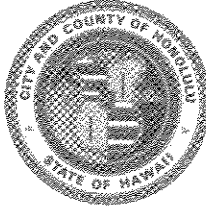


DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR



RECEIVED

BENJAMIN B. LEE
CHIEF PLANNING OFFICER

'91 JUN 14 PM 3:59

ROLAND D. LIBBY, JR.
DEPUTY CHIEF PLANNING OFFICER

OFC. OF ENV. &
QUALITY CON. MM

June 10, 1991

Mr. Brian Choy, Acting Director
Office of Environmental Quality Control
Central Pacific Plaza
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Choy:

Acceptance Notice for the Proposed
Kailua Elderly Housing Project
Final Environmental Impact Statement (Final EIS)

We are notifying you of our acceptance of the Final EIS for the proposed Kailua Elderly Housing Project as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes.

Pursuant to Section 11-200-23 (c), Chapter 200, Title 11 ("Environmental Impact Statement Rules") of the Administrative Rules, this acceptance notice should be published in the June 23, 1991 OEQC Bulletin.

We have attached our Acceptance Report of the Final EIS for the Kailua Elderly Housing Project. Should you have any questions, please contact Mel Murakami at 527-6020.

Sincerely,

A handwritten signature in black ink, appearing to read 'Benjamin B. Lee', written over a circular stamp or seal.

BENJAMIN B. LEE
Chief Planning Officer

BBL:ft

Attachment

cc: DHCD
AM Partners, Inc.

1991 - Oahu - FEIS - Kailua Elderly

PLANNER'S COPY



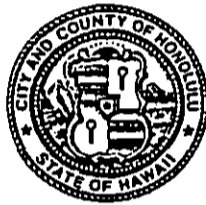
**Kailua Elderly Housing
Final Environmental
Impact Statement**

May 1991

**FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR
KAILUA ELDERLY HOUSING PROJECT**

Kailua, Koolaupoko, Oahu

Pursuant to:
Chapter 343, Hawaii Revised Statutes
Chapter 200, Title 11, Administrative Rules
24 CFR Part 58, Code of Federal Regulations



Prepared for:
City and County of Honolulu
Department of Housing and Community Development

Michael N. Scarfone

Michael N. Scarfone, Director
Department of Housing & Community Development
City & County of Honolulu

MAY 15 1991

Date

Prepared by:
AM Partners, Inc.
Honolulu, Hawaii

May 1991

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- D Noise Study - Y. Ebisu & Associates**
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**CHAPTER I
PROJECT SUMMARY**

I. PROJECT SUMMARY

Applicant: City and County of Honolulu
Department of Housing and Community
Development

Landowner: City and County of Honolulu

Project Description: A new rental housing project will be developed for the elderly at the existing Kailua municipal parking lot. The proposed project will include 84 units, a multi-purpose meeting room/meal facility, a landscaped garden terrace, a mini park, approximately 167 parking stalls to replace the existing parking and to add tenant parking stalls.

Area: 76,710 SF (1.76 acres)

Location: The project site is located in Kailua, Koolaupoko District, Oahu, Hawaii. The site is in the center of a block bounded by Uluniu Street to the North-West, Aulike to the North-East, Kuulei Road to the South-East, and Oneawa Street to the South-West (Figure 1).

Tax Map Key: 4-3-55: 11

Existing Use: The site is presently an on-grade municipal parking lot which primarily services adjacent businesses.

State Land Use Designation: Urban

Development Plan Designation: Public Facility

Zoning: B-2 Business

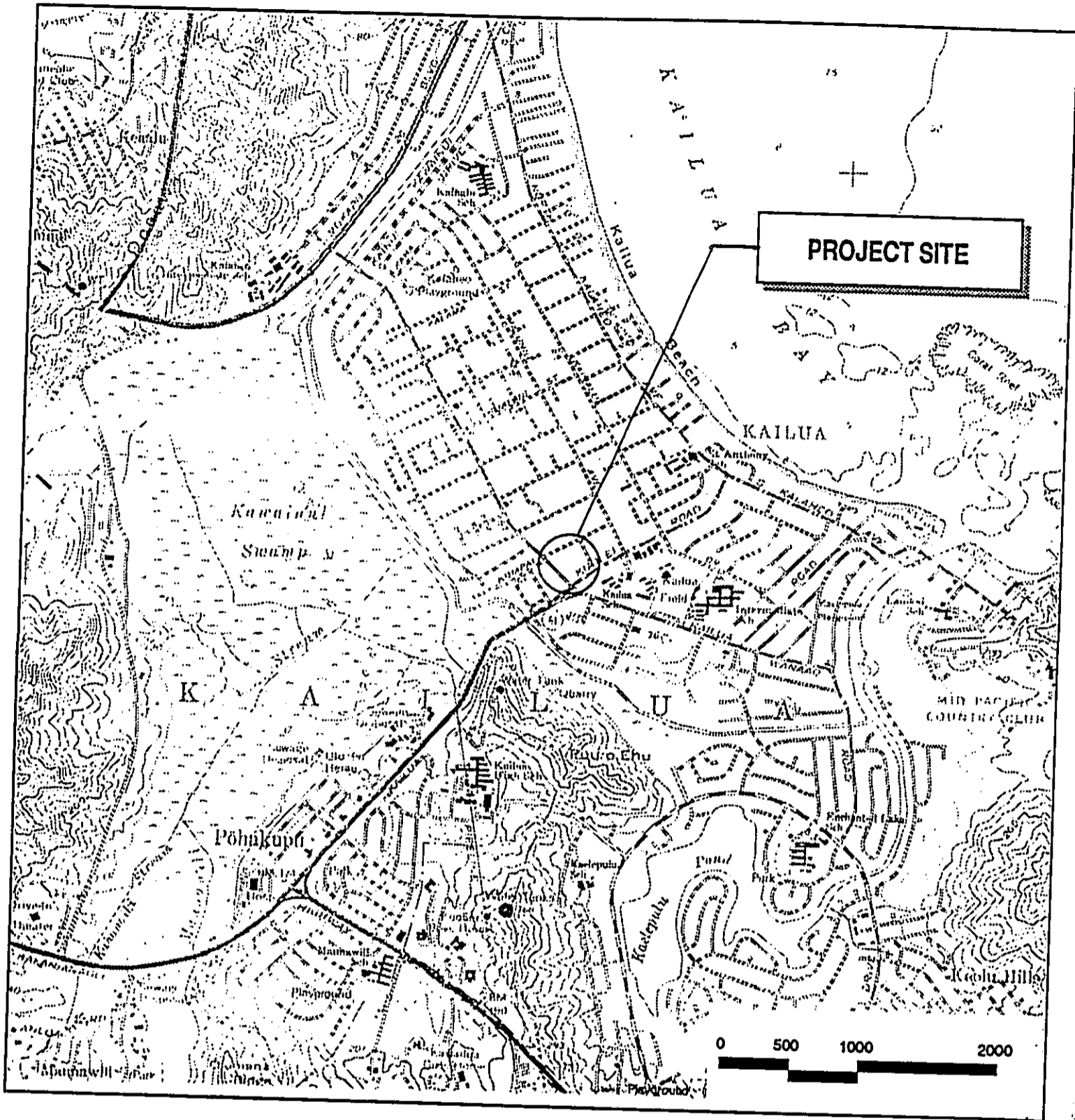


Figure 1
Project Location Map

Source: U.S. Geological Survey (1983)

Kailua Elderly Housing Project
 Department of Housing and Community Development



Evaluation of Impacts and Mitigative Measures:

Major impacts associated with the proposed project are primarily construction-related. Specifically, the main impact during the construction period is the temporary loss of public parking. The City and County has developed an interim parking plan which is expected to mitigate this temporary loss. Long-term impacts are expected to be beneficial since parking will be fully replaced and affordable housing for the elderly will be provided in a convenient location.

Construction-related impacts will be mitigated by standard construction mitigation measures such as frequent watering and dust screens to trap airborne particulates, controlled hours of operation to prevent excessive noise into the adjacent business and residential communities, and standard construction traffic management plans to prevent excessive construction-related traffic. The adjacent businesses will experience some inconveniences during the course of construction with the temporary loss of public parking stalls; however, the City plans to mitigate this situation by renting stalls in the surrounding area and reorganizing nearby existing public parking areas to regulate and increase parking stall capacity.

The proposed development will have a predominant roof line of 40 feet in height, with up to 25 percent of the roof extending to a height of 45 feet. There will be a 35-foot building setback around the development on the Oneawa Street side of the site and a 27-foot building setback along the Kuulei Road and Uluniu Street sides of the site. A 93-foot setback along its northeastern (Aulike Street) property line will provide a generous pedestrian walkway and emergency access. The building has been positioned and designed to minimize its impact on the neighboring properties. Its configuration and wide setbacks will provide the opportunity for generous landscaping and will minimize any "canyon" effect between buildings.

There are no unique natural features or agricultural lands that would affect or be affected by the proposed development. The proposed development will not affect any wetlands nor does it lie in the Special Management Area. The nine (9) existing mature trees will be removed and relocated during construction. However, the completed project will feature more landscaping than presently exists at the site. No other impacts on the flora or fauna on the site are expected.

While the site contains no known historic or archaeological sites, DHCD, in conjunction with an archaeologist, will take due care in identifying significant subsurface deposits. Site clearing will be conducted in conjunction with archaeological monitoring and subsequent archaeological tests. Below grade construction will begin after archaeological excavations are completed and a DLNR determination of "no adverse effect" or an acceptable mitigation

plan for identified sites is developed in consultation with the State Historic Preservation Division.

As indicated in the traffic impact study, vehicular traffic is not expected to be significantly impacted by the operation of the proposed facility. Resident vehicles will account for only 10% of the total number of vehicles accommodated by the project. A review of the air quality impacts indicates that no significant effects related to these concerns are likely to occur. The proposed development is not expected to increase ambient noise levels significantly beyond the existing conditions.

Although it is not expected that Kailua would experience any significant economic gain during the construction period, adjacent businesses may gain long term benefits from the new residents. The temporary closure of the parking lot during construction may result in a temporary economic loss by adjacent businesses. However, the City plans to mitigate this situation through the implementation of an interim parking plan involving the temporary use of parking stalls at private and public parcels.

CHAPTER II
PROJECT DESCRIPTION

II. PROJECT DESCRIPTION

A. Purpose

The demand for affordable rental units on Oahu is constantly growing as new households are formed and existing housing units are demolished or converted to higher cost ownership housing. At the same time, the construction of new rental units has virtually ceased. Within the housing environment created by these factors, the capability of elderly households to compete on the rental market has decreased due to typically lower, fixed incomes. The proposed project by the Department of Housing and Community Development of the City and County of Honolulu will add to the affordable housing inventory for the elderly.

The Department of Housing and Community Development identified the public parking lot as an underutilized site suitable for redevelopment. Because of its in-town location and proximity to relevant services and amenities, the site offered significant advantages as a location for elderly housing. In response to this, a site plan providing new housing for the elderly, utilizing the site to its best use and improving the urban fabric of the project area was developed.

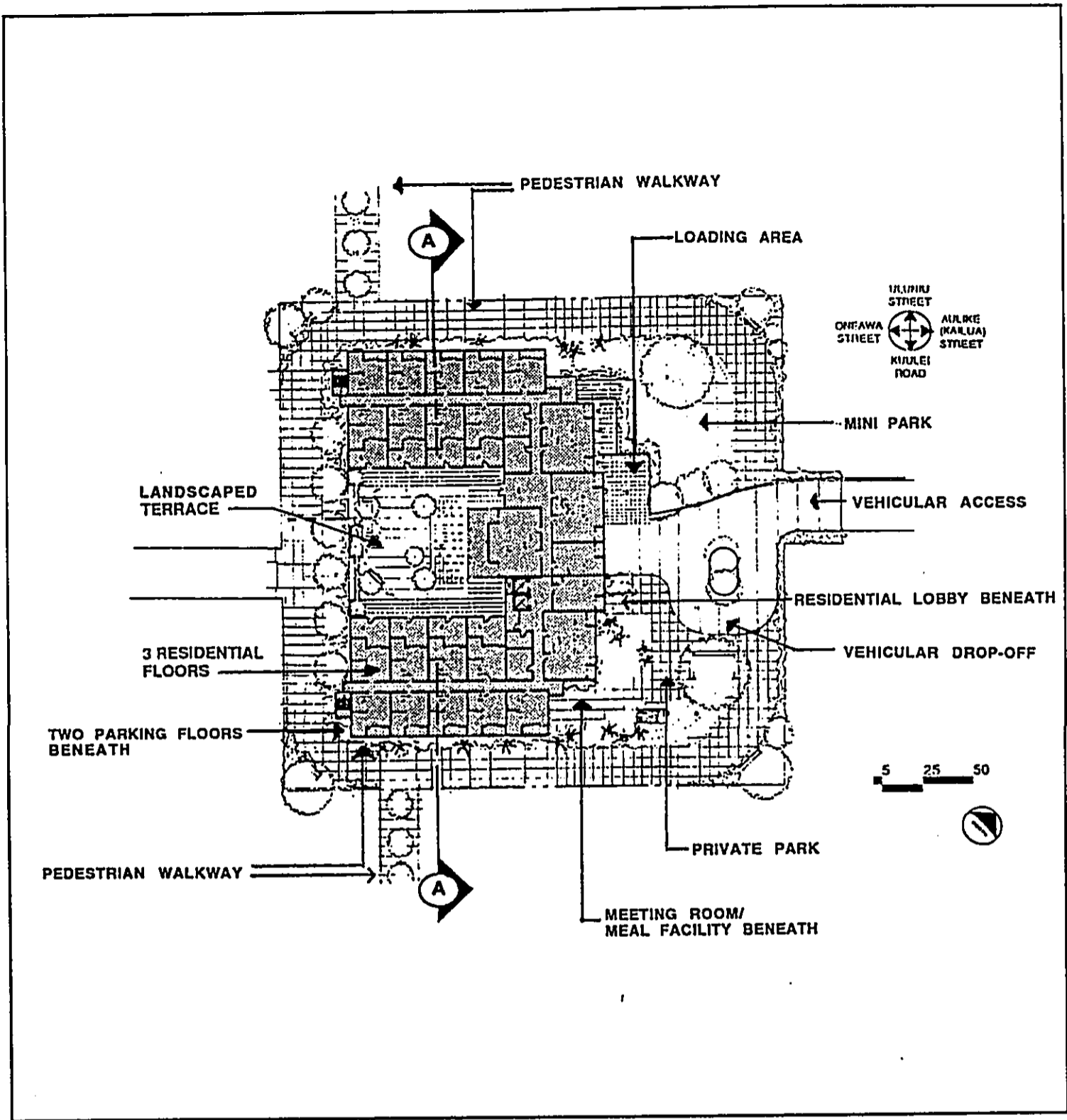
The design of the project integrates the functional requirements, economic factors, and public concerns into a responsive solution for the site.

B. Project Description

The Department of Housing & Community Development is proposing the development of an affordable housing project for the elderly in Kailua, Koolau District, Oahu. The project site is located on an existing municipal parking lot consisting of 76,710 sq. ft. (1.76 acres) within the block bordered by Kuulei Road, Oneawa, Uluniu and Aulike Streets. The site is identified by Tax Map Key 4-3-55: 11 and is currently designated within the State Urban District and zoned as B-2 Business.

The Department of Housing and Community Development has created a program for the site which features 84 residential units, a multi-purpose meeting room/meal facility, landscaped garden terrace, a mini park, loading stalls and 167 parking stalls for resident and public parking (Figure 2). This location is conveniently accessible to public transportation, professional services, commercial centers and major access roads.

The project's design intent is to create a residential "village" by incorporating a landscaped 35-foot wide building setback on the Oneawa Street side of the site, a 27-foot wide building setback on the Uluniu Street and Kuulei Road sides of the site and a 93-foot building setback on the Aulike Street side of the



**Figure 2
Project Site Plan**

Source: AM Partners, Inc. February 1991

**Kailua Elderly Housing Project
Department of Housing and Community Development**



Partners, Inc.

site with landscaped park areas. The residential open space is a raised, landscaped terrace offering privacy, security, and views toward the Koolau Mountains. The structure will consist of three residential floors and a two level parking garage. Although the roof exceeds the 40 foot height limit for approximately 25% of the roof line, the additional roof height will not add usable floor area. The added roof height was provided to enhance the building's aesthetic appearance. The building's facade will feature a variety of aesthetic decorative details intended to relate harmoniously with Kailua's small town character (Figure 3).

C. Development Criteria

The proposed residential use would be a new use of the site. The existing parking will be fully replaced and the added benefits of housing and improved landscaping will be provided. The apartment use is compatible with surrounding commercial and residential uses.

