have not been completed and the number of projects and the number of dwelling units finally approved could be reduced significantly.

The increase in commuter travel expected from future developments will lengthen the peak period on the major highways leading into Honolulu. Already, the traffic that is funneled through the Pearl City corridor is characterized by lengthy traffic queues, and low travel speeds during AM peak periods. At full development the new residential developments will create traffic demands that will seriously worsen these driving conditions.

III. ALTERNATIVES

In the past 5 years, about 1,000 new homes per year were sold in Central and Leeward Oahu. If this rate continues, full development of the City's Development Plans would not occur for a long time.

Consequently, the DOT considered alternatives that could handle traffic from the new developments without worsening the existing driving conditions.

These alternatives were:

A. New Highways

New highways to relieve traffic on Interstate Route H-1 and Kamehameha Highway could be constructed. These include a direct crossing of Pearl Harbor or some other new corridor through Pearl City.

B. Wider Highways

Interstate Route H-1 is programmed to be widened between the Palalal and Kunia Interchanges and between the Waiala and Halawa Interchanges. Two additional inbound lanes would be needed between Waiala and Downtown Honolulu to accommodate future traffic.

C. High Occupancy Vehicle (HOV) Lanes

The median lanes or contraflow lanes on H-1 and H-2 could be dedicated for HOV use.

D. Exclusive Bus Lanes

Buses could be provided when the HOV lanes can no longer handle traffic demand. Between Waiala and Halawa, an exclusive bus lane could be built on a contraflow lane on H-1 or along the OR&L right-of-way.

In Central Oahu, bus lanes could be built within its own right-of-way along Kamehameha Highway.

In Leeward Oahu, they could be built within the OR&L right-of-way.

All bus facilities would be planned for eventual conversion to a higher capacity system.

E. High Capacity Mass Transit System

The busway would be capable of being upgraded and integrated with other forms of mass transit should that be decided by policymakers at a later time.

IV. DETAILS OF RECOMMENDATION

The DOT, after studying the different alternatives, decided on a cost-effective, flexible, phased program that maximizes the use of existing facilities with the least impact to its surrounding environment. This program of transportation improvements (Figure 1) is described below.

SHORT RANGE (Figure 3)

Waiala-Halawa	Phase 1	Widen H-1 and dedicate the median lane as an HOV lane.
Palalal-Waiala	Phase 2	Widen H-1 and dedicate the median lane as an HOV lane from Palalal to Waiala.
Milliani-Waiala	Phase 3	Dedicate the median lane of H-2 as an HOV lane.
Waiala-Halawa		Provide a contraflow HOV lane and connect it to the existing H-1 HOV lanes.

MEDIUM RANGE (Figure 4)

Waiala-Halawa	Phase 4	Provide an exclusive busway along the OR&L right-of-way.
---------------	---------	--

The alignments for the exclusive bus lanes that would be converted to a higher capacity mass transit system are presented only for discussion purposes, since the final alignment would be dependent upon:

1. The transit technology selected for the grade-separated system in the Honolulu area.
2. Development Plans and a more detailed assessment of capital costs.

3. A preference that each new development form or participate in a ridesharing authority whose goal would be the formation, use and continuation of a program that would maximize the use of existing and proposed HOV and bus lanes.

3. Potential impacts of each alignment.
4. A more detailed assessment of construction requirements.

Milliani-Halawa Phase 5 Construct separate bus lanes along Kamehameha Highway and build ramps to connect it with the OR&L busway.

West Beach-Waiawa Phase 6 Construct a busway along the existing OR&L right-of-way and connect it with the Waiawa to Halawa busway. The busway facilities would be constructed to allow for future conversion to a higher capacity transit system.

LONG RANGE

Waiawa-Halawa Phase 7 Upgrade the busway to a higher capacity transit system.

West Beach-Waiawa Phase 8 Upgrade the remainder of the bus system into Ewa along the old OR&L right-of-way and to Milliani along the Kamehameha Highway busway.

The construction cost figures are presented in Table 1.

The attached map depicts this strategy.