To guide the development of the project, site utilization criteria were established. These criteria were effective in developing a site plan which best addressed the needs of the proposed facility. These site utilization criteria were provided in five critical areas: 1) site program, 2) site utilization, 3) traffic and access, 4) facilities development, and 5) development costs. Site utilization and traffic and access are directly related to the environmental characteristics of the site and are described below.

1. Site Utilization Criteria

- Buildings placed to maximize views of the Koolaus.
- Buildings located away from objectionable odors and air pollutants outside of the project.
- Buildings placed to maximize the preservation of the mature trees on the project site.
- Buildings placed to take advantage of the two main pedestrian access ways.
- All existing parking to be replaced.
- Buildings placed to maximize visual and physical access between public parking facilities and businesses adjacent to the site.
- Buildings placed to facilitate residence and parking structure security.
- Parking lot segregated into public parking and resident parking zones.

2. Traffic and Access Criteria

- Minimized crossing of pedestrian and vehicular circulation patterns.

- Minimized vehicular traffic impact on the site and minimized traffic congestion on the access road.
- Safe ingress and egress of vehicular traffic.

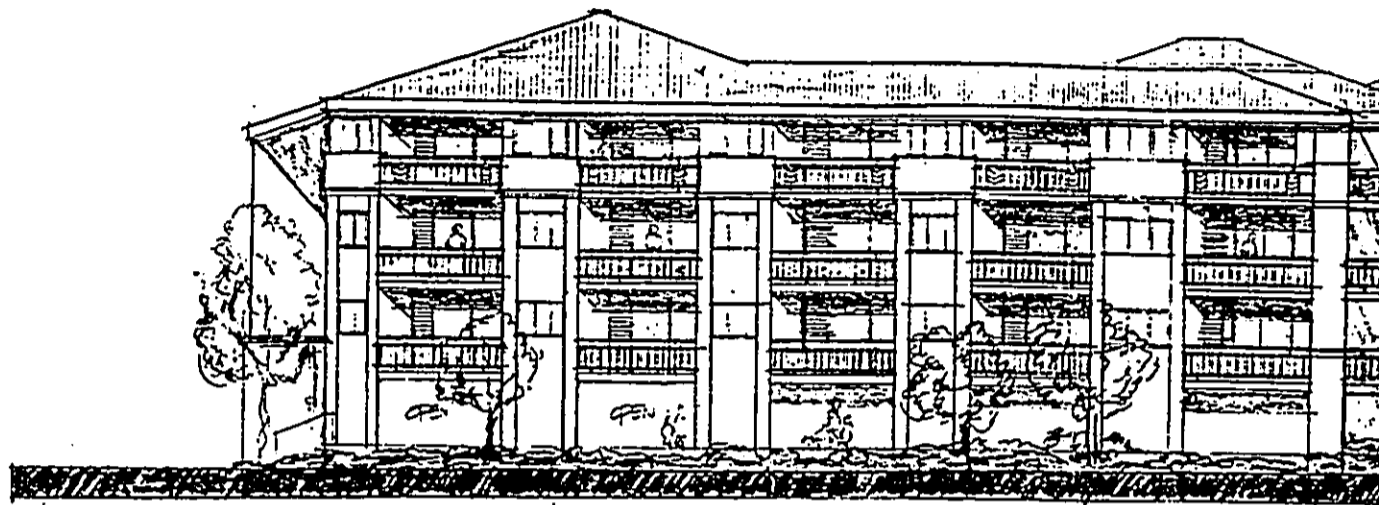
Guidelines for the schematic design of the facility were also established to set general parameters for design. These guidelines were based on considerations for safety and efficiency, needs of the elderly, and Uniform Federal Accessibility Standards. They include the following:

- Elevators conveniently or centrally located to minimize distance to the residential units.
- Lighting strategically located to minimize "blind spots" and to ensure resident security and safety.
- Facilities designed in accordance with Uniform Federal Accessibility Standards (UFAS) to ensure appropriate accessibility for the physically handicapped.
- Surface materials, lighting, and signage to enhance accessibility and convenience.
- Limited and securable access to all resident living and parking areas.

The resultant design features three-storeys of residential floors in a "U" configuration enclosing a garden terrace facing Oneawa Street. The residential floors are planned at a height of 8.5 feet floor-to-floor and will be located above a new parking structure which will include 146 public parking stalls to replace the existing 146 public stalls and an additional 21 stalls for resident use. Resident parking will be located towards Kuulei Road and public parking towards Uluniu Street (Figure 4). The lower floor of the parking garage is below ground level to give the entire parking structure a less imposing appearance. Landscaping will be used to buffer the parking area from the pedestrian mall at the open-sides of the garage which will be accessible on all sides to adjacent businesses.

D. Description of Residential Units

The elderly housing will consist of 30 one-bedroom and 54 studio units for a total of 84 units in a three-storey structure. This project will include a meeting room/meal facility, entry lobby, laundromat, landscaping and 167 parking stalls for residents and public parking. Each one-bedroom unit will have a living area of approximately 500 square feet. Studio units will have a living area of 465 square feet (Table 1). These units will be designed in accordance with the Uniform Federal Accessibility Standards (UFAS) to accommodate mobility impaired persons. The UFAS standards meet all applicability requirements of the Federal Fair Housing Act of 1988.



KUULEI ROAD ELEVATION



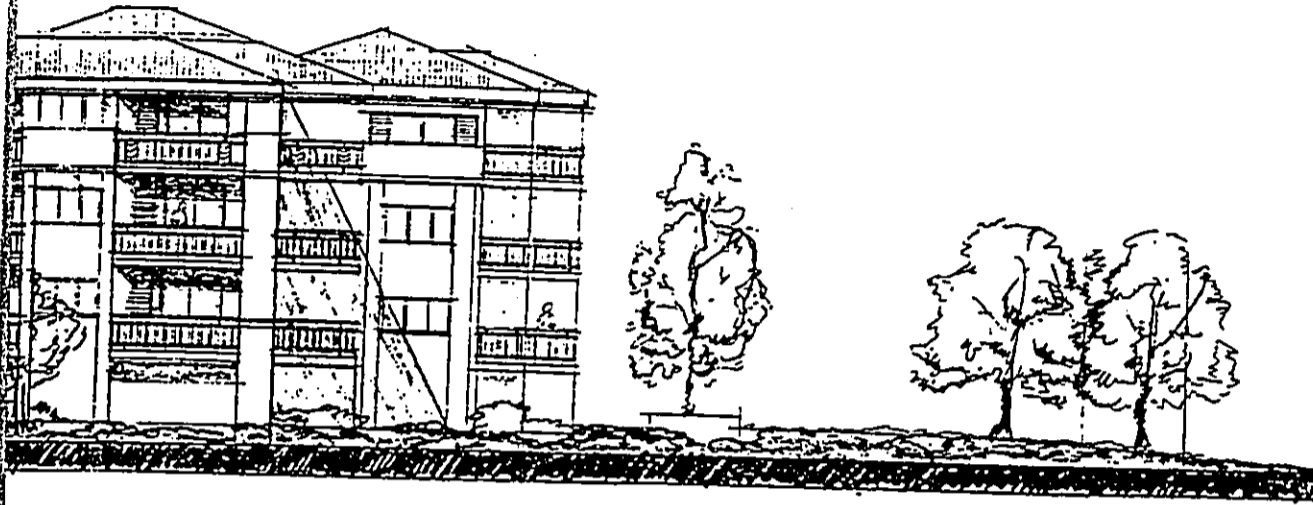
AULIKE STREET ELEVATION



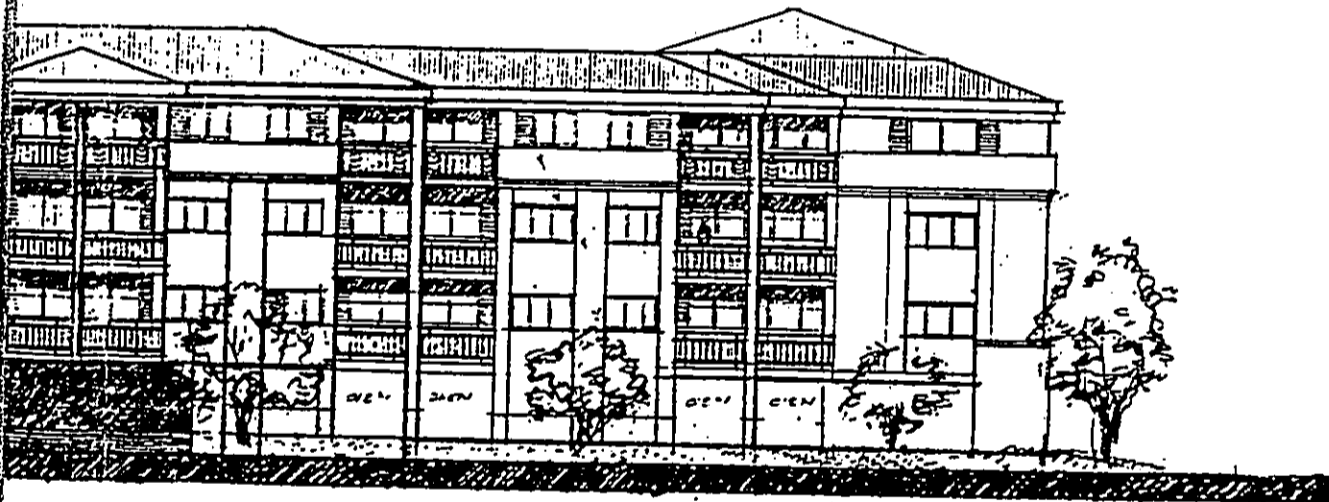
**Figure 3
Building Elevation**

Source: AMPartners, Inc. February 1991

**Kailua Elderly Housing Project
Department of Housing and Community Development**



0 5 10 15 20 FEET



0 5 10 15 20 FEET



Partners, Inc.

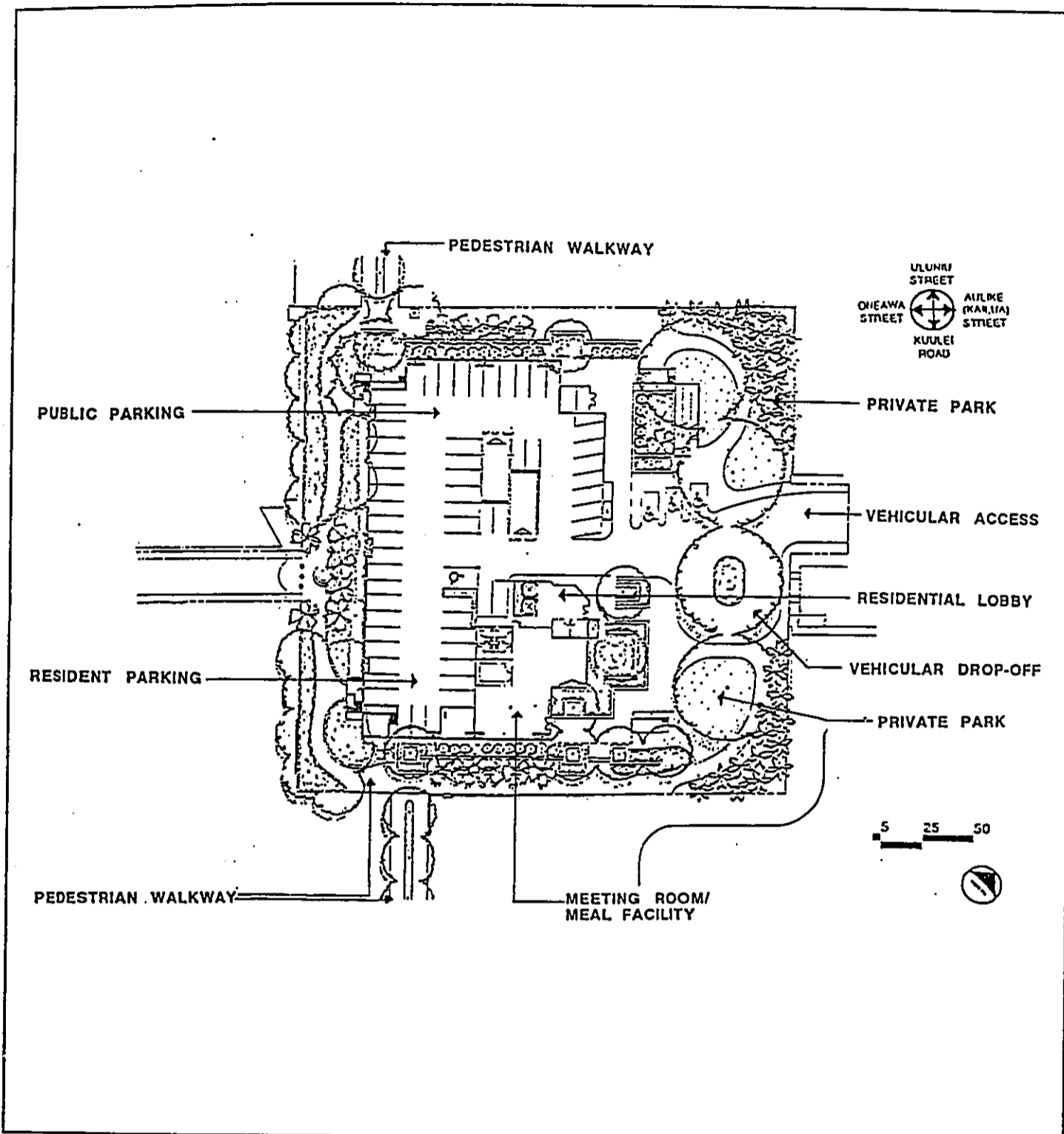


Figure 4
Ground Level Plan

Source: AMPartners, Inc. February 1991

Kailua Elderly Housing Project
 Department of Housing and Community Development



Partners, Inc.

The entry lobby of the residential complex and the meeting room/meal facility will be accessible at the ground level. The meeting room/meal facility will function as a dining area where meals may be provided by the Honolulu Nutrition program (a City vendor) to residents and other elderly persons. It could also function as a social gathering area. The facility will accommodate 100 people in an area of approximately 3,325 square feet (Table 1).

Table 1: Space Program

Description	Square Feet	Number of Units
Residential Units		
Studio	465 S.F.	48
1-Bedroom	465 S.F.	24
1-Bedroom	512 S.F.	6
Studio	413 S.F.	6
		Total
		84
Meeting Room/Meal Facility	3325 S.F.	

E. Vehicular and Pedestrian Circulation

Vehicular access is proposed through the existing driveway at Aulike Street. Limited access for emergency vehicles and adjacent properties from Oneawa Street is also proposed. Accessways for pedestrians are located from all four surrounding streets: Aulike Street, Uluniu Street, Oneawa Street and Kuulei Road. This enables safe, non-conflicting access for pedestrians and vehicles alike, with adequate loading zones and minimized traffic congestion. Loading will be available at the facility and by limited access from Oneawa Street. The raised building and garden terrace optimize resident security and privacy and also provide visual security by allowing residents to be aware of visitors in the neighborhood. Access for ambulances and fire fighting equipment will be provided in accordance with applicable agency requirements.

F. Funding and Phasing

The total development cost of the project is estimated at \$13 million. City general obligation bonds and Community Development Block Grant funds will be used.

The project will be completed in one continuous phase. Construction is scheduled to start in September 1991 with occupancy by January of 1993.

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

CHAPTER III AFFECTED ENVIRONMENT

III. AFFECTED ENVIRONMENT

A. Property Description

The site is presently paved with asphaltic concrete and is virtually flat, sloping slightly toward Oneawa Street. The site was designed and is presently used as a municipal metered parking lot. It contains 146 stalls serving the surrounding businesses. Usage of this lot is generally concentrated around the hours of operation of those businesses. There are nine mature trees located on the site (Figure 5).

The adjacent structures consist of one and two storey structures used primarily for commercial purposes. Unless planned by their owners for replacement, these structures are expected to remain after the development of the subject project is completed. The various businesses which these structures house include: fast food restaurants, medical & dental offices, convenience stores, antique shops, a video store, a record store, and hair salons.

There are two vehicular driveways entering the site from Aulike and Oneawa Streets and two pedestrian easements to this site from Kuulei Road and Uluniu Street.

B. Topographic Characteristics

1. Geology

The substrata in the Kailua area generally consist of alluvium, dune sand, colluvium, mudflow deposits and lagoonal deposits (Atlas of Hawaii, Second Edition 1983).

2. Soils

A soil survey was undertaken by Ernest K. Hirata and Associates in October 1990. The results of this survey indicated that the surface soil consisted of brown silty sand in a medium dense condition that extended to depths ranging from 3 to 3.5 feet. Underlying the silty sand was medium dense sand. The sand was tan in color, grading with coral fragments at deeper depths.

Underlying the sand at depths ranging from 19 to 24 feet was calcareous rubblestone. The rubblestone stratum consisted of partially cemented coral fragments, sand and silt. The coralline material was medium dense to dense, and extended to the maximum depths drilled.

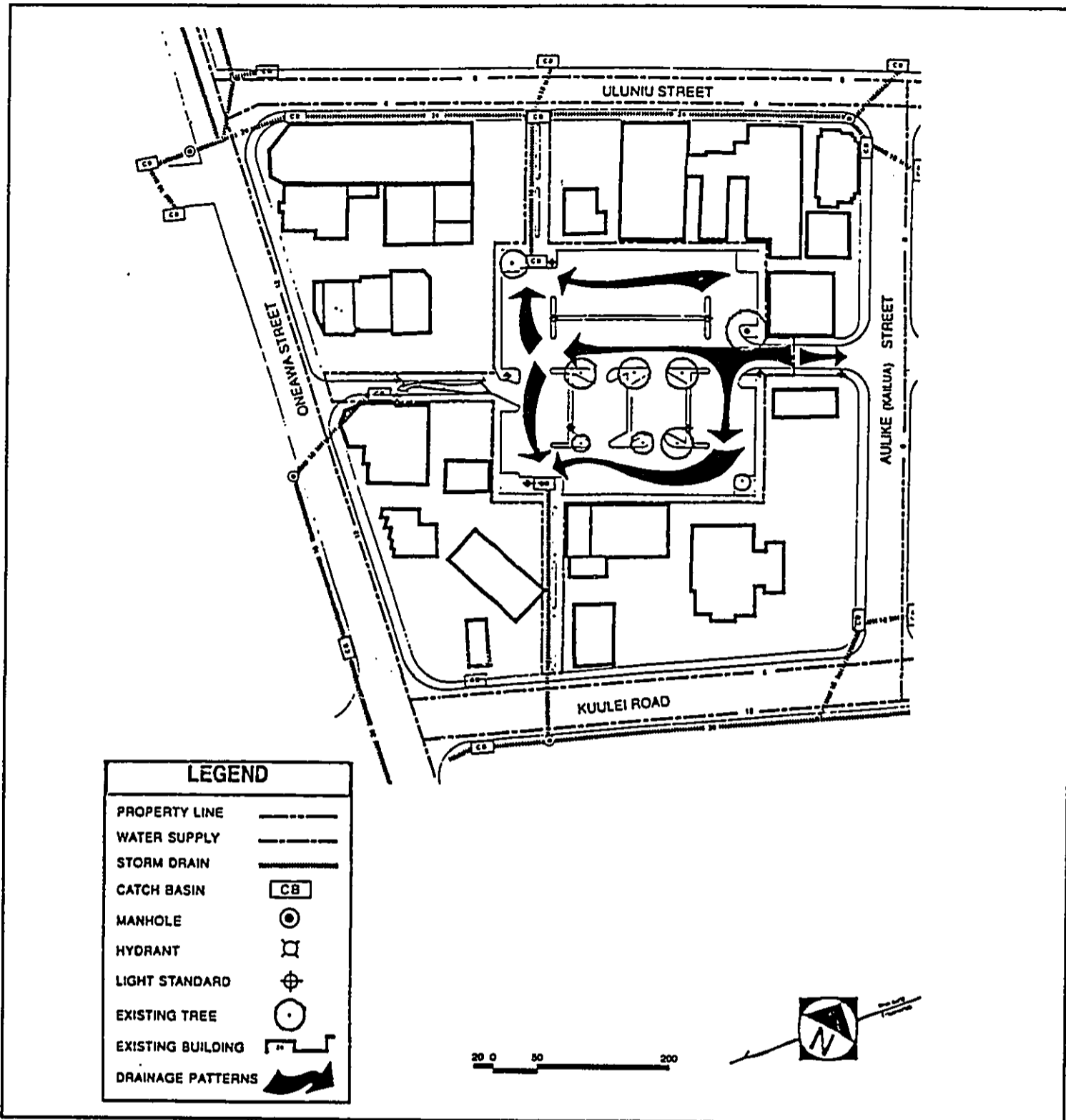


Figure 5
Existing Site Conditions

Source: AM Partners, Inc. November 1989

Kailua Elderly Housing Project
 Department of Housing and Community Development



Groundwater was encountered in all borings at depths ranging from 8.3 to 9.2 feet below existing grade (Ernest K. Hirata & Associates - Appendix A).

According to the U.S. Soils Conservation Service Soils Survey, Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, prepared by the United States Department of Agriculture Soil Conservation Service (SCS), August 1972, the soil type noted in the Soil Survey corresponds with the general SCS classification Jaucas Sand. This type of soil is used for pasture, sugar cane, truck crops, and urban development. Permeability is rapid and runoff is very slow to slow. The hazard of water erosion is slight but wind erosion is a severe hazard where vegetation has been removed. Workability is slightly difficult because the soil is loose and lacks stability for the use of equipment.

3. Development Implications

It was the determination of the soils consultant that conventional spread footings may be used to support the proposed structure. Shoring will probably be required for the basement excavations.

C. Hydrological Characteristics

1. Natural Water Features

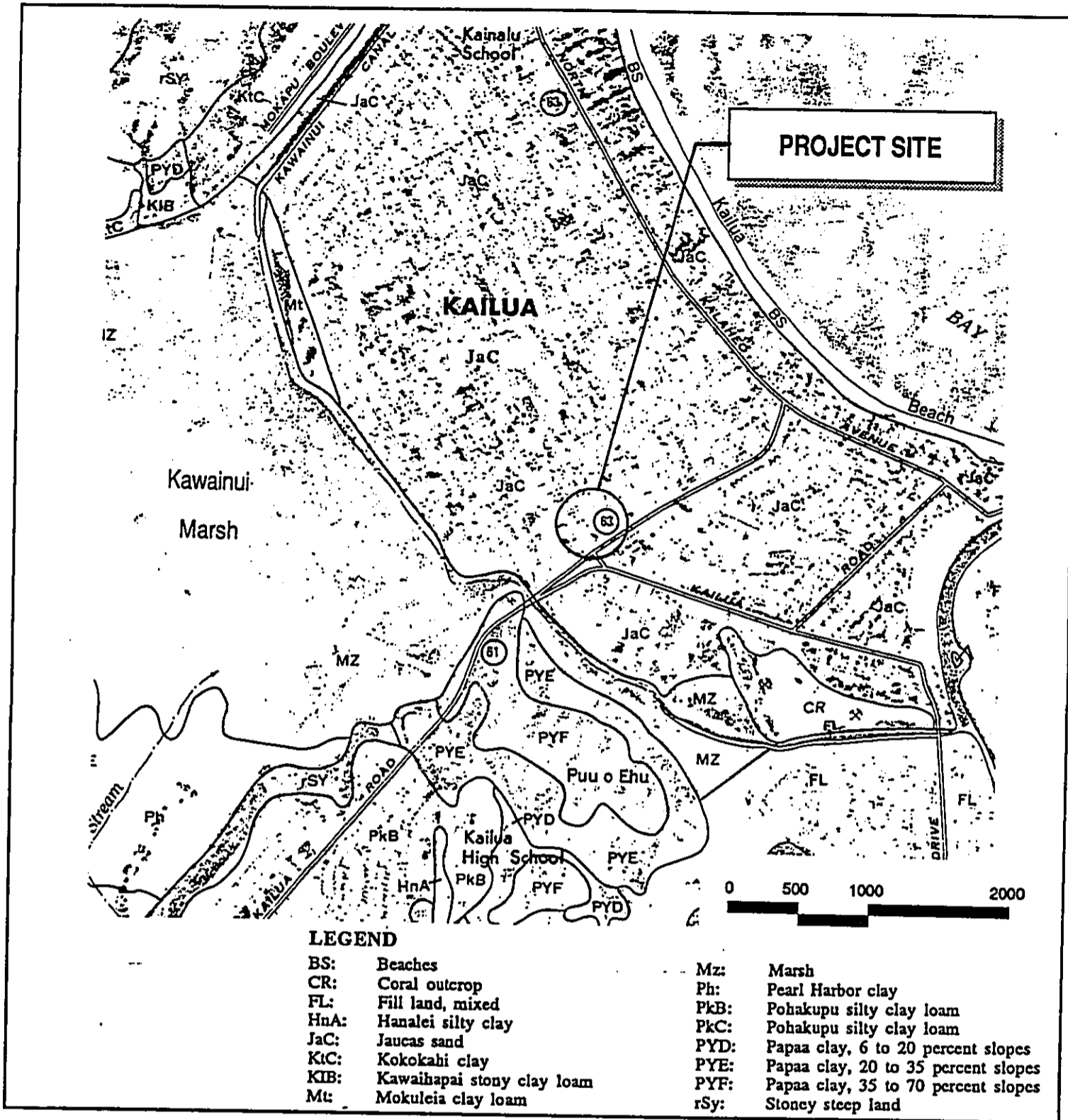
There are no natural water features on the existing property. Groundwater was encountered in borings at depths ranging from 8.3 to 9.2 feet below existing grade (Ernest K. Hirata & Associates, Inc.).

2. Flood

According to the Flood Insurance Rate Maps (FIRM) for the City & County of Honolulu, the project site is located in Zone X, or "Other Areas" determined to be outside of the 500-year flood zone as designated by the Federal Emergency Management Agency (FEMA) in September 1987 (Figure 7). The project location is not expected to be susceptible to flood hazards.

3. Tsunami Inundation

The project site is not located within the vulnerable inundation area as determined by the Civil Defense "Tsunami Inundation Maps". The inundation zone includes the area which is makai of Kainalu Drive (Hawaiian Telephone Company, 1990).



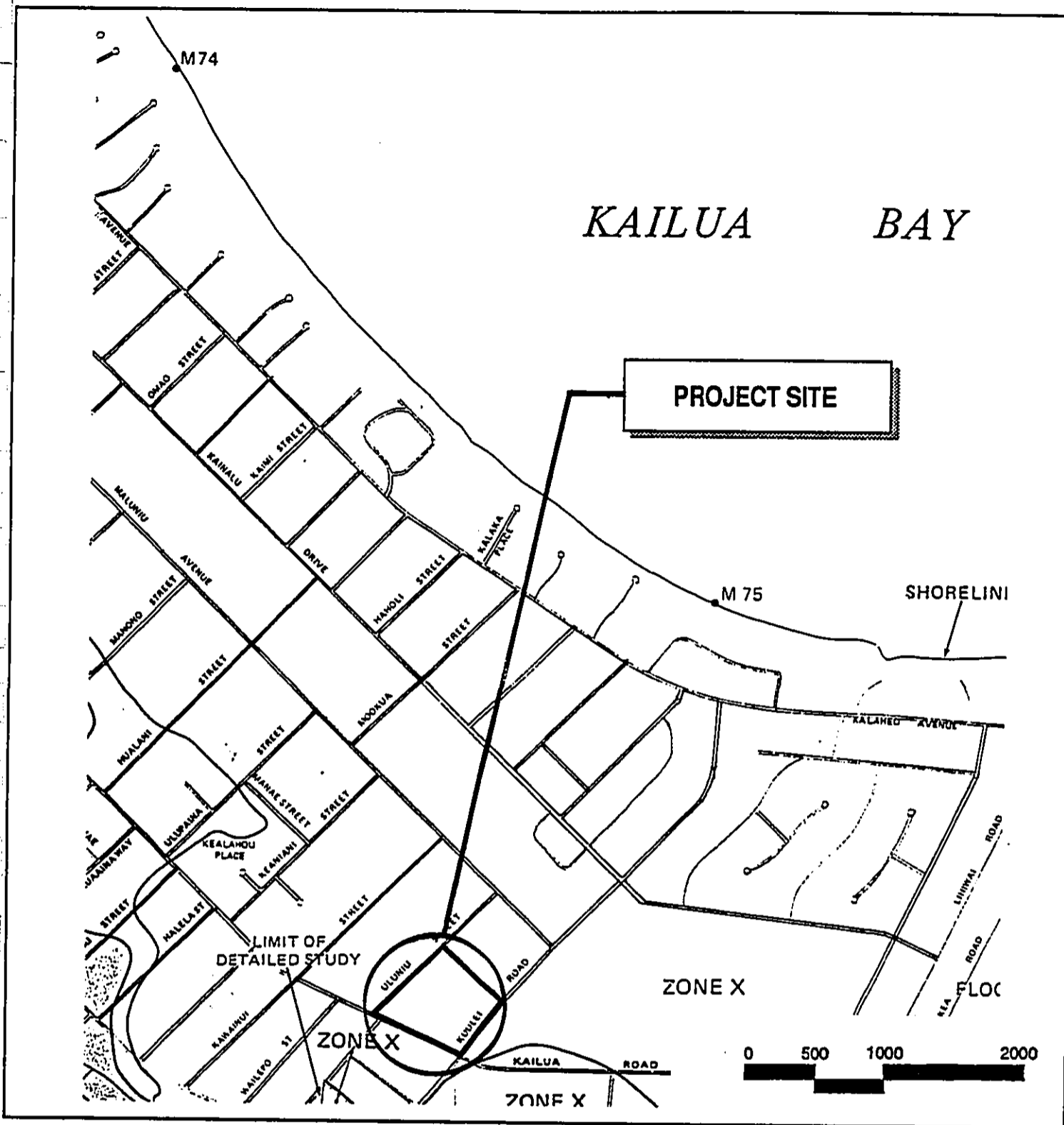
**Figure 6
Soils Map**

Source: Soil Survey of the Islands of Kauai, Oahu, Maui,
Molokai, and Lanai. State of Hawaii by United States
Department of Agriculture Soil Conservation Service (SCS)
August 1972.

Kailua Elderly Housing Project
Department of Housing and Community Development



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**Figure 7
Flood Insurance Map**

Source: Flood Insurance Rate Map for City & County of Honolulu,
by Federal Emergency Management Agency (FEMA), Sept. 1987

Kailua Elderly Housing Project

Department of Housing and Community Development



Partners, Inc.

4. Drainage

Runoff from the site currently drains into three catch basins on the site which are part of the larger City drainage system beneath Oneawa and Uluniu Streets and Kuulei Road (Figure 5). A small portion of runoff from the site runs onto Aulike Street which has two catch basins at the intersection with Uluniu Street and Kailua Road. The runoff from the project site is subsequently directed into Kawainui Canal, Kaelepulu Stream and ultimately to the ocean.

The proposed project will not decrease the available percolation area because the site is already completely paved.

D. Traffic

1. Transportation Availability

The site has vehicular access from Aulike and Oneawa Streets and pedestrian access from Kuulei Road and Uluniu Street. The site is well served by the City's bus system, with buses on Routes 65 and 57 departing for downtown Honolulu on Kuulei Road, Kailua Road and Oneawa Street every 11 minutes. In addition, the meeting room/meal facility will be served by a private van service that accommodates seniors not served by the public bus system.

2. Area Roadway System

The following narrative on existing traffic conditions summarizes the findings of the traffic study prepared for the project. The study titled, "Traffic Impact Assessment for the Proposed Kailua Elderly Housing" prepared by the Traffic Management Consultant is included as Appendix B.

Kailua Road is a four to six lane arterial roadway, providing the primary access to Kailua Town. At Oneawa Street, Kailua Road turns westward. The intersection of Kailua Road, Kuulei Road, and Oneawa Street is signalized. Kuulei Road continues in the makai direction from Kailua Road. Kuulei Road is a two way, four lane, 64 foot wide roadway with on-street parking on both sides of the road.

Aulike Street is stop-controlled at Kuulei Road, forming a tee-intersection. Aulike Street is a two lane, two way, 40 foot wide roadway with on-street parking on both sides of the road. The access driveways to two municipal parking lots form a four way, stop-controlled intersection on Aulike Street, about midway between Kuulei Road and Uluniu Street. The access driveway to the project site is a two way, two

lane roadway with no provisions for on street parking. Aulike Street forms a stop-controlled, tee-intersection with Uluniu Street.

Uluniu Street is a two lane, two way, 40 foot wide roadway with on-street parking on both sides of the road. Uluniu Street is a local road between Maluniu Avenue and Oneawa Street. Uluniu Street is signalized at its intersection with Oneawa Street and Kihapai Street.

Oneawa Street is a two way, two to five lane roadway between Kailua Road and Uluniu Street. Oneawa Street is major collector road between Kailua Road and Mokapu Boulevard.

3. Traffic Volumes and Conditions

The field investigation was conducted during the week of January 28, 1991. All public and private schools were in session during this period. A peak period traffic count survey was conducted between the hours of 7:00 AM and 9:00 AM and 3:30 PM and 5:30 PM within the study area. Additional traffic count data on Kailua Road were obtained from the State Department of Transportation.

4. AM Peak Hour Traffic Analysis

The AM peak hour of traffic generally occurs between 7:15 AM and 8:15 AM. In general, the traffic circulation in the study area operates at satisfactory Levels of Service during the AM peak hour of traffic. The left turn from Aulike Street to makai bound Kuulei Road operates at Level of Service (LOS) "E" on a Level of Service scale of "A" to "F" (see Appendix B). The left turn movement from makai bound Kuulei Road to Aulike Street operates at LOS "D". Left turn volume demand exists under AM peak hour conditions for a left turn lane on makai bound Kuulei Road at Aulike Street. However, field observations indicate that the existing traffic signal at the intersection of Kuulei Road and Maluniu Avenue creates adequate gaps in traffic for the left turn movement.