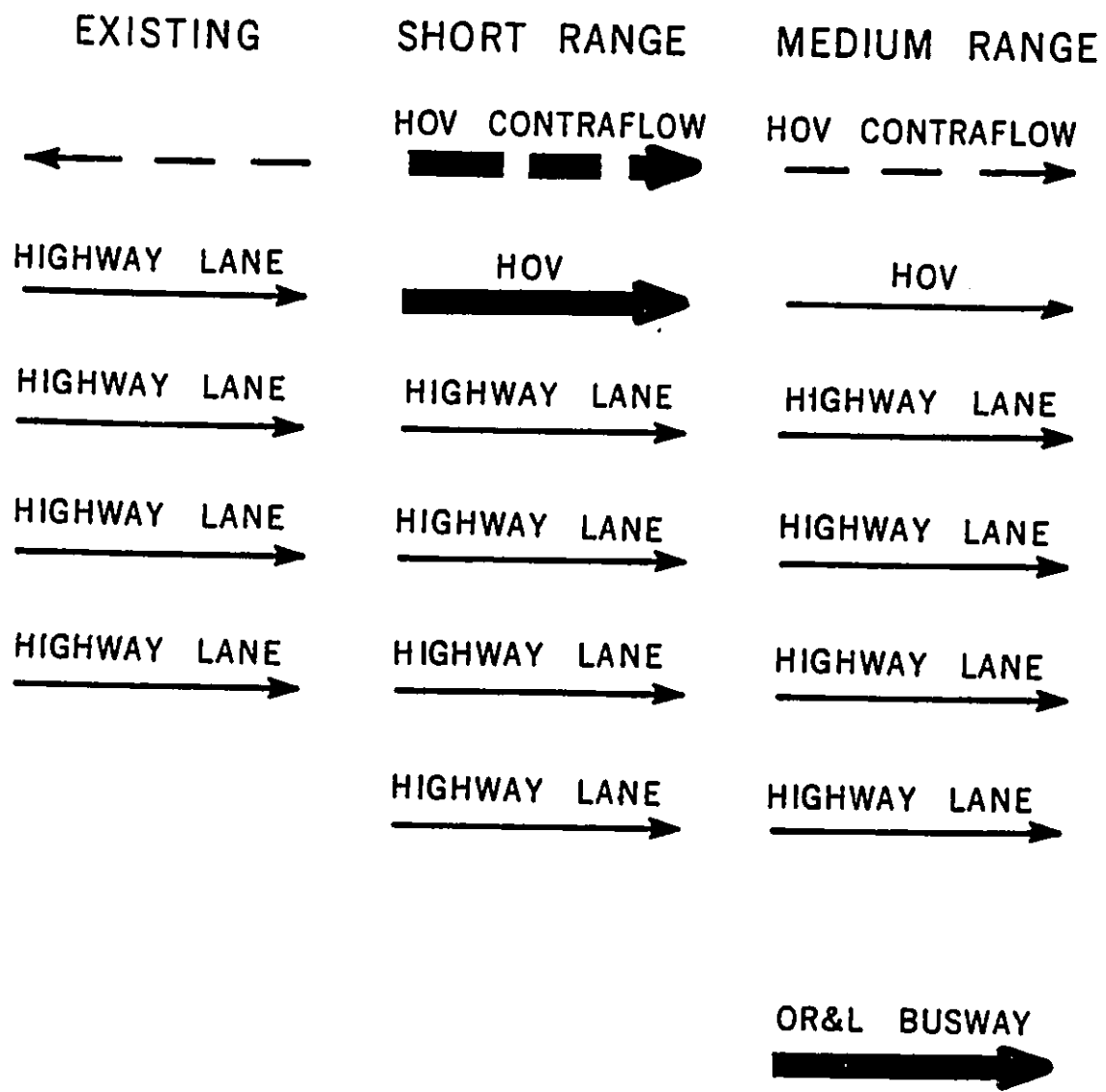
V. POLICY ISSUES

The DOT further recommends the following complementary measures:

1. A reduction in Honolulu bound travel by encouraging the development of major traffic attractors such as employment and commercial centers in Central and Leeward Oahu. This would include the Secondary Urban Center, the High Tech Park and the Cannery.
2. The introduction of legislation to study the concept of transportation improvement districts to accept private participation in funding the improvements required to mitigate the regional traffic impacts of new developments in Central and Leeward Oahu.

Comments on this proposal are invited and should be addressed to:

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



INCREMENTAL IMPROVEMENTS
 INTERSTATE ROUTE H-1
 WAIAWA TO HALAWA

Figure 2

APPENDIX K

Air Quality Study
For The Proposed
Village Park Expansion

Barry D. Root
July 1986

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AIR QUALITY STUDY
FOR THE
PROPOSED VILLAGE PARK EXPANSION
OAHU, HAWAII

Prepared by
Barry D. Root
Kaneohe, Hawaii

July 13, 1986

SUMMARY

1. The proposed Village Park Extension involves site preparation and construction of 3,480 residential units and a small amount of unspecified commercial/industrial use on a 691.5 acre parcel of land in central/leeward Oahu. The project is expected to begin in 1988 and may be completed as early as 1994.
2. Judging from readings at nearest long term monitoring stations, air quality in the project area is presently well within allowable State and National Ambient Air Quality Standards. Existing air pollutants in the area include dust and smoke generated by sugar cane cultivation, and emissions from vehicles traveling on nearby roadways.
3. Except for dust emissions during the construction phase of the development, no significant short term direct air quality impacts are expected. Adequate control measures exist to limit the impact of windblown dust, but special care will have to be exerted to insure that previously developed residential areas are not subjected to excessive levels of particulate pollution from construction activities.
4. Indirect air quality impacts are expected to result from new demands for electrical energy. This impact is most likely to occur in the vicinity of existing power plants such as the Kahe Plant on the Waianae coast where increased levels of particulates and sulfur dioxide can be expected. Maximum use of solar energy designs in project development can at least partially mitigate the magnitude of this impact. New methods of generating electrical power such as wind or ocean thermal energy conversion may eventually also play a mitigative role in this regard.
5. Increased traffic generated by the Village Park Expansion will increase emissions of carbon monoxide along Kunia Road in the project area and along the H-1 Freeway corridor. Modeling of current and projected peak hour worst case concentrations of carbon monoxide at three critical receptor sites in the project area indicates that levels will be well within allowable State and National ambient air quality standards with or without project development. For that reason no special air pollution mitigation measures other than those roadway and intersection improvements already planned as an integral part of the development are proposed by this study.