5. PM Peak Hour Traffic Analysis

The PM peak hour traffic generally occurs between 4:15 PM and 5:15 PM. During the PM peak hour traffic, the overall traffic circulation in the study area operates at satisfactory Levels of Service. The left turn from Aulike Street to makai bound Kuulei Road operates at LOS "E". Left turn volume demand exists under PM peak hour conditions for a left turn lane on makai bound Kuulei Road at Aulike Street. Furthermore, the PM peak hour traffic demands at the intersection of Kuulei Road and Aulike Street satisfy peak hour volume justification

for a traffic signal, according to the Manual on Uniform Traffic Control Devices (MUTCD). As discussed previously, the existing traffic signals at intersections adjacent to Aulike Street on Kuulei Road create adequate gaps in traffic to allow Aulike Street traffic to turn into Kuulei Road.

The intersection of Kailua Road, Kuulei Road, and Oneawa Street operates at an overall LOS "C", however the makai bound approach of Kailua Road and through movements on Kuulei Road and on Oneawa Street operate at LOS "D" during the existing PM peak hour of traffic.

E. Ambient Air Quality

The air quality monitoring station nearest to the project is in Waimanalo. The annual range of total suspended particulates in 1989 was 16 to 82 micrograms per cubic meter with an arithmetic average of 29. (1989 Data Book, Table 153).

An air quality consultant retained for the project indicated that based on projected traffic impacts, the project will have no measurable long-term impact on the air quality in the area (Appendix C).

F. Ambient Noise Environment

A noise impact study was prepared for the project by Y. Ebisu & Associates. This study, which is included as Appendix D, is summarized below and describes the existing noise environment.

1. General Methodology

Existing traffic noise levels were measured at four locations in the project environs to provide a basis for developing the project's traffic noise contributions along the roadways which will service the proposed development. Day and night background ambient noise levels at a fifth location in the center of the project area (existing parking lot) were also obtained. Noise measurements were performed during the months of December 1990 and January 1991.

2. Existing Noise Environment

The existing traffic noise levels in the project environs along Kuulei Road, Kailua Road, and Oneawa Street are in the "Significant Exposure, Normally Unacceptable" category along their Rights-of-Way. Along Uluniu and Aulike Streets, existing traffic noise levels are lower and in the "Moderate Exposure, Acceptable" category due to the lower volume of traffic on these two roadways. The project site is set back at least 100

feet from the four roadways, and is also partially shielded from roadway traffic noise by existing single and multistorey buildings. Because of this, existing roadway traffic noise on the project site is less than 65 Ldn, and in the "Moderate Exposure, Acceptable" category.

Dominant noise sources within the existing parking lot at Site "E" were vehicles within the parking lot. From the measurements at Site "E", the existing background ambient noise level at the center of the project site was estimated to be approximately 62 Ldn.

G. Existing Demand for Housing and the Social Environment

According to the State Department of Business and Economic Development and Tourism in 1979, it was estimated that the elderly population would expand by approximately 75 percent between 1980 and 2000. Furthermore, the United States Census in 1985 estimated that Hawaii's elderly population would increase from 10 to 20 percent by 2025. Consequently, a demand for elderly rental units currently exists and is expected to increase.

The overall demand for affordable rental units on Oahu is growing as new households are formed and existing units are demolished or converted to condominiums while at the same time new construction of rental units has virtually ceased. Elderly households are less able to compete on the rental market because of low, fixed incomes. Over 2,000 elderly households are on State and County waiting lists for rental units or Section 8 rent subsidy certificates.

Approximately 60 percent of the proposed project's rental units will be made available to eligible elderly and/or handicapped households in the "low and moderate - income" and "gap group" categories. Specifically, these households are categorized as those earning less than 80 percent of the median income and between 81 and 120 percent of the median for the City and County of Honolulu, respectively. Priority will be given to elderly households. The remaining 40 percent will be offered for rental at market rates.

The project's objectives were oriented toward the development of the optimum configuration of residential expression for the proposed housing project. They included:

- Creation of an attractive, securable setting with a new residential atmosphere;
- Creation of harmonious physical and functional relationships with adjacent businesses;

- Establishment of efficient pedestrian and vehicular circulation patterns;
- Creation of efficient relationships with adjacent public roadway and sidewalk systems.

A social-economic impact study was prepared by Community Resources, Inc. for the proposed project. A summary of the existing social characteristics of the area is presented below. The study is also included as Appendix E.

1. Demographic Characteristics

Kailua is a suburban bedroom community with most local employment in supporting retail and service sectors. It can be characterized as a stable or mature market for commercial activities without growth opportunities typical of rapidly developing communities. The population and housing supply of Kailua have grown slowly over the past decade, primarily due to lack of developable urban land and City Development Plan policies directing growth to Leeward and Central Oahu. The average annual growth rate of the Total Study Area (the Kailua Neighborhood Board area) was significantly lower than that of Honolulu County as a whole. According to City estimates, the study area experienced an annual average growth rate of 0.5% for the period from 1980 to 1988. The average annual growth rate for the County was 1.2% over the same period.

According to the 1980 Census data, Kailua's overall population is predominantly Caucasian (74.9%) who are likely to be long time Hawaii residents or to have moved to Hawaii from the Mainland. They generally have higher levels of education and are employed in the professional fields. There was also a higher percentage of Hawaiians, and a lower percentage of Japanese, Chinese, and Filipinos compared to the County. On the other hand, the Primary Study Area (which includes the project site) was found to have residents with a lower income, were less likely to own their home had received less education.

2. Family Households

Residents of Kailua were generally more likely to live in "traditional" family households and enjoyed a significantly higher median family income. Compared to other Oahu residents, a significantly higher percentage of Kailua residents were home owners. Homes in Kailua were generally in better condition than elsewhere on the island.

H. Economic Characteristics

Kailua's supporting retail and service activities are located in neighborhood shopping centers and strip developments. The largest employer in the area is the Kaneohe Marine Corps Air station which has a significant impact on local business activity. Other significant local employers include the Castle Hospital and Hawaii Loa College. Most businesses are small "Mom and Pop" operations.

Kaneohe Ranch is the largest landowner in the area. A significant portion of the downtown Kailua area is leased from the Kaneohe Ranch, with many leases expiring by 2005. Uncertainty about the future of those leases has led to a slowdown in renovation and redevelopment activity for leased properties.

I. Flora/Fauna

The project site is located within a highly urban area which is essentially devoid of any notable vegetated or natural environments. Six mature monkeypod trees, two shower trees, and one Kamani tree which are located on-site will be removed and relocated.

The vegetated areas beneath the monkeypod trees contain grass and noxious weedy species. No rare or endangered species are located on the project site.

No native animals were observed on the project site but common native bird species, such as: cardinal, barred dove, mynabird, house sparrow and golden plover have been observed in the limited vegetated areas. These are common birds found throughout the urban areas of Honolulu. The site is not expected to be a habitat for any rare or endangered species of avifauna. Other fauna may include stray dogs, cats, rodents and common insects.

J. Historical or Archaeological Resources

1. Historical Overview

A historical overview of the Kailua area was prepared by Community Resources, Inc. in the report Social and Economic Impacts of the Proposed Kailua Elderly Housing Project. A historical summary of the area through the 1900's is presented below.

In Hawaiian times, the ahupua'a of Kailua had a population of more than 1,500 and was the site of extensive taro cultivation, the Kawainui and Ka'elepulu fishponds, and several heiau. During the 1780's, Kailua even served as the short-lived capital of the conqueror Kahekili from Maui (Mustapha, 1985).

During the nineteenth century, both sugar and pineapple plantations were attempted without success (Mustapha, 1985). However, rice and taro cultivation, especially in the vicinity of Kawainui, was fairly extensive in the last two decades of the century (Kelly and Clark, 1980).

In 1884, the Rice family -- inheritors of Judge Harris's extensive landholdings in the area -- leased its lands to Mendonca and Bolte, who began the Kaneohe Ranch Company.

The difficulty in traveling from Honolulu to Windward Oahu by steamer or along the Pali horse trail (built in 1845) retarded the growth of the area. In 1861, the trail was improved to accommodate wagon traffic, and further improved in 1898. Nevertheless, access to the region remained time consuming and difficult (Mustapha, 1985).

By the turn of the century, only a small population of fishermen, rice planters, and taro farmers lived in Kailua. Kawainui had by this time fallen into disuse as a fishpond and had become the location of numerous rice paddies, mixed with a few cash-crop farms (Kelly and Clark, 1980).

2. Archaeological Resources

The most significant archaeological and cultural site in the area is the Kawainui Marsh which is located approximately one quarter of a mile to the West. Kawainui Marsh has been the site of recent archaeological investigations which have uncovered evidence of habitation sites with occupation dates of A.D. 700-900 likely. Ulupo heiau is beside the marsh and accessible by road. The State Historic Preservation Officer has also indicated that a subsurface archaeological site is present southwest of the project site across Kihapai Street, close to Kawainui Marsh. The cultural layer uncovered appeared to indicate a habitation site which yielded carbon dates of A.D. 1374 to 1630 and prehistoric artifacts.

The presence of archaeological or historical resources of significance in the project site was discussed with the State Historic Preservation Office of the Department of Land & Natural Resources. The nearest designated state monument is the Ulupo heiau located approximately one mile mauka of the project site. Office staff indicated that the project site has not been archaeologically surveyed and that there was a possibility of finding subsurface remains. Given the proximity of the recently uncovered site on Kihapai Street, subsurface archaeological investigations will be conducted as recommended by the State Historic Preservation Officer. An archaeologist will be present during the surface clearing activities and will subsequently conduct subsurface

tests. If archaeological resources are found during testing or construction, the Preservation Office will be notified, construction will be halted, and appropriate survey and mitigation will be conducted.

K. Utilities

1. Water

Although there is no water service to the site, piping for two adjacent lots (TMKS: 4-3-55: 10 & 17) is located within the parcel. The two lots are landlocked; therefore, provisions will be made to continue water services to the lots.

The proposed project will generate an average daily potable water demand of approximately 32,000 gallons per day. Connection to a 12-inch water line on Aulike Street will be made through a 3 1/2 inch line. This figure is based on consumption of 400 gallons per unit (80 units) per day. The project engineers have programmed a cold water fixture capacity of approximately 165 g.p.m. The Board of Water Supply has indicated that sufficient capacity is available for the proposed development.

2. Electricity

Hawaiian Electric Company, Inc. will provide residential electrical service to the project area via overhead powerlines. The existing electrical system is expected to accommodate the new development. The applicant will work closely with Hawaiian Electric Company, Inc. to ensure that timely service can be provided. The electrical system within the development will be built to County standards.

It is expected that the design and construction of the proposed facility will incorporate energy saving designs and devices in order to reduce operating costs. Heat pumps are presently being explored as a means of promoting energy conservation and independence. The residential units are designed to take advantage of the natural tradewinds and ambient light. Provision will be made for optional window mounted air conditioning units.

3. Telephone

Overhead telephone lines are available along the streets bordering the project site and will adequately meet the demands of the proposed development. The proposed project will be provided with underground telephone service. When the project enters the design phase, DHCD or its consultant will coordinate the facility relocation

requirements with GTE Hawaiian Tel (formerly Hawaiian Telephone). The applicant will consult with GTE Hawaiian Tel to assure that telecommunication services are available in a timely manner.

4. Gas

Gas service is available from Pacific Resources, Inc. A two-inch (2") utility line is located on Oneawa Street as well as the roadway leading into the existing parking lot from Oneawa Street. A central meter with a one-inch (1") service line is located nearby.

5. Wastewater

The Department of Public Works has indicated that the proposed development may hook up to the City sewer system. The sewage will be treated at the Kailua Sewage Treatment Plant on Kaneohe Bay Drive. Treated sewage is subsequently pumped out to Kailua Bay.

The proposed project will generate 18,000 gallons of wastewater per day assuming a household size of 1.5 persons and per capita consumption of 150 gallons per day. A sewer line connection will be made through an 8-inch line to Oneawa Street.

6. Solid Waste

The proposed project will be served by the City's twice weekly refuse collection service if it meets Department of Public Works design criteria. Otherwise the project will be served by a private collection service.

7. Drainage System

Runoff from the site currently drains into two catch basins on the site which are part of the larger City drainage system beneath Oneawa and Uluniu Streets and Kuulei Road. A small portion of runoff from the site runs onto Aulike Street which has two catch basins at the intersection with Uluniu Street and Kailua Road. The runoff from the project site is subsequently directed into Kawainui Canal, Kaelepulu Stream and ultimately to the ocean.

The proposed project will not decrease the available percolation area because the site is already completely paved.

L. Public Facilities

1. Schools

The Project's impact on school enrollment is not generally applicable to the proposed elderly housing development; however, the Department of Education Continuing Education program for adults offers courses at Windward Community School on Iliaina Street.

2. Parks

The project site is conveniently located close to the Kailua Field on Kuulei Road. The facilities available include:

- Recreation Building
- Basketball Courts (2)
- Volleyball Courts (3)
- Tennis Courts (8)
- Baseball Fields (3)
- Football Field
- Swimming pool
- Children's Play Apparatus
- 141 Parking Stalls

Other recreational resources located within the vicinity include: the Kaelepulu Playground and the extensive beaches along the Kailua Coast. Kailua Beach Park is located approximately 1 1/2 miles away and the Mid Pacific Country Club is also located in the vicinity.

Classes and other activities for residents and visitors may be provided in the meeting room/meal facility. Also, the landscaped, on-site mini-park will serve as a passive activity area.

3. Police

The Kailua Police Station is located on Kuulei Road about one block away from the project area. It provides coverage in the Kaneohe-Kailua area with an average response time of 7 to 10 minutes. Based on the Department's criteria of 2.1 police officers per one thousand populace, no additional personnel or change in beat boundaries would be required.

4. Fire

The Kailua Fire Station Number 18 is located next to the police station on Kuulei Road. It consists of one engine and one ladder, with

supporting services from the Kaneohe Station. The response time within the Kailua area is 3-5 minutes.

5. Medical Facilities and Emergency Services

Castle Hospital is the nearest full service hospital to the project site. It is located approximately 1 1/2 miles from the proposed facility and is easily accessible through Kailua Road. Other medical services are conveniently located throughout the downtown Kailua area and adjacent to the project site. Emergency medical service is available at the Kailua Fire Station.

6. Library

Kailua Library is located on Kuulei Road approximately one block from the project site.

7. Post Office

A post office is located nearby on Hahani Street approximately one block from the project site.

CHAPTER IV
PLANS, POLICIES, AND CONTROLS

IV. PLANS, POLICIES AND CONTROLS

A. Federal

Section 106 of the National Historic Preservation Act requires Federal agencies to consider the effects of their actions on historic properties and seek comments from the Advisory Council on Historic Preservation. Section 106 is not only concerned with historic preservation but also in unmitigated loss of property. Since the Kailua Elderly Housing project will be partly funded with Community Development Block Grant funds, it is subject to the Section 106 process.

A Coastal Zone Management consistency determination was requested for the subject project. Coordination with the Coastal Zone Management Program was maintained during the EIS process and it was determined that a permit was not required.

B. State

1. Hawaii State Plan

The Hawaii State Plan was developed to serve as a guide for future development in the areas of population growth, economic benefits, enhancement and preservation of the physical environment, socio-cultural advancement, facility systems maintenance and development. The Plan identifies, in general, the goals, objectives, policies and priorities for the long-range development of the State. It is a tool for dealing positively with change. Several objectives and policies would be supported and furthered with the implementation of this project. These policies are listed below.

- Individual and family self-sufficiency
- Social and economic mobility
- Community and social well-being

- Population, H.R.S., Section 226-5

The proposed project will achieve the population objectives by increasing and encouraging the physical, social and economic opportunities for the elderly population in the State of Hawaii.

- Economy, H.R.S., Section 226-6

This project will create construction activity resulting in additional employment opportunities on Oahu. Adjacent businesses may benefit in the long run from the new residents of the proposed project.

- Housing, H.R.S., Section 226-19

This policy directly reflects the intent of the proposed project and is consequently the most applicable directive. In this respect, the following policies and objectives are detailed as follows.

H.R.S., Section 226-19 (a) (1)

Greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary homes located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals.

H.R.S., Section 226-19 (a) (2)

The orderly development of residential areas sensitive to community needs and other land uses.

H.R.S., Section 226-19 (b) (2)

Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income and gap group households.

H.R.S., Section 226-19 (a) (3)

Increase home-ownership and rental opportunities and choices in terms of quality, location, cost, density, style and size of housing.

H.R.S., Section 226-19 (a) (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.

H.R.S., Section 226-19 (a) (6)

Facilitate the use of available urban lands to accommodate the housing needs in various communities.

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H.R.S., Section 226-104 (b) (1)

Encourage urban growth primarily in 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 benefits are present, such as protection of valuable agricultural land or preservation of life style.

H.R.S., Section 226-104 (b) (5)

The project will address the need for affordable housing in the City and County of Honolulu by providing rental units to the elderly. The location of the project provides easy access to public facilities and services. It will be designed to take into account the physical setting, including visual and aesthetic amenities.

- Transportation, H.R.S., Section 226-17

The project is conveniently located near businesses, services and public transportation. This location of the project in the central business district of Kailua will minimize the need for vehicular transportation since many services are located nearby. Special handi-van services will be provided to accommodate the physically handicapped.

- Energy/Utilities, H.R.S., Section 226-18

Conservation methods including the siting of buildings to take advantage of prevailing winds and the use of shade trees to help shelter buildings will be used to reduce reliance upon air-conditioning. Energy efficient technology and design will be used wherever possible. This may include heat pumps and other energy management systems such as water flow control measures and the use of natural lighting. The proximity of the project site to personal and commercial/retail services will also reduce the need for vehicular transportation.

- Health H.R.S., Section 226-20

Adjacent to the proposed project are several medical services which can provide residents with the medical attention they need. In addition, security measures will be provided for the safety and security of the project's residents.

- Social Services, H.R.S., Section 226-22

The project provides an alternative to institutional care for the elderly by creating a small residential community in close proximity to stores, medical and transportation services.

2. Hawaii State Functional Plans

The 1984 State Legislature adopted 12 State Functional Plans which serve as the primary implementing vehicle for the goals, objectives and policies of the Hawaii State Plan. Functional plans that are relevant to the proposed project are described below.

- State Housing Plan

The high cost of living in Hawaii often puts the elderly group at a disadvantage in affording a house or an apartment. The proposed project will provide affordable rental units in close proximity to public facilities and services.

- State Energy Plan

The project is located in an easily serviceable area that is adjacent to existing commercial development. The general siting of the development will maximize access and minimize energy consumption. In addition, a pedestrian mall will be situated around the complex to provide a natural cooling system as well as for aesthetic value.

- State Health Plan

The plan's objectives & policies are intended to promote a safe and healthy environment by providing health services to persons which would otherwise be unavailable due to economic and geographical situations. The proposed project intends to comply with all applicable Department of Health rules and regulations as well as those established by the County.

- State Transportation Plan

The project site is conveniently located to many services and commercial areas. It is expected that the easy accessibility of these services to tenants should minimize the need for off-site transportation with personal vehicles.

C. City and County of Honolulu

1. General Plan

The General Plan for the City & County of Honolulu was adopted in 1977 and amended in 1987 by the City Council. The Plan's objectives and policies identify the long-range social, economic, environmental, and design objectives for the general welfare and prosperity of the people of Oahu. The 11 areas of concern are: 1) population, 2) economic activities, 3) the natural environment, 4) housing, 5) transportation & utilities, 6) energy, 7) physical development & urban design, 8) public safety, 9) health & education, 10) culture & recreation, and 11) government operations & fiscal management.

The Kailua Elderly Housing project fulfills the General Plan objectives to provide decent affordable housing adequately served by public utilities and in close proximity to employment, recreation and commercial centers. Careful design in siting the building to take advantage of Hawaii's year round moderate climate will meet the energy and physical design objectives.

The Project complies with the Plan's population distribution guidelines which designate Kailua as an urban fringe area. The 1988 census data listed Kailua as having 55,072 residents. By the year 2010, it is expected to increase to 109,900 - 121,900. Kailua's population will not be significantly affected by the addition of an estimated 100 residents of the proposed project.

2. Development Plan

The Development Plan for the City & County of Honolulu provides a detailed framework for implementing the General Plan's objectives and policies on an area wide basis. There are eight Development Plans established on Oahu. The proposed project is located within the Koolaupoko Development Plan area that encompasses the area from Waimanalo to Kualoa.

The Koolaupoko Development Plan Land Use Map designates the project property "Public Facility" (PF), for public and quasi-public use development; however, the Plan allows limited apartment uses close to regional commercial and industrial centers (Figure 8).

The Koolaupoko Public Facilities Map shows no improvements to the site (Figure 9).

DHCD has secured City Council approval of certain exemptions from land use and development requirements for affordable housing projects under Section 201E-210, Hawaii Revised Statutes. The following list specifically identifies the exemptions approved:

- a. Land Use Map
Allow medium density apartment use for project site which is currently designated as a "Public Facility" on the Koolaupoko Land Use Map.
- b. Public Facilities Map
Designate site for "Government Building Modification".

3. Zoning

The immediate surrounding areas are zoned for residential and business uses. A zoning map of the project area is shown in Figure 10. The following exemptions will be requested from the Land Use Ordinance:

- a. Zoning Designation
Exemption from B-2 Community Business District to allow development to A-2 Medium Density Apartment standards.
- b. Height Limit
Exemption from the forty foot height limit to forty five feet for approximately 25 percent of the roof line.
- c. Off Street Parking
Exemption from standard parking requirements to allow lower stall percentage provisions. Specifically this involves the reduction of the off-street parking requirements to one parking stall per four units rather than the requirement for one stall for each dwelling of 600 square feet or less, 1.5 stalls for each dwelling unit between 600 feet and 800 square feet, or 2 stalls for each unit above 800 square feet.
- d. Park Dedication
Exempt the project from park dedication requirements which require 110 square feet of land or equivalent monies per residential unit.

D. Permits and Approvals

Permits and approvals required for the present stage of planning and design for the proposed project include acceptance of the Final Environmental

Impact Statement for the project. Ministerial construction related permits will be required before the commencement of construction.

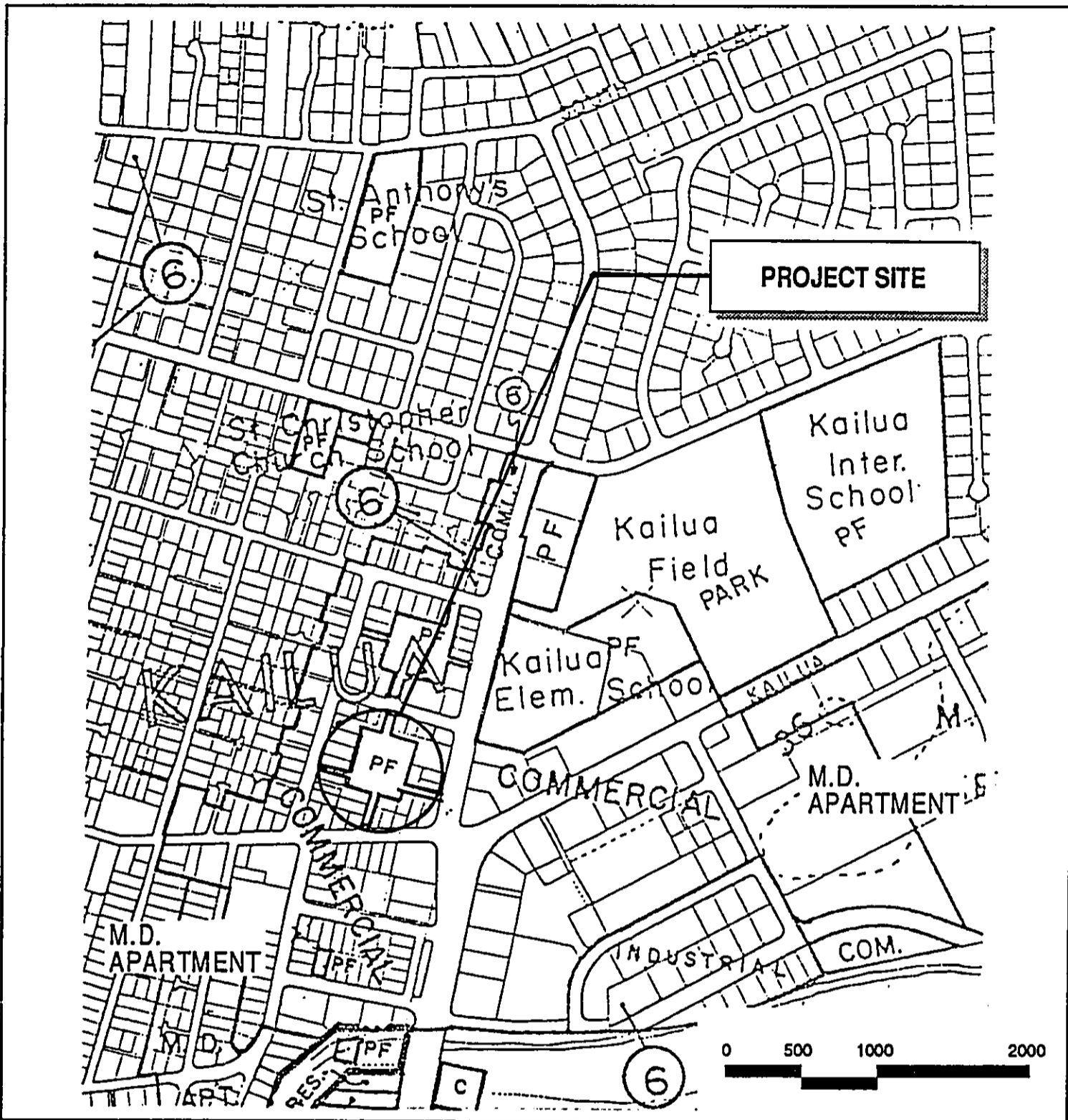


Figure 8
Development Plan Land Use Map,
Koolaupoko Planning Area Source: City & County of Honolulu (May 10, 1983)

Kailua Elderly Housing Project
Department of Housing and Community Development



Partners, Inc.

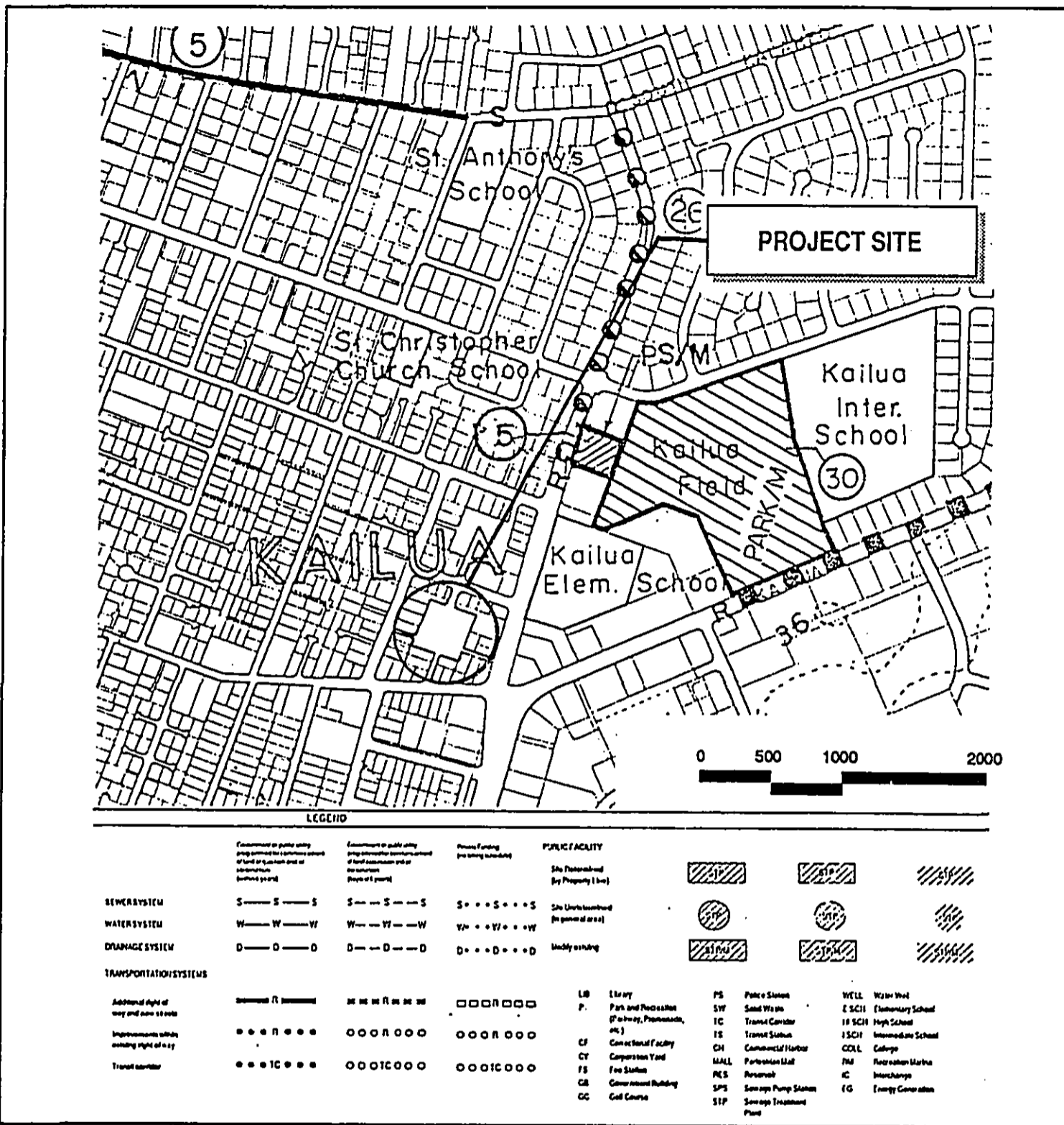
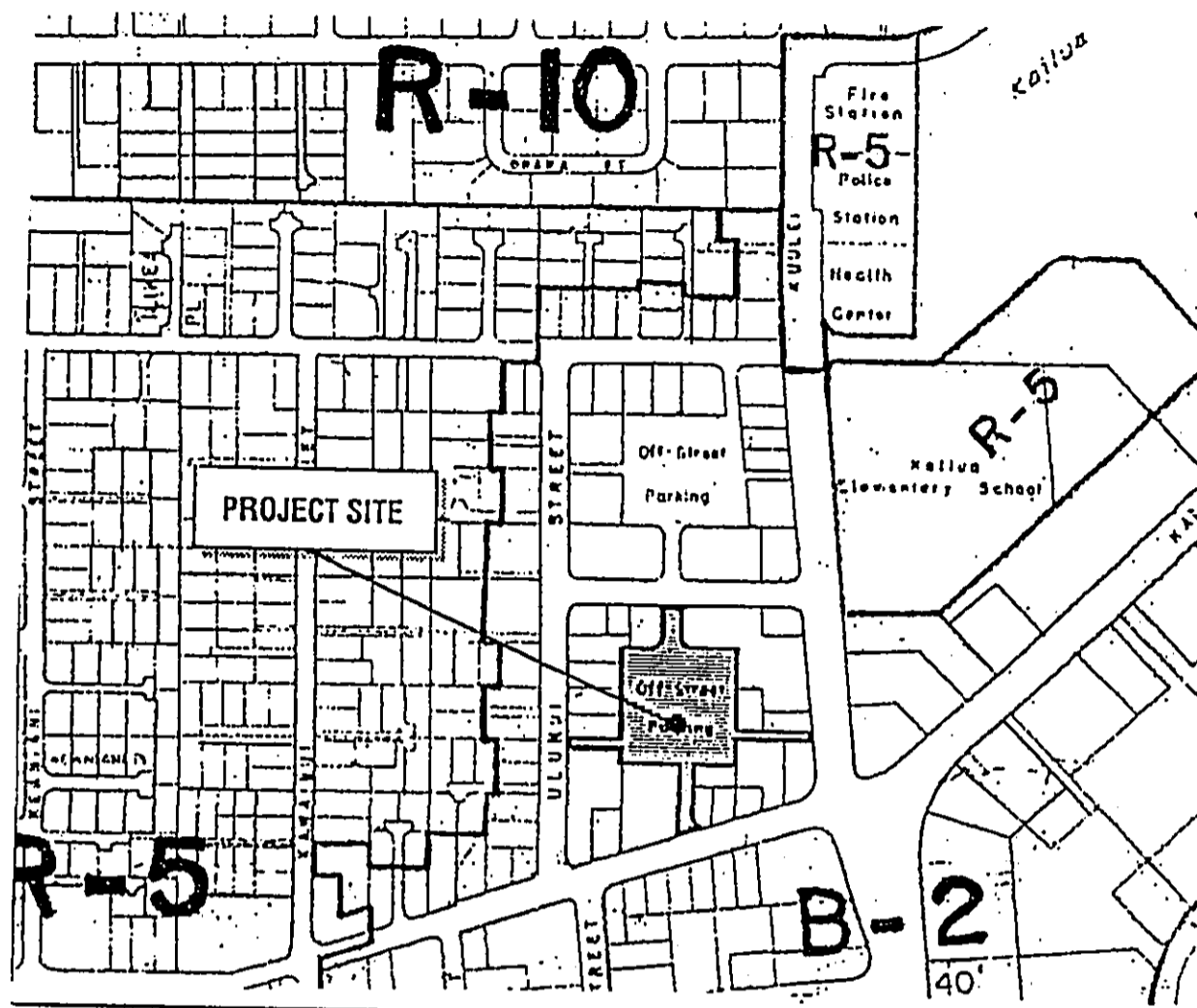


Figure 9
Development Plan Public Facilities Map,
Koolaupoko Planning Area Source: City & County of Honolulu (May 10, 1983)

Kailua Elderly Housing Project
Department of Housing and Community Development



Partners, Inc.