1. PROJECT DESCRIPTION

The proposed Village Park Expansion by Maltek Development, Inc. involves site preparation and construction of 3,480 residential units (including 480 rental units developed by the City and County of Honolulu) on a 691.5 acre parcel of land in Mailele and Hoese, Ewa, Oahu, as shown in Figure 1.

The parcel is situated immediately to the north of the existing Village Park residential development and is presently used for sugar cane cultivation.

Land use is planned approximately as follows: 404.6 acres of residential use; 28.7 acres of commercial and mixed industrial uses; 168.2 acres for a golf course, 21 acres of public parks, 6.9 acres for private recreation; and 32.1 acres for roadways and infrastructure.

Project development is expected to begin in 1988 with construction continuing until 1994.

Roadway access from the development to other urbanized parts of Oahu will be via Kunia Road, adjacent to the project site. The two major project intersections with Kunia Road will be at a new roadway tentatively identified as Collector Street #1 and via internal project connection to the existing Village Park intersection at North Kupuna Loop. As a part of project development, additional lanes and signalization on Kunia Road have been proposed by the developer as indicated in Figure 2. Kunia Road runs north/south along the proposed project boundary providing direct access to Schofield to the north and to the Kunia Interchange on the H-1 Freeway or Farrington Highway to the south.

The purpose of this study is to describe existing ambient air quality in the project area and along the major access route leading to and from the project; to estimate the magnitude of any increase in air pollutant concentrations resulting from actions related to the proposed project; and to suggest mitigative measures which could be employed to avoid or alleviate these impacts.

2. AIR QUALITY STANDARDS

State of Hawaii and National Ambient Air Quality Standards (AQS) have been established for six classes of pollutants as shown in Table 1. An AQS is a pollutant concentration not to be exceeded over a specified sampling period which varies for each pollutant depending upon the type of exposure necessary to cause adverse effects. Each of the regulated pollutants has the potential to cause some form of adverse health effect or to produce environmental degradation when present in sufficiently high concentration.

National AQS for particulates and sulfur dioxide have been divided into primary and secondary levels. Primary AQS are designed to prevent adverse health impacts while secondary AQS refer to welfare impacts such as decreased visibility, diminished comfort levels, damage to vegetation, animals or property, or a reduction in the overall aesthetic quality of the atmosphere. State of Hawaii AQS for all six pollutants have been set at a single level which is in some cases significantly more stringent than the lowest comparable national limit. In particular, the State of Hawaii one hour standard for carbon monoxide is four times more stringent than the national standard.

National AQS are based on 40 CFR Part 50, while State of Hawaii AQS are set in Chapter 11-59, Hawaii Administrative Rules. This chapter was recently amended (March 25, 1986) to make Hawaii AQS for particulates and sulfur dioxide essentially the same as the most stringent national limits.

3. PRESENT AIR QUALITY

A summary of air pollutant measurements from State of Hawaii long term monitoring stations located nearest to the project is presented in Table 2. Data from several different sampling stations are included in the tabulation.

The sampling station for particulates and sulfur dioxide is located in Pearl City, about four miles east of the project area. The monitoring of sulfur dioxide in Pearl City was discontinued in 1984 and 1985 measurements are from the Barbers Point station located about seven miles southwest of the project.

Until September 1979, and after June 1983, carbon monoxide monitoring was conducted at the Department of Health building at Punchbowl and Beretania Streets in urban Honolulu. This site is about 16 miles southeast of the project. During 1981 carbon monoxide was measured at Fort DeRussy in Maikiki (19 miles southeast of the project), and in 1982 carbon monoxide was monitored at Leahi Hospital in Kaimuki, about 20 miles southeast of the project.

Ozone levels were also measured at the Department of Health building in urban Honolulu until December 1980, when the monitor was relocated to Sand Island (about 12 miles southeast of the project site). During 1981 nitrogen dioxide was also monitored at the Sand Island location, but all nitrogen dioxide monitoring has since been discontinued. Lead measurements are from Liliha Street in Kailahi, about 15 miles southeast of the project site.

From the data presented in Table 2 it appears that State of Hawaii ambient air quality standards for particulates, sulfur dioxide, nitrogen dioxide, and lead are currently being met at nearest monitoring stations to the project area.