LEGEND

PRESERVATION ZONES

- P-1 Restricted
- P-2 General
- F-1 Military and Federal

RESIDENTIAL ZONES

- R-20 Residential
- R-10 Residential
- R-7.5 Residential
- R-5 Residential
- R-3.5 Residential

APARTMENT ZONES

- A-1 Apartment
- A-2 Apartment
- A-3 Apartment

APARTMENT MIXED USE ZONES

- AMX-1 Low Density
- AMX-2 Medium Density
- AMX-3 High Density

RESORT ZONES

- RESORT

BUSINESS ZONES

- B-1 Neighborhood Business
- B-2 Community Business

BUSINESS MIXED USE ZONES

- BMX-3 Community
- BMX-4 Central

INDUSTRIAL ZONES

- I-1 Limited
- I-2 General
- I-3 Waterfront

INDUSTRIAL MIXED USE ZONE

- IMX-1 Industrial Mixed Use

AGRICULTURAL ZONES

- AG-1 Restricted
- AG-2 General



HONOLULU CITY AND COUNTY DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

Figure 10
Zoning Map 23, Kailua to Keolu

Source: City & County of Honolulu (October 22, 1986)

Kailua Elderly Housing Project

Department of Housing and Community Development



Partners, Inc.

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CHAPTER V
SUMMARY OF MAJOR IMPACTS

V. SUMMARY OF MAJOR IMPACTS

A. Compatibility with Surrounding Environment

Kailua town is characterized as a small scale, highly urbanized environment. Typically, the setting around the proposed project is highly commercial with some apartment uses interspersed. A proliferation of food and beverage, medical, personal service, and retail uses are notable in the area. This results in a collection of diverse uses and services within a compact and easily accessible area.

The proposed elderly housing project will be centrally located within this environment. The project offers an opportunity to integrate the eclectic collection of building types in the area by providing unifying elements such as the park and walkway, extensive landscaping, and by serving as a focal point within the area.

The proposed development will have a roof line of 40 feet in height, (the LUO height limit) with 25% of the roof reaching 45 feet. Although this exceeds the height of some of the buildings immediately adjacent to the site, it is much lower than the high-rise Meridian East residential condominium across the street. There will be a buffer area around the development on all four sides of the property to provide a generous pedestrian walkway and to improve visual and functional relationships with neighboring properties. The buffer area will vary between 27 feet and 93 feet in width, considerably in excess of the required minimum B-2 yard setback of 5 feet or A-2 yard setback of 10 feet required by the City and County of Honolulu Land Use Ordinance.

The proposed project will involve an increase in density at the site; however, the open space will provide a visual relief for residents and neighbors.

There are no unwarranted risks from man-made hazards such as inadequate separation of pedestrian and vehicular traffic, or presence of hazardous materials in the surrounding area.

B. Unique Natural Features

There are no unique natural features or agricultural lands that would affect or be affected by the proposed development.

There is no evidence of unusual topographic features on the project site that could produce risks from natural hazards such as geologic faults, flash floods, volcanic activity, mud slides and fires.

C. Water Resources

1. Natural Water Features

No natural water features are located on the project site. The closest identifiable water resource is the Auwina Stream which is located approximately two blocks to the west. Auwina Stream is fed by the Kawainui Marsh located directly mauka of the stream. Through natural processes, both the stream and marsh are filling with silt. Because of their locations, neither will be affected by the proposed project.

2. Wetlands Protection

The proposed project does not affect any wetlands and does not require a Federal Wetlands Permit. The Kawainui Marsh, which is located approximately 1,500 feet to the west, will not be affected by the project. Drainage and sewage generated by the project will be serviced by the Kailua Sewage Treatment Plant.

3. Coastal Zone Management

The project site does not lie in the Special Management Area designated by the Department of Land Utilization under Chapter 205A, Hawaii Revised Statutes, relating to Coastal Zone Management. The closest area subject to Chapter 205A is the Kawainui Marsh.

D. Traffic

The following traffic study was prepared by The Traffic Management Consultant based on the most current information available in the month of February 1991, and is included as Appendix B. Briefly, the proposed project is not expected to significantly impact traffic conditions in downtown Kailua. An analysis of the results of this study is presented below.

1. Site Generated Traffic

The trip generation analysis is based upon 84 elderly housing units. The proposed project is expected to generate 343 vehicle trip ends during the average weekday. During the AM peak hour of traffic of adjacent street traffic, the project is expected to generate 15 vehicles per hour (vph), 9 vph entering and 6 vph exiting the site. During the PM peak hour of traffic, the project is expected to generate 22 vph, 10 vph entering and 12 vph exiting the site. According to the Institute of Transportation Engineers (ITE) recommended guidelines for traffic impact studies, the trips generated by the proposed project are not

considered to be significant. Table 1 in Appendix B presents the trip generation characteristics for the proposed project.

2. Total Traffic Volumes Without Project

With only a 1% growth in traffic projected for the Year 1993, the traffic operations will not change significantly over the existing condition. Left turn volume demand exists under peak hour conditions for a left turn lane on makai bound Kuulei Road at Aulike Street. A demand on traffic signals exists at the intersection of Kuulei Road and Aulike Street.

3. Traffic Impacts

The traffic generated by the proposed project does not significantly affect traffic operations within the study area, with one exception. The left turn from Aulike Street to makai bound Kuulei Road would operate at LOS "F" during the AM peak hour of traffic.

Traffic operations within the study area generally operate at satisfactory LOS. The growth in traffic since 1980 have been relatively stable, growing at only 0.5% per year.

The proposed Kailua Elderly Housing Project is not expected to have a significant impact on traffic on the surrounding roadways. The increase in traffic resulting from the proposed project is not expected to be perceivable by the average motorist. The proximity of the project site to bus service, restaurants, shopping opportunities, and health services encourage non-automobile modes of transportation.

E. Air Quality

The following air quality study was prepared by B.D. Neal & Associates during the month of February 1991 based on the most current plans available at the time, and is included as Appendix C. Air quality impacts are generally identified as short-term construction related or long-term impacts resulting from the operation of the project. A summary of these impacts are presented below.

1. Short Term Construction Related Impacts

Short-term direct and indirect impacts on air quality could potentially occur due to project construction. For a project of this nature, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during project construction: (1) fugitive dust from demolition work and from vehicle movement and

soil excavation; and (2) exhaust emissions from site construction equipment. Indirectly, there also could be short-term impacts from slow-moving construction equipment traveling to and from the project site and from a temporary increase in local traffic caused by commuting construction workers.

Fugitive dust emissions may arise from the demolition and removal of existing structures on the site and from the grading and dirt-moving activities associated with site preparation once the area is cleared. The emission rate for fugitive dust emission from construction activities is difficult to estimate accurately because of its elusive nature and because the potential for its generation varies greatly depending upon the type of soil at the construction site, the amount and type of dirt-disturbing activity taking place, the moisture content of exposed soil in work areas, and the wind speed. The U.S. EPA has provided a rough estimate for uncontrolled fugitive dust emissions from construction activity of 1.2 tons per acre per month under conditions of "medium" activity, moderate soil silt content (30%), and precipitation/evaporation (P/E) index of 50. Uncontrolled fugitive dust emissions in the project area would likely be somewhat lower because the PE index for the Kailua area is probably greater than 50 due to the relatively wet climate. In any case, State of Hawaii Air Pollution Control Regulations prohibit visible emissions of fugitive dust from construction activities at the property line. Thus, an effective dust control plan for the project construction phase is essential.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts. The largest of this type of equipment are usually diesel powered. Nitrogen oxide emissions from diesel engines can be relatively high compared to gasoline powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

Indirectly, slow-moving construction vehicles on roadways leading to and from the project site could obstruct the normal flow of traffic to such extent that overall vehicular emissions are increased, but this impact can be mitigated by moving heavy construction equipment during periods of low traffic volume. Likewise, the schedules of commuting construction workers can be adjusted to avoid peak hours in the project vicinity. Thus, most potential short-term air quality impacts from project construction can be mitigated.

2. Long-Term Impacts

After construction, long-term impacts on air quality from automotive exhaust can potentially occur at or near any facility that attracts large volumes of vehicular traffic as a result of day-to-day operations and use. Traffic projections indicate that this project will generate at most a net increase of only 1 to 4 percent in intersection approach volumes in the vicinity of the project. Given the small traffic impacts that are expected as stated in the Traffic Report, it was stated without reservation that the proposed project will have no measurable long-term impact on air quality in the area.

The completed project will include a parking garage with 167 parking stalls. A truck loading stall will be located adjacent to the parking structure. Compared with the existing parking lot design capacity of 146 stalls, this will constitute an increase of 22 stalls, with some resultant increase in automobile emissions.

F. Noise

The noise impact consultant, Y. Ebisu & Associates, has conducted a study based on plans current at that time, in February 1991, which concluded that the proposed development is not significantly expected to increase existing noise levels. The following is a summarization of the noise quality study which can be found in Appendix D.

1. Future Traffic Noise Environment

Projections of the combined effects of future project and non-project traffic noise levels on the roadways which would service the project are predicted to increase by less than 0.2 dB during the AM peak hour along all streets in the project environs. These predictions assume that average vehicle speeds and traffic mix will not change significantly from current conditions. The dominant traffic noise sources in the project area will continue to be general traffic noise along Oneawa Street, Kuulei Road, and Kailua Road, but the predicted increases in the levels of these noise sources following project build-out are not expected to be significant.

The increases in traffic noise along Oneawa Street, Uluniu Street, Kuulei Road, and Kailua Road attributable to project traffic are predicted to be less than 0.1 Ldn and therefore insignificant. An increase of 0.12 Ldn is expected from project traffic on Aulike Street. This level of increase is also considered to be insignificant. Total traffic noise levels along Aulike Street are expected to be similar to existing

levels, and traffic noise increases attributable to project traffic will be difficult to measure.

Calculations of future traffic noise levels at potential residential units of the project were performed based on available plans. The project site is set back at least 100 ft from the four roadway segments which border the general project area, and the project site is also partially shielded from roadway traffic noise by existing one and two storey buildings. Because of this, existing roadway traffic noise on the project site is less than 65 Ldn, and in the "Moderate Exposure, Acceptable" category. Additionally, CY 1993 traffic noise levels are expected to be essentially the same as at existing levels. There will continue to be adequate setback of the project's residential units from the centerlines of the nearby roadways such that FHA/HUD noise standards can be met. Because of this, impacts from traffic noise are not anticipated at the project's dwelling units.

2. Project-Related Noise Impacts

a. Parking Garage and On-Site Sources

The parking garage is expected to be separated vertically from the residential units. The parking garage will occupy the first two levels, while the residential units will occupy the upper levels. This vertical separation should be adequate to minimize potential noise conflicts between the parking garage and the project residential units. Audible tire squeal noise from the circulation and parking areas of the project are possible at the neighboring properties.

Mechanical equipment, such as air conditioning equipment, bathroom and kitchen exhaust fans, and garage ventilation fans are the primary on-site noise sources which may be located on the project site. Noise levels generated by this equipment must comply with State and County noise limitations. This equipment, singly or together, could exceed the allowable property line noise limits of the State DOH noise regulations. The State DOH noise limits which apply along the property boundaries of apartment or business districts are 60 dB and 50 dB during the daytime and nighttime periods, respectively. Noise levels of untreated mechanical equipment may be higher than these limits, thus requiring sound attenuation treatment for compliance with DOH regulations. In addition, Compliance with the Octave Band limits as contained within Honolulu's Land Use Ordinance (Section 3.100) will be required. Because the residual background ambient noise levels in the project area are similar to the State DOH noise limits, compliance with the DOH noise limits should minimize risks of adverse noise impacts on neighboring properties and within the project area.

b. General Construction Noise

Audible construction noise will probably be unavoidable during the entire project construction period. It is anticipated that the actual work will be moving from one location on the project site to another during the construction period. Actual length of exposure to construction noise at any receptor location will probably be less than the total construction period for the entire project.

The business establishments and apartment units within the neighboring buildings are predicted to experience the highest noise levels during construction activities due to their close proximity (within 100 ft) to the construction site. Adverse impacts from construction noise are not expected to be in the "public health and welfare" category due to the temporary nature of the work, and due to the administrative controls available for regulation of construction noise.

G. Social and Economic Impacts

A social and economic impact study prepared by Community Resources, Inc. during the month of March 1991 reviewed social, economic, and community concerns related to the proposed project. This was based on the most current plans available at the time the study was conducted. A brief summary of findings from this study is presented below. The study in its entirety is attached as Appendix E.

1. Social Impacts

a. Population & Demographic Changes

The project will increase the population of the Primary Study Area by providing 84 homes for an estimated 100 elderly and handicapped elderly persons, many of whom will have low to moderate incomes. Because of a fairly stable population, a population increase due to the proposed project is not expected to cause excessive stress on public services or facilities.

b. Neighborhood Use Patterns

During construction, existing patterns of recreation and entertainment, shopping, traffic flow, and parking will be affected. This is expected to last only for the period of construction.

After project completion, some vegetation and open space will have been removed, as well as views for some residents and workers in neighboring buildings. To compensate for this, project design elements will include an attractive, landscaped private park for project residents and the general public.

2. Economic Impacts

The proposed residential project is not expected to have any significant direct long-term economic impacts in itself. It is not expected that Kailua will experience short term economic gain from employment created during the construction period. Significant long-term economic gain is not expected, although some of the businesses adjacent to the proposed project may benefit from the new neighborhood population. Some construction related impacts on adjacent businesses may be experienced during the construction period and inconveniences experienced during this period can result in potential impact on business volume.

Since the project will be owned by the City and will provide low and moderate income rentals, a real property tax exemption will be requested.

a. Employment & Business Opportunity

The proposed project will provide approximately 65 full time jobs during construction and as many as eight jobs after the project is completed.

Surrounding businesses, especially those fronting the current parking lot, are likely to experience some temporary adverse impacts during construction. Business opportunities are expected to increase after project completion as a result of new patrons living in the project.

b. Income

The project will not increase personal and business income for either the State or the island of Oahu during construction or operation of the facility.

There may be a minor income increase for Kailua during the construction period due to the presence of construction workers.

c. Property & Business Values

Property owners are unlikely to suffer diminishment in property values in the long run as a result of the project construction, except for temporary diminishment during the construction period.

Business values could be affected both positively and negatively in the long run, depending on ability to respond to new marketing opportunities to retain their existing customer base.

d. Availability of Goods & Services

After project completion, availability of affordable housing for elderly and handicapped families and individuals will be increased and parking will be restored.

H. Vegetation and Animal Life

The project site is located within a highly urbanized environment which is almost devoid of any notable vegetation. The project site itself has limited vegetation consisting of trees, limited grass and noxious weedy species.

The site contains nine large trees which must be removed during construction. Some of these may be relocated in Kailua in accordance with the Kailua Street Tree Plan or the Kailua Urban Design Plan currently being undertaken by the Department of General Planning. Total project landscaping will consist of more vegetative planting than currently exists at the site.

Fauna located on site consist primarily of avifauna, feral cats, rodents, and insects. None of these groups are expected to be adversely affected although the rodents are considered to be nuisances.

I. Historic or Archaeological Resources

While the site contains no known historic or archaeological sites, DHCD, in conjunction with an archaeologist, will take due care in identifying significant subsurface deposits. Site clearing will be conducted in conjunction with archaeological monitoring and subsequent archaeological tests. Below grade construction will begin after archaeological excavations are completed and a DLNR determination of "no adverse effect" or an acceptable mitigation plan for identified sites is developed in consultation with the State Historic Preservation Division.

J. Utilities

The demand for infrastructure and utilities will increase with the implementation of the proposed project. Water, electricity, gas, telephone, sewage, and solid waste disposal services are available for the project and will be provided by the pertinent agencies and utility companies.

The Board of Water Supply has indicated that sufficient capacity is available for the proposed development. Hawaiian Electric Company, Inc. will provide residential electrical service to the project area via overhead powerlines. It is expected that the design and construction of the proposed facility will incorporate energy saving designs and devices in order to reduce operating costs. Overhead telephone lines are available along the streets bordering the project site and will adequately meet the demands of the proposed development. The Department of Public Works has indicated the proposed development may hook-up to the City sewer system. The proposed project will be served by the City's twice-weekly refuse collection service if it meets Department of Public Works design criteria.

K. Public Facilities

The proposed elderly housing development will not have an impact on school enrollment; however, the Department of Education Continuing Education offers adult courses at Windward Community College.

The demand for public facilities will increase with the addition of the project's tenants into the community. The project site is centrally located to a number of public services which will probably be frequented by the project residents or will enhance the sense of security and convenience for the project. These facilities include parks, police and fire protection, a library, post office, a hospital, and emergency medical facilities. All of these facilities are within convenient walking distance from the project site.

**CHAPTER VI
MITIGATION MEASURES**

VI. MITIGATION MEASURES

Impacts resulting from the implementation of the proposed project can be defined in two general impact categories: short-term construction-related impacts, and long-term impacts resulting from the operation of the subject action. The adverse impacts related to the proposed project will consist primarily of short-term impacts resulting from construction activities.

A. Short Term Impacts

1. Construction

Construction-related impacts such as dust, noise, and traffic will be mitigated by standard construction mitigation measures. Other construction related mitigation measures include controlled hours of operation to prevent excessive noise into the adjacent business and residential communities, and standard construction traffic management plans to prevent excessive construction related traffic. Construction barriers will also be implemented for safety and security reasons and will help mitigate noise, dust, and visual impacts.

For a project of this nature, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during construction period. They are fugitive dust and exhaust emissions from construction equipment. Dust control measures include frequent watering and dust screens to trap air-borne particulates. Equipment emissions associated with gasoline and diesel-powered engines are monitored on an annual basis and are not likely to be violated by short-term operations.

General construction noise is unavoidable, however, due to the temporary nature of the work and the administrative controls available for regulation of construction noise, the impacts are not expected to adversely affect public health and welfare.

2. Adjacent Businesses & Parking

The adjacent uses will experience some inconveniences during the course of construction due to a temporary loss of public parking stalls. The City has developed a parking proposal which would make additional on-street parking available. This will be supplemented by the renting of stalls from surrounding businesses and other public facilities for public parking.

Alternative parking sites are located within a one to two block radius and are easily accessible to and from the project area. The specific

locations of these sites can be found in Appendix F, which summarizes and tabulates the proposed Kailua Interim Parking Plan developed by the Department of Housing and Community Development in February 1991. The current Interim Parking Plan will provide approximately 113 parking stalls (104 parking stalls & 9 loading stalls) for public use and 22 stalls for construction workers. A general break-down is listed below:

- A total of 57 stalls will be provided at various private and public sites near the proposed project.
- 36 stalls will be located at the existing municipal parking lot.
- 20 stalls (14 parking and 6 loading) will be provided by means of on-street adjustments, metering, and loading zones.
- 22 parking stalls for construction workers will be located at private sites.

While the impacts cited will be unavoidable, all practicable means will be used to minimize and control these temporary disruptions. All construction will be subject to applicable Federal, State, and County rules and regulations.

B. Long Term Impacts

Long-term impacts resulting from the operation of the proposed project are expected to be predominantly positive since all public parking will be replaced, the general environment will be enhanced, and needed housing will be provided. Other long term impacts may include vehicular traffic, air, and noise conditions.

1. Traffic Conditions

Traffic operations within the study area generally operate at a satisfactory Level of Service. The growth in traffic since 1980 has been relatively stable, growing at only 0.5% per year.

The proposed Kailua Elderly Housing Project is not expected to have a significant impact on traffic on the surrounding roadways. The increase in traffic resulting from the proposed project is not expected to be perceivable by the average motorist. The proximity of the project site to bus service, restaurants, shopping opportunities, and health services encourages non-automobile modes of transportation, to these amenities by project residents.

No roadway improvements are recommended at this time. Future consideration should be given to a traffic signal installation at the intersection of Kuulei Road and Aulike Street to facilitate side street access and pedestrian crossings.

2. Air Quality

Construction-related air quality impacts consist primarily of fugitive dust. Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep demolition areas and bare-dirt surfaces in construction areas from becoming significant dust generators. Using wind screens may also be required. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials likely to give rise to airborne dust. Haul trucks tracking dirt onto paved streets from unpaved areas is oftentimes a significant source of dust in construction areas. Some means to alleviate this problem, such as tire washing, may be appropriate. Paving of parking areas and/or establishment of landscaping as early in the construction process as possible can also lower the potential for fugitive dust emissions.

The parking garage will be amply ventilated to reduce the infiltration of fumes to the residential units above the parking structure. Intake fans will supply fresh air to the lower level which will exit through stairwells, ramps and other openings. The upper parking level will rely on natural ventilation to remove fumes from the parking structure. The upper parking level will have at least 20 percent of the upper level wall area open, as required by State design guidelines, with a large portion of these openings facing the prevailing northeast trade winds. Infiltration of fumes to residential units through stairwell, elevator shafts and other openings will be avoided by designing the facility to avoid "chimney" effects. This would include the provision for an enclosure and doorway to the elevator located on the upper parking level.

3. Noise Environment

Risks of adverse noise impacts from the two-storey parking garage are possible if tire squeal noise is not controlled. Tire squeal noise can usually be controlled through the use of a brushed or other coarse finish on the circulation surfaces.

On-site mechanical equipment, such as air conditioners or garage exhaust fans may require sound attenuation treatment. Compliance with existing State Department of Health noise limits at the project's property boundaries should minimize risks of adverse noise impacts from on-site mechanical equipment.

There will be adequate setback of the project's residential units from the centerlines of the nearby roadways such that FHA/HUD noise levels can be met. Because of this, impacts from traffic noise are not anticipated at the project's dwelling units.

CHAPTER VII
ALTERNATIVES CONSIDERED

VII. ALTERNATIVES CONSIDERED

A. Higher Density Development Alternative

The Department of Housing and Community Development (DHCD) in 1973 proposed the development of a 12-storey structure containing 149 apartment units for low- and moderate-income elderly households. The proposal was withdrawn due to its incompatibility with existing community values and zoning code height limits.

B. Alternate Sites

The DHCD in 1989 proposed an 80-unit elderly rental project on the site. Business owners and other Kailua interests argued that other Kailua sites would be better suited to the development. After evaluating sites suggested by an ad hoc committee of the Kailua Neighborhood Board, on the basis of physical conditions, location, and availability, the City concluded that the parking lot site was the most feasible immediately available site.

Since then the DHCD has evaluated thirteen other alternative sites but few met the following nine pre-requisites.

1. The site must be available within six months.
2. The site must be capable of housing a minimum of 75-80 units for the elderly.
3. The site must be conveniently located to public transportation lines, medical services, and essential services (eating, shopping and post office), which were deemed desirable by the Ad Hoc Site Selection Committee and the seniors.
4. City-owned property is more desirable than privately-owned or state-owned property due to budgetary constraints.
5. Existing sewer and water systems should be able to support proposed development.
6. Soils at the site must be suitable for development.
7. The slope of the site must be suitable for development without special architectural or engineering considerations.
8. An absence of land use restrictions is desirable.

9. Development of the site must not displace residential or established community uses.

A brief description of other sites considered are presented below. Reasons which prevented further consideration of each site follows the description.

1. Castle Hospital is willing to exchange its two acre vacant field (Tax Map Key: 4-2-51:4) for State lands abutting Kawainui Marsh. If the City develops the field site with sufficient commercial space for Castle Hospital needs, the amount of State land required for the exchange could be reduced. The City is evaluating this site for its potential as an additional affordable housing site due to its accessibility to medical services and the bus line.
 - The site is not likely to be available within six months.
 - The estimated development time is estimated to be over three years.
2. Private land owners offered to donate eight acres (Tax Map Key: 4-2-4:45) of their 15-acre parcel in return for rezoning of 15 subdivided lots. This site is located on Akiohala Street on the hillside makai of Enchanted Lake.
 - The site is located on steep terrain.
 - The site is not easily accessible to services, which are located about 1.3 miles away.
 - The soil is not well suited for development.
3. Four lots (Tax Map Keys: 4-3-71: 16, 17, 18 and 19), totalling 59,200 square feet located on Kailua Road, behind Kailua Intermediate school and across Kailua Road from the Coral Apartments were considered. Re-evaluation of the site is possible if all four landowners agree to sell their fee interests.
 - The site is not available for development.
 - Total unit capacity would be limited to 32 units.
4. A site (Tax Map Key: 4-2-6: 2 portion) located on State land next to the Olomana Fire Station and 1/2 mile away from the Castle Medical Center was considered.
 - The site was found to be unavailable.
 - The site is not easily accessible to essential services, which are located over 1 1/2 miles away in Kailua town.
5. The purchase of three residentially zoned parcels (Tax Map Key: 4-3-31: 52, 53 and 54, totalling 35, 702 square feet) located on Kuulei Road and

Kainalu Drive across the Kailua Fire Station was opposed by the landowners and was also found to be insufficient for the number of rental units needed. The land is conveniently located near medical services, eating establishments, the bus line and is within 1/3-mile of many retail establishments and the public services.

- Development potential for this site is estimated to be limited to 41 units if a height variance is approved.
 - The total development time is estimated to be over 2 1/2 years.
6. The Kaneohe Ranch has offered to lease 1 1/2 acres bounded by Kawainui Stream, Hamakua Drive and Akoakoa Street (Tax Map Key: 4-2-3: 29) to the City for 20 years. The site is located on the bus line, about 1/4 mile to shopping areas and 1/2 mile to the post office. The City is considering this site as a possible future site of another affordable development.
- A soils study has indicated that preventive flood control construction would be costly.
 - Development potential is estimated to be limited to 20 to 40 units.
7. The 37 acre Kailua Field site is located (Tax Map Key: 4-3-56: 9) was assessed for its development capability. The sewer line currently ends in front of Times Supermarket. The site is presently zoned P-2 General Preservation.
- Development of the site will displace park use at Kailua Field.
 - Development of the park would require extension of the sewer line to Wanaao Street.
8. The Mormon Church site (Tax Map Key: 4-2-01: 24) near the intersection of Kailua and Wanaao Roads was evaluated. A land exchange with the City is a condition of site development for the 2.12 acre parcel which will further delay development.
- The sewer system in the vicinity of this site is inadequate and upgrades would be required before the site could be considered for future development.
 - The site location is more than 1/2 mile away from the town center.
9. The 2.22 acre parcel located along Hamakua Drive (Tax Map Key: 4-2-01: 5 por) is presently being used as a storage yard.
- Existing slope easement on this site and its location next to a stream renders only a portion of this site developable.

10. A portion of existing parking lot (Tax Map Key: 4-3-56: 9 (por.)) for Kailua Field on Kainalu Drive was evaluated for housing use.
 - Development of the site could interfere with improvements of the Kailua Field which are being planned.
 - Development of the site would also adversely impact a well used recreational complex.
11. A portion of the parking lot and playing field on Kailua Road (Tax Map Key: 4-3-59: 9 (por.)), near Kailua Shopping Center was evaluated for development.
 - Development of the site would reduce a heavily used recreation complex.
12. A parcel on Kailua Road (Tax Map Key: 4-2-16: 2) located near the entry to Kailua was evaluated for its development potential. The nine acre site is vacant except for a partially constructed structure.
 - The majority of the site (8.54 acres) is located on marsh lands with portions in the Special Management Area and floodplain.
13. The purchase of four business parcels (Tax Map Keys: 4-3-57: 2, 16, 17 and 73 totalling 73,830 square feet) located on Hoolai Street and fronting Kailua Road was opposed by both the landowner (Juliet V.C. Magoon Trust Estate) and two of the three lessees.

Lessee, Hoolai Street Joint Venture (TMK: 4-3-57: 2 and 16) constructed a small shopping center in January 1991.

C. No Project Alternative

Limited City resources are forcing the City to study the redevelopment of all City-owned property islandwide. If a low-rise elderly project is not constructed at this time, a higher density housing, office or parking development at the site may be the alternative at a later date.

CHAPTER VIII
RELATIONSHIP BETWEEN
SHORT TERM USES AND
LONG TERM PRODUCTIVITY

VIII. RELATIONSHIP BETWEEN SHORT TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

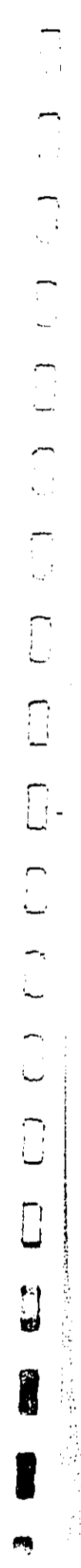
The project site is presently utilized as a parking facility bounded within a commercial block. Perimeter commercial development effectively screens the parking from the street but the parking lot creates a relatively barren appearance within the block. While this use has been in existence for a long period of time, the continued existence of this facility in its present form does not represent the most efficient or beneficial use of the property.

In the immediate future, the continued operation of the lot will be maintained as a community benefit by providing municipal parking in an urban setting which generally serves the public during commercial operation hours. No other short term uses are likely for the site.

The proposed residential and parking use of the site represents a beneficial addition to the existing community. It does not conflict with the site's previous use. Parking will be fully replaced and the addition of housing for the elderly can be viewed as an asset to the community. In addition, the proposed project will aesthetically enhance the existing area and provide a secure environment to residents and pedestrians. The meeting room/meal facility will also serve the community with a service presently unavailable within the area.

Operation of the project will create a demand for additional resources such as water, sewage, electricity, cable television, and telephone utilities. Conversely, the project will also create a need for many services which will create additional jobs within the community. In the short term, construction employment will be required, while operation of the completed facility will require administrators, maintenance staff and groundskeepers. Within the community, the surrounding businesses can expect increased patronage from the additional population located within the block.

Lastly, secondary long term benefits can be expected from the additional tax base created by the additional employment and services provided by the construction and operation of the project.



IX. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The construction of the proposed facility will require the irreversible commitment of resources in the form of capital, labor, and energy for the design and construction of the facility.

Although the proposed facility will not be irreplaceable, it is unlikely that the site will be utilized in any capacity other than residential and public parking use in the future. It is likely that this use would preclude future development of the site during the economic and physically useful life of the facility.

Should the facility be demolished for replacement or other uses, some materials used in construction of the facility may be recycled. Recovery of the physical structure of the facility is expected although it is not significant. Furthermore, the expenditure of resources used in the operation of the facility will not be recoverable but are not expected to differ from other residential operations.

The subject property has been in urban use for an extended period and any use proposed for the site should be appropriate in relation to the urban context of the surrounding environment.

**CHAPTER X
PROBABLE ADVERSE
ENVIRONMENTAL EFFECTS
WHICH CANNOT BE AVOIDED**

X. PROBABLE ADVERSE IMPACTS WHICH CANNOT BE AVOIDED

Adverse impacts can be defined as short term and long term effects relative to the construction and operation of a specific use. Short term impacts are usually construction-related impacts which will occur during the course of construction but cease upon completion of the project. Long-term impacts generally result from the implementation or the standard operation of the proposed use. Adverse impacts which cannot be avoided for the subject project are construction-related.

The construction of the proposed facility will temporarily remove the parking use of the site. While this displacement is temporary, this disruption will have some impact on the the surrounding business uses. The lot serves as the primary parking source for these businesses and consequently, these businesses may endure temporary loss due to customer inconvenience with the loss of easily accessible parking. This short term impact will be mitigated to some degree by the provision of alternative parking within the vicinity. Upon completion of the facility, all parking will be replaced and client convenience for the adjacent businesses will be restored.

Other impacts which cannot be avoided include: 1) traffic disruption caused by construction equipment travelling along the adjacent thoroughfares, 2) noise caused by construction equipment and 3) airborne particulates in the form of fugitive construction dust. Traffic, noise, and air impacts can be mitigated to some extent through standard construction measures as required by State and County regulations. All applicable standards will be followed as required.

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CHAPTER XI
SUMMARY OF UNRESOLVED ISSUES

XI. SUMMARY OF UNRESOLVED ISSUES

Unresolved issues are invariably associated with projects in the planning and design stages. Consequently, the planning process, which includes the subject Final Environmental Impact Statement, makes every attempt to identify these issues and to develop appropriate mitigative measures.

The Department of Housing and Community Development has attempted to resolve all community concerns. The potential impacts of the proposed development are known and appropriate mitigative measures have been developed to address these impacts. One potential outstanding issue is the possible presence of archaeological and historic sites within the property bounds. A mitigation plan for this issue has been formulated and is detailed in Section V. The Department of Housing and Community Development will continue to work with the appropriate governmental agencies and community members to assure that the final development plans meet the project's objectives and satisfactorily address concerns that may be raised during the development process.

1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100

CHAPTER XII
LIST OF CONSULTANTS INVOLVED
IN PREPARATION OF EIS

XII. LIST OF CONSULTANTS INVOLVED IN PREPARATION OF THE EIS

The following list identifies individuals and organizations who were involved in the preparation of the report and their respective contributions.