On the other hand, carbon monoxide and ozone readings from urban Honolulu indicate that allowable State of Hawaii standards for these vehicle-related air pollutants are being violated at a rate of about once or twice a year. Ozone is an indicator of the formation of photochemical pollutants in the air, a condition which tends to develop if the air mass over the islands has been fairly stable with little wind flow for a period stretching over several days.

Concentrations of carbon monoxide are more directly related to vehicular emissions and tend to be highest during periods of rush hour traffic. Carbon monoxide would thus be the pollutant most likely to cause difficulty in meeting allowable State of Hawaii AQS as a result of new residential development on Oahu.

There are power plants and other potential sources of industrial pollutants along the central portion of the leeward coast in the vicinity of the project site, but the generally low readings of particulates and sulfur dioxide at the Pearl City monitoring station just to the east of the project indicate that these sources are not likely to cause any air pollution problems at Village Park. Likewise sugar cane cultivation to the north and west could generate some particulates and carbon monoxide when fields are burned at harvest (about once every two years for any given field), but the consistently low readings of particulates at Pearl City indicate that this source is not likely to present any significant air pollution problems either.

Finally, natural air pollutant producers which could affect air quality in the Village Park project area include the ocean (sea spray), plants (seaweed allergens), dust, and perhaps a distant volcanic eruption on the Island of Hawaii. Concentrations of air pollutants from these kinds of sources should be fairly uniform for most Oahu locations.

4. DIRECT AIR QUALITY IMPACT OF PROJECT CONSTRUCTION

During the site preparation and construction phases of this project it is inevitable that a certain amount of fugitive dust will be generated. Field measurements of such emissions from apartment and shopping center construction projects has yielded an estimated emission rate of 1.2 tons of dust per acre of construction per month of activity. This figure assumes medium level activity in a semi-arid climate with a moderate soil silt content. Actual emissions of fugitive dust from this project can be expected to vary daily depending upon the amount of activity and the moisture content of exposed soil in work areas.

One major generator of fugitive dust during project development is construction equipment moving over unpaved roadways. This problem can be substantially mitigated by completing and paving roadways and parking areas as early in the development process as possible. Because of the relatively long time frame envisioned for project development, some construction will be taking place in close proximity to existing residential areas. In these instances, dust control will have to be an item of special concern.

Heavy equipment at construction sites will also emit some air pollutants in the form of engine exhausts. The largest equipment is usually diesel-powered. Carbon monoxide emissions from large diesel engines are generally about equal to those from a single automobile, but nitrogen dioxide emissions from this type of engine can be quite high. Fortunately, nitrogen dioxide emissions from other sources in the area should be relatively low and the overall impact of pollutant emissions from construction equipment should be minor compared to levels generated on roadways nearby.

5. AIR QUALITY IMPACT OF INCREASED ENERGY UTILIZATION

As proposed, the Village Park Expansion would contain 3,480 residential units, as well as some commercial and mixed industrial development. Details for the commercial and industrial sites are not known at this time, but energy consumption rates at the power plant for single family residential units with all-electric kitchens and water heaters are about 55,000 BTU per square foot. Estimating about 1,400 square feet as the average residence size yields an energy requirement of about 268 billion BTU of energy per year at the power plant. This is the equivalent of about 46,000 barrels of oil if the demand were to be met totally by burning fuel oil.

The major impact of burning fuel oil to meet this increased energy demand will be increased levels of sulfur dioxide and particulates in the vicinity of existing power plants, primarily the Kahu Power Plant on the Waianae coast.

This energy requirement could be reduced substantially by the installation of solar water heating on all new residential units. It is also possible that the new demand could be met by means other than burning fuel oil. Generation of electrical energy by wind power or by using ocean thermal energy conversion are two such possibilities.

6. INDIRECT AIR QUALITY IMPACT OF INCREASED TRAFFIC

Once construction is completed the proposed project is not in itself likely to constitute a major direct source of air pollutants. By serving as an attraction for increased motor vehicle traffic in the area, however, the project must be considered to be a significant indirect air pollution source.

Motor vehicles, especially those with gasoline-powered engines, are prodigious emitters of carbon monoxide. Motor vehicles also emit some nitrogen dioxide and those burning fuel which contains lead as an additive contribute some lead particles to the atmosphere as well. The major control measure designed to limit lead emissions is a Federal law requiring the use of unleaded fuel in most new automobiles. As older cars are removed from the vehicle fleet lead emissions should continue to fall. In fact, effective January 1, 1986, the Federal Environmental Protection Agency has revised the allowable lead amount in gasoline to 0.1 grams per gallon. At the beginning of 1985 the standard was 1.1 grams per gallon. The EPA is also advocating a total ban on lead in gasoline to take effect as early as 1988.

Federal control regulations also call for increased efficiency in removing carbon monoxide and nitrogen dioxide from vehicle exhausts. By 1995 carbon monoxide emissions from the vehicle fleet then operating are mandated to be about one third lower than the amounts now emitted.

7. CARBON MONOXIDE DIFFUSION MODELING

In order to evaluate the future air quality impact of projected increases in traffic associated with the proposed Village Park Expansion in view of the previously described government-mandated decreasing emission rates per vehicle, it was necessary to carry out a detailed carbon monoxide modeling study. The study was designed to yield carbon monoxide concentration values which could be compared directly to allowable State and National Ambient Air Quality Standards.

Three critical receptor sites were selected for analysis: site 1 on the northeast side of the proposed intersection of Collector Street #1 with Kuniia Road; site 2 on the west side of Kuniia Road near the intersection with South Kupuna Loop; and site 3 on the east side of the H-1 Freeway south of the existing Village Park residential area. The locations of these critical receptor sites are marked on Figures 1 and 2.

Site 1 is a critical receptor site because it is likely to show the maximum air pollution increase associated with constructing a new intersection on Kuniia Road. Site 2 was selected to measure the impact of project-related traffic at that location where morning rush hour traffic heading for the H-1 Freeway from the new project would be most congested, while site 3 was selected to evaluate potential carbon monoxide levels along the H-1 Freeway downstream from the project.

Expected worst case peak hour carbon monoxide concentrations at each of the critical receptor sites were computed for study years 1985 and 1995. Computations were made for traffic conditions with and without the proposed Village Park Expansion.

Morning peak hour traffic volumes for study years were determined using the traffic impact study for the project. Morning peak hour traffic volumes were used for air pollution computations because the traffic impact study found these volumes to be higher than evening peak hour values.

The existing peak hour vehicle mix in the project area was evaluated to be 80% gasoline-powered automobiles, 13% light duty gasoline-powered trucks and vans, 1% heavy duty gasoline-powered trucks, 2% diesel-powered automobiles, 1% diesel-powered light duty trucks, 2% diesel-powered trucks and buses, and 1% motorcycles. The same vehicle mix was assumed for both study years.

The current and future highway configuration in the vicinity of each of the critical receptor sites is shown in Figure 2. For carbon monoxide computation purposes it was assumed that the added lanes and signals on Kuniia Road will be constructed as proposed.

When signal lights control traffic flow, average vehicle speeds were assumed to be 5 mph upstream from red signal lights and 15 mph downstream from signals or turns. Traffic was assumed to move at 25 mph in unimpeded flow. In the case of site 2, the proximity of signal lights and added congestion associated with the traffic generated by the Village Park Expansion was assumed to slow vehicle speeds to 15 mph in the peak direction by 1995 even in unimpeded flow.

The H-1 is an eight lane divided freeway at the location of site 3. Even by 1995 it does not appear that the freeway will be operating beyond available capacity at this particular location and vehicle speeds in both directions were assumed to be 35 mph in relatively unimpeded flow. Beyond the Waiea interchange, however, severe traffic congestion is likely and previous traffic and air pollution studies indicate that peak hour levels of carbon monoxide for receptor sites near the H-1 Freeway corridor between Waiea and Halewa may exceed allowable State of Hawaii AQS both presently and in future years. Regional traffic mitigation measures such as ride-sharing, HOV lanes, road-widening and other strategies will be required to address these problems.

For all computations used in this study a temperature of 68 degrees F was assumed with 20 percent of vehicles operating in the 'cold start' mode on all roadways except for those vehicles exiting from Village Park where a 75% 'cold start' percentage was considered to be more representative.

Using the above assumptions, output from the EPA computer model MOBILE 2 was used to produce vehicular carbon monoxide emission estimates for each of the years studied. These values were then used as input for the EPA computer model RIMAY 2 to calculate carbon monoxide concentrations at each of the selected critical receptor sites for the various scenarios studied. Stability category 4 was used for determining diffusion coefficients. This stability category represents the most stable (least favorable) atmospheric condition that is likely to exist in a suburban area such as this.

To simulate worst case wind conditions a uniform wind speed of one meter per second was assumed with the worst case wind direction for site 1 from the south and for sites 2 and 3 from the northeast. For each receptor site concentrations were computed at a height of 1.5 meters to simulate levels that would exist within the normal human breathing zone.

Background contributions of carbon monoxide from sources or distant roadways not directly considered in the analysis were assumed to be one milligram per cubic meter for all sites.

Results of the peak hour carbon monoxide analysis are shown in Table 3. At all three sites estimated worst case carbon monoxide concentrations for both study years are within allowable State of Hawaii Ambient Air Quality Standards with or without the proposed Village Park Expansion.

The maximum increase in carbon monoxide levels occurs in the vicinity of Site 1, where construction of a major intersection and input of traffic onto Kuniia Road is expected to occur at a location that is currently just a two lane road through the cane fields.

Maximum peak hour concentrations of carbon monoxide are projected to occur at Site 1, with virtually all leeward bound traffic from both the existing and proposed expansion of Village Park passing by the site. It is significant to note, however, that proposed improvements to the roadway at this location are projected to result in slightly lower carbon monoxide levels by 1995 than those that are currently estimated to prevail there even after the additional traffic from the Village Park Expansion is added to the computations.

The overall carbon monoxide impact in the vicinity of Site 3 is much smaller than at either of the other two locations because project-related traffic constitutes a much smaller percentage of the total on the H-1 Freeway than in the case on Kuniia Road.

Average one hour traffic volumes during the peak eight hour period are about 80 percent of the peak hour level. Eight hour carbon monoxide levels are estimated by multiplying the peak hourly values by this traffic volume ratio and a 'meteorological persistence factor' of 0.6 which is recommended in EPA modeling guidelines to account for the fact that meteorological dispersion conditions are more variable (and hence more favorable) over an eight hour period than they are for a one hour period. Multiplying projected peak hour carbon monoxide levels by this combined factor of about 0.5 will yield values that are exactly one half those shown in Table 3. The State of Hawaii eight hour AQS for carbon monoxide is also one half the one hour standard. Thus the conclusions reached above regarding the State of Hawaii one hour standard will hold with respect to the eight hour standard as well.

All carbon monoxide concentrations calculated in the foregoing analysis are well within the less stringent National one and eight hour AQS whether the proposed project is undertaken or not.

8. MITIGATIVE MEASURES

A. SHORT TERM

As previously indicated the only direct short term adverse air quality impact that the proposed project is likely to create is the emission of fugitive dust during construction. State of Hawaii regulations stipulate the control measures that are to be employed to reduce this type of emissions. Primary control consists of wetting down loose soil areas. An effective watering program can reduce particulate emission from construction sites by as much as 50 percent. Other control measures include good housekeeping on the job site and pavement or landscaping of bare soil areas as quickly as possible.

B. LONG TERM

Once completed, the proposed Village Park Expansion is expected to have little direct impact on the air quality of the surrounding region. In fact, direct contributions of particulate pollutants to the air will be decreased somewhat since open field fires and fugitive dust from sugar cane growing activities will no longer be taking place. On the other hand, there are likely to be some emissions from commercial developments such as emissions from restaurant grills or emissions from light industrial activities within the proposed project. Most likely such emitters will be too small to fall under existing air pollution control regulations, but should any substantial new air pollution emission source be proposed for the site it would have to meet fairly stringent new source performance standards and prevention of significant deterioration requirements.

Indirect long term impacts in the form of increased air pollutant emissions from power plants serving new residences in the project area can be mitigated somewhat by planning and implementing solar energy design features to the maximum extent possible.

Other indirect long term air quality impacts are expected in those areas where traffic congestion can potentially be worsened by the addition of vehicles traveling to and from the proposed project. Project planners can do very little to reduce the emission levels of individual vehicles, but the traffic impact study for the project lists several major roadway improvements which should serve to decrease traffic congestion in the immediate project area since these improvements are scheduled to be an integral part of project development.

Carbon monoxide modeling conducted as a part of this report indicates that State of Hawaii Ambient Air Quality Standards are presently being met in the project area and the additional traffic from the proposed project is not expected to change that situation since the construction of additional lanes on Kuni Road should provide enough added capacity to decrease congestion while decreased emissions from individual vehicles in future years will almost exactly offset the growth in traffic in the area.

As stated earlier, previous air pollution modeling of conditions along the H-1 Freeway leading from the project to urban Honolulu indicates that severe peak hour congestion along the freeway segment between Maiana and Maiana Interchanges is likely to result in carbon monoxide values that exceed allowable State of Hawaii standards. Traffic from the proposed project can only serve to exacerbate that situation. Once again, however, this is a regional traffic problem which will require mitigative measures beyond those that a single project developer can be expected to provide. In the case of this particular project the developer has been apprised by transportation control authorities that construction of "park and ride" facilities for carpooling or mass transit systems may be required as a part of project development.

Because the stringent national vehicular emissions reduction program now being pursued is entirely the product of perpetually changing government regulations, it is always possible that economic conditions or other factors could lead to an early abandonment of the program. If that were to occur, then the projected pollutant levels presented in this study could be too optimistic. On the other hand, it is possible that technological innovation may lead to new vehicular power systems that produce few or none of the currently regulated atmospheric pollutants.

In any case, this study indicates that currently proposed mitigative measures for traffic congestion along Kuni Road should be sufficient to meet air quality requirements in the immediate project area and no other major developer-initiated air pollution mitigation measures are proposed. It is noted, however, that tall, dense vegetation can provide some screening of residential areas from larger airborne particulates generated along roadways and near construction areas. It is thus recommended that wherever possible such vegetative cover be included in landscaping plans with plantings occurring as early in the development process as practicable.

REFERENCES

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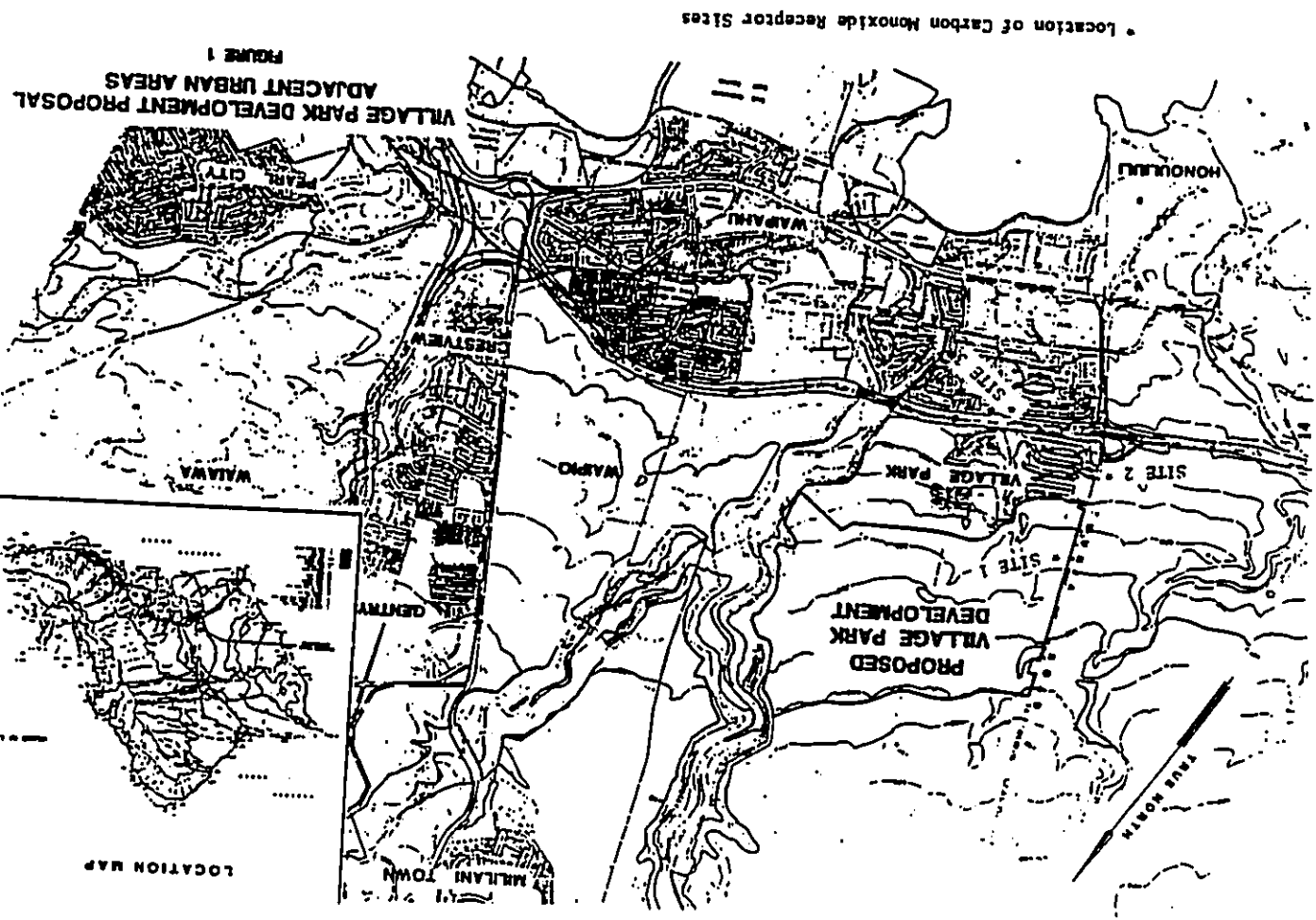
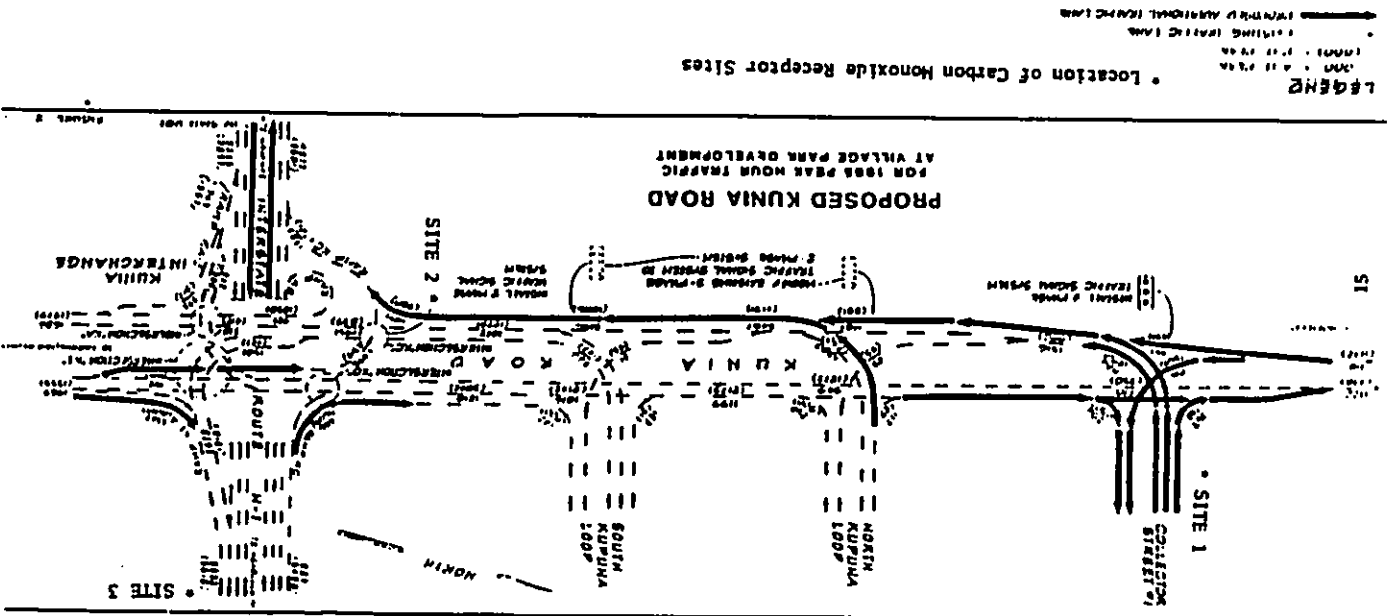


TABLE 1

SUMMARY OF HAWAII AND NATIONAL AMBIENT AIR QUALITY STANDARDS
(Micrograms per Cubic Meter)

POLLUTANT	SAMPLING PERIOD	AMBIENT AIR QUALITY STANDARDS	
		NATIONAL	HAWAII
Particulates	Annual Geometric Mean	75	60
	Maximum 24-Hour Average	250	160
Sulfur Dioxide	Annual Arithmetic Mean	80	80
	Maximum 24-Hour Average	365	365
Nitrogen Dioxide	Annual Arithmetic Mean	100	70
	Maximum 1-Hour Average	240	100
Carbon Monoxide (milligrams per cubic meter)	Maximum 8-Hour Average	10	5
	Maximum 1-Hour Average	40	10
Lead	Calendar Quarter	1.5	1.5

TABLE 2

SUMMARY OF AIR POLLUTANT MEASUREMENTS AT NEAREST MONITORING STATIONS

POLLUTANT	1979	1980	1981	1982	1983	1984	1985
PARTICULATE MATTER							
No. of Samples	58	60	59	53	55	56	47
Range of Values	20-48	22-93	19-71	19-54	17-57	16-45	16-62
Average Value	33	36	34	31	30	28	35
No. of Times State AQS Exceeded	0	0	0	0	0	0	0
SULFUR DIOXIDE							
No. of Samples	56	52	56	43	49	42	50
Range of Values	<5-63	<5-15	<5-<5	<5-10	<5-<5	<5-<5	<5-25
Average Value	10	5	<5	5	<5	<5	<5
No. of Times State AQS Exceeded	0	0	0	0	0	0	0
CARBON MONOXIDE							
No. of Samples	207	286	286	311	173	318	342
Range of Values	0-17.3	1.2-13.8	0-4.6	0-8.6	0-10.9	0-10.4	0-10.4
Average Value	2.9	5.1	1.2	2.3	2.4	1.5	1.5
No. of Times State AQS Exceeded	10	13	0	0	0	1	1
OXIDANT (OZONE)							
No. of Samples	338	295	314	335	349	296	341
Range of Values	10-80	10-84	10-104	0-151	0-123	0-104	8-198
Average Value	39	48	37	32	46	44	43
No. of Times State AQS Exceeded	0	0	1	2	2	1	3
OTHERS:							
NITROGEN DIOXIDE							
No. of Samples			46			52	58
Range of Values			6-77			.5-.8	0-.5
Average Value			25			0.6	0.3
No. of Times State AQS Exceeded			0			0	0
LEAD							

NOTES: See text for locations of monitoring stations. Carbon monoxide reported in milligrams per cubic meter; other pollutants in micrograms per cubic meter. Carbon monoxide and ozone are daily peak one hour values; lead is quarterly; other pollutant values are for a 24 hour sampling period.

SOURCE: State of Hawaii Department of Health

TABLE 3

RESULTS OF PEAK HOUR CARBON MONOXIDE ANALYSIS
(Milligrams Per Cubic Meter)

	1986	1995
SITE 1		
Without Village Park Expansion	1.5	1.3
With Village Park Expansion		7.1
SITE 2		
Without Village Park Expansion	8.9	5.5
With Village Park Expansion		8.7
SITE 3		
Without Village Park Expansion	5.6	4.8
With Village Park Expansion		5.6

STATE OF HAWAII ACS: 10
NATIONAL ACS: 40

Note: See Figures 1 and 2 for location of receptor sites.