AM Partners, Inc., - Architects and EIS Preparers

B.D. Neal & Associates - Air Quality Study

Community Resources, Inc. - Social Impact Study

Ernest K. Hirata & Associates, Inc. - Foundation Investigation

The Traffic Management Consultant - Traffic Study

Y. Ebisu & Associates - Noise Study

THE UNIVERSITY OF CHICAGO LIBRARY

**CHAPTER XIII
PARTIES CONSULTED DURING THE
EIS PREPARATION NOTICE PERIOD**

XIII. PARTIES CONSULTED DURING EIS PREPARATION NOTICE PERIOD

The City and County Department of Housing and Community Development has determined that an environmental impact statement must be prepared for the proposed Kailua Elderly Housing project pursuant to Chapter 343, Hawaii Revised Statutes. An Environmental Impact Statement Preparation Notice (EISPN) for the project was published on November 8, 1990 in the OEOC Bulletin which was followed by a 30-day review period which ended on December 10, 1990. Copies of the EISPN were also mailed to the following list of consulted parties. Sixteen of the thirty-four parties consulted responded in writing. These comments and their respective responses are provided in this section.

<u>Federal</u>	<u>Date of Comment</u>
Department of Housing and Urban Development	November 13, 1990
U.S. Army Corps of Engineers	December 11, 1990
U.S. Dept. of the Interior, Fish and Wildlife Service	November 23, 1990
 <u>State</u>	
Department of Education	November 19, 1990
Department of Business and Economic Development	November 19, 1990
Office of State Planning, Governor's Office	November 21, 1990
Department of Health	January 4, 1991
Department of Land and Natural Resources	
Department of Land and Natural Resources, Historic Preservation Office	January 9, 1991
Office of Environmental Quality Control	
Department of Transportation	
Department of Agriculture	
Hawaii Housing Authority	
Housing Finance and Development Corporation	November 28, 1990
University of Hawaii Environmental Center	November 19, 1990
Land Use Commission	November 13, 1990
 <u>City</u>	
Department of General Planning	
Department of Land Utilization	
Department of Transportation Services	December 5, 1990
Building Department	November 8, 1990
Department of Public Works	November 23, 1990
Department of Parks and Recreation	December 6, 1990
Board of Water Supply	November 29, 1990

Fire Department
Honolulu Police Department
Office of Human Resources
Department of Finance

November 15, 1990
November 15, 1990

Others

Councilmember David Kahanu
City Council
City and County of Honolulu
Honolulu, Hawaii 96813

Councilmember John Henry Felix
City Council
City and County of Honolulu
Honolulu, Hawaii 96813

Ms. Bonnie Heim, Chair
Kailua Neighborhood Board No. 31

Kailua Chamber of Commerce
P.O. Box 1496
Kailua, Hawaii 96734

Kailua Community Council
c/o Satellite City Hall
629-A Kailua Road
Kailua, Hawaii 96734

Ms. Pearl Ching
Pali Seniors

Mr. Flip Grisolano
Kailua Seniors

**CHAPTER XIV
EIS PREPARATION NOTICE
COMMENTS AND RESPONSES**



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

November 13, 1990

Department of General Planning
 City and County of Honolulu
 650 South King Street
 Honolulu, HI 96813

Gentlemen:

SUBJECT: Kailua Elderly Housing
 EIS Preparation Notice

This responds to a request for comments in the preparation of a
 Draft Environmental Impact Statement for the Kailua Elderly project.

We understand that this project will provide 80 residential units,
 a meal facility, landscaped gardens and 166 parking stalls for residents
 and adjoining businesses on 1.76 acres in Kailua.

The following comments reflect HUD requirements on projects
 assisted with Community Development Block Grant (CDBG) funds that must
 be satisfied prior to expenditure of CDBG funds.

1. HUD regulations would not require a full EIS for this project.
 A full environmental assessment would be required, however, and
 a public notice published in a local newspaper for a Finding of
 No Significant Impact on the Environment and Request for
 Release of Funds (FONSI/REQF).

The environmental assessment must provide documentation on the
 following:

- a. The views of the State Historic Preservation Officer if the
 proposed action will have an effect on historic properties
 in accordance with 36 CFR Part 800 (copy enclosed).
- b. The City and County must make a Consistency Determination
 with the State's Coastal Zone Management Program in
 accordance with 15 CFR Part 930.37 (consistency form
 enclosed).
- c. Construction of residential units must be accessible under
 the Fair Housing Amendments Act of 1988 (FHAA) for most
 multi-family housing built for first occupancy after March
 13, 1991.

You may refer to 24 CFR Part 100 Fair Housing Accessibility
 Guidelines; published in the Federal Register on June 15, 1990
 and a supplementary notice published in the Federal Register on
 August 1, 1990. Copies of these Federal Registers are
 enclosed.

If you have any questions, please call Frank Johnson at 541-1327.

Very sincerely yours,

Originated by:
 Calvin Lew

Calvin Lew
 Director
 Community Planning and
 Development Division

Enclosures

cc: E. Hark w/o enclosures

bcc:
 GCE James

NOV 15 1990
 90-395

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

510 SOUTH KING STREET, 21ST FLOOR
HONOLULU, HAWAII 96813
PHONE 832-4237 • FAX 832-3488



MICHAEL SCARFONE
DIRECTOR
GAIL M. SCALFO
DEPUTY DIRECTOR

January 17, 1991

Mr. Gordon Y. Furutani
U.S. Department of Housing and Urban Development
Honolulu Area Office, Region IX
300 Ala Moana Blvd., Room 3318
Honolulu, Hawaii 96850

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice

70
Dear Mr. Furutani:

Thank you for your review and comment of November 13, 1990 regarding the subject EIS Preparation Notice.

An environmental assessment will be submitted in conformance with U.S. Department of Housing and Urban Development regulations and the Finding of No Significant Impact on the Environment and Request for Release of Funds (FONSI/RROF) will be published in the local newspaper.

Coordination has been initiated with the State Historic Preservation Officer in accordance with 36 CFR Part 800. These comments will be included in the DEIS however it is expected that the proposed project will have no impact on any archaeological resources.

Continuing coordination with the State Coastal Zone Management Program has indicated that a Consistency Determination will be provided and subsequently included in the EIS in accordance with 15 CFR Part 930.37.

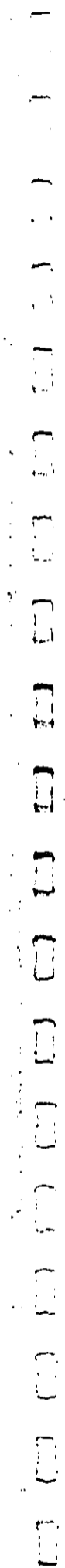
This project will be designed in compliance with the Uniform Federal Accessibility Standards (UFAS) which not only include all the adaptability requirements of the Federal Fair Housing Amendments Act of 1988 (FHAA) but specify more stringent standards for full accessibility. Therefore this project will exceed requirements of the FHAA.

A copy of the Draft EIS will be sent to your Department when it is completed. If you have any questions, please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone

Michael Scarfone
Director





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

REPLY TO:
ATTENTION OF:
Planning Division

December 11, 1990

Mr. Benjamin B. Lee
Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Lee:

We have reviewed the Environmental Impact Statement Preparation Notice for Kailua Elderly Housing. The comments we provided in response to the Environmental Assessment preparation notice (letter dated July 10, 1990) are applicable. We have no additional comments.

Sincerely,

C. F. Cheung
Kisuk Cheung
Director of Engineering

Copy furnished:

Department of Housing and Community Development
650 South King Street
Honolulu, Hawaii 96813
Attn: Ms. Eileen Mark

90 DEC 12 11:26
U.S. ARMY ENGINEER DISTRICT
HONOLULU

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

610 SOUTH KING STREET 23RD FLOOR
HONOLULU HAWAII 96813
PHONE 533-9477 • FAX 533-7479



MICHAEL SCARFONE
DIRECTOR
GAIL M. KAITO
STAFF DIRECTOR

January 17, 1991

Mr. Kisuk Cheung
Department of the Army
Army Engineer District, Honolulu
Building 230
Fort Shafter, Hawaii 96858-5440

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice

Dear Mr. Cheung:

Thank you for your comments dated December 11, 1990 regarding the subject EIS Preparation Notice.

We appreciate your confirmation that a Department of the Army (DA) permit is not required for the project. It is our understanding that according to the Flood Insurance Study for the City and County of Honolulu, the project site is located in Zone X, an area determined to be outside of the 500-year flood plain as designated by the Federal Emergency Management Agency. A copy of the Draft EIS will be sent to your office for your reference and future comment.

If you have any questions, please feel free to call Eileen Mark at 527-5095.

Sincerely yours,

Gail Kaito
Michael Scarfone
Director



United States Department of the Interior
FISH AND WILDLIFE SERVICE
 PACIFIC ISLANDS OFFICE
 P.O. BOX 50167
 HONOLULU, HAWAII 96850

NOV 23 1990

Department of General Planning
 650 South King Street
 Honolulu, Hawaii 96813

Re: Kailua Elderly Housing EIS Preparation Notice

Due to current staff limitations, the Pacific Islands Office, Fish and Wildlife Enhancement cannot devote the time to adequately evaluate potential impacts to important fish and wildlife resources from the proposed project. Please understand that this notification does not represent the Fish and Wildlife Service's approval of the proposed activity. We may review future actions related to this project should workload constraints be alleviated, or if significant adverse impacts to trustee fish and wildlife resources are identified.

Sincerely yours,

William R. Keener
 Ernest Kosaka
 Field Office Supervisor
 Fish and Wildlife Enhancement

/cc: Department of Housing and
 Community Development
 Attn: Ms. Eileen Mark

72

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
 150 SOUTH KING STREET, 15TH FLOOR
 HONOLULU, HAWAII 96813
 PHONE 832-6137 • FAX 527-5498



FRANK J. JAMES

MICHAEL SCARFONE
 DIRECTOR
 Gail M. Kelio
 DEPUTY DIRECTOR

January 17, 1991

Mr. Ernest Kosaka
 United States Department of the Interior
 Fish and Wildlife Service
 P.O. Box 50167
 Honolulu, Hawaii 96850

Subject: Kailua Elderly Housing Project
 Environmental Impact Statement (EIS) Preparation Notice

Dear Mr. Kosaka:

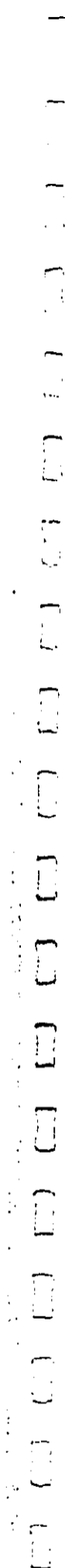
Thank you for your comments dated November 23, 1990 regarding the subject EIS Preparation Notice.

We have taken note of your agency's present position and will not assume that a lack of response by the Department of the Interior implies approval or finding of no impact from the proposed project. A copy of the Draft EIS will be sent to your office for your reference and future comment.

If you have any questions, please feel free to call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
 Michael Scarfone
 Director



DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
850 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
PHONE: 323-4437 • FAX: 323-7388



MIKE SCARFONE
DIRECTOR
C.A.S. # 4110
COMMUNITY DEVELOPMENT

FRANK J. CHAN
DIRECTOR

11/90-3123

CHARLES T. TOGUCHI
SUPERINTENDENT



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2100
HONOLULU, HAWAII 96810

OFFICE OF THE SUPERINTENDENT

November 19, 1990

May 3, 1991

Mr. Benjamin B. Lee
Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Lee:

Subject: Environmental Impact Statement Preparation Notice
Kailua Elderly Housing
Kailua, Oahu, Hawaii

73

Our review of the subject notice indicates there will be negligible impact on the public schools.

Thank you for the opportunity to comment.

Sincerely,

Charles T. Toguchi
Charles T. Toguchi
Superintendent

CTT:jl

cc: E. Imai
S. Loo
A. Mark, Dept. of Housing and Community Development
City and County of Honolulu

RECEIVED
NOV 30 1990 3:34
PLANNING
HONOLULU

Mr. Charles T. Toguchi, Superintendent
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation
Notice

Dear Mr. Toguchi:

We apologize for the delay in responding to your comments on the EISPN. Thank you for your letter of November 19, 1990, in which you stated that the proposed project will have a negligible impact on public schools.

We appreciate your time spent to review the EIS preparation notice for the proposed Kailua Elderly Housing Project. Should you require additional information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
Director



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

JOHN WANG
GOVERNOR
ROGER A. ULVELING
DIRECTOR
BARBARA KIM-STANTON
DEPUTY DIRECTOR
LURE E. MATIUKA
DEPUTY DIRECTOR

ENERGY DIVISION, 335 MERCHANT ST., 5TH FLOOR, HONOLULU, HAWAII 96813 PHONE: (813) 544-4485 FAX: (813) 544-4410

November 19, 1990

Ms. Eileen Mark
Department of Housing and Community Development
650 South King Street
Honolulu, Hawaii 96813

Dear Ms. Mark:

Subject: Kailua Elderly Housing
EIS Preparation Notice

74 We wish to inform you that we have no comments to offer on the subject environmental impact statement preparation notice.

Thank you for the opportunity to review the document.

Sincerely,

Roger A. Ulveling

PHK:hkts18

FRANCE MARK
1990

NOV 27 1990
U.S. DEPARTMENT OF
& ECONOMIC DEVELOPMENT

**DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU**

510 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 522-2222 / 522-2223



MICHAEL SCARFONE
DIRECTOR
GAIL H. FALSO
DEPUTY DIRECTOR

January 17, 1991

Mrs. Barbara Kim-Stanton, Acting Director
Department of Business, Economic Development & Tourism
Energy Division
335 Merchant Street, Room 110
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice
Dear Mrs. Kim-Stanton:

This is in response to your letter of November 19, 1990, in which you indicated that you have no comments regarding the subject EIS preparation notice.

Thank you for taking the time to review the EIS preparation notice for the proposed Kailua Elderly Housing Project. We will be sending a copy of the Draft EIS when it becomes available. Should you require any additional information, please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
for Director

11-19-90 10:00 AM

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

550 SOUTH KING STREET 5TH FLOOR
HONOLULU HAWAII 96813
PHONE 533-6937 • FAX 537-1488



MICHAEL M. SCARFONE
DIRECTOR
Gail M. Kaito
Deputy Director

OFFICE OF STATE PLANNING
Office of the Governor

5147 CAPitol, HONOLULU HAWAII 96814-0011 TELEPHONE 533-6937



November 21, 1990

NOV 26 10:39
U.S. GOVERNMENT PRINTING OFFICE

The Honorable Benjamin B. Lee
Chief Planning Officer
Department of General Planning
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Lee:

Subject: Environmental Impact Statement Preparation Notice
Kailua Elderly Housing (TMK: 4-3-55: 11)
Kailua, Oahu

We have reviewed the Environmental Impact Statement Preparation Notice for the proposed Kailua Elderly Housing project located on 1.76 acres in the Urban Land Use District and have no comments to offer at this time.

Thank you for the opportunity to comment.

Sincerely,

Harold S. Masumoto
Harold S. Masumoto
Director

cc: Dept. of Housing and Community Development
Housing Finance and Development Corporation

January 17, 1991

Mr. Harold S. Masumoto
Office of State Planning
State Capitol
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice

Dear Mr. Masumoto:

This is in response to your letter of November 21, 1990, in which you indicated that you have no comments regarding the subject EIS preparation notice.

Thank you for taking the time to review the EIS preparation notice for the proposed Kailua Elderly Housing Project. A copy of the Draft EIS will be forwarded for your review when it is completed. Should you require any additional information, please call Eileen Mark at 527-5095.

Sincerely yours,

Gail Kaito
Michael Scarfone
for Director



STATE OF HAWAII
 DEPARTMENT OF HEALTH
 P. O. BOX 2818
 HONOLULU, HAWAII 96811

January 4, 1991

JOHN C. LEVIN, M.D.
 Director of Health

BENJAMIN B. LEE

-2-

January 4, 1991

3. Traffic noise from heavy vehicles traveling to and from construction sites must be minimized near existing residential areas and must comply with the provisions of Title 11, Administrative Rules, Chapter 42, Vehicular Noise Control for Oahu.

John C. Levin
 JOHN C. LEVIN, M.D.

cc: Dept. of Housing and County Development (City & County of Honolulu) - Attention: Eileen Mark

JOHN C. LEVIN, M.D.
 Director of Health

IN REPLY, PLEASE REFER ME:
 90-3-279

91 JUN 11 P1:40

DEPT. OF HEALTH
 & COMM. DEVELOPMENT

MEMORANDUM

To: Benjamin B. Lee
 Chief Planning Officer
 Department of General Planning
 City & County of Honolulu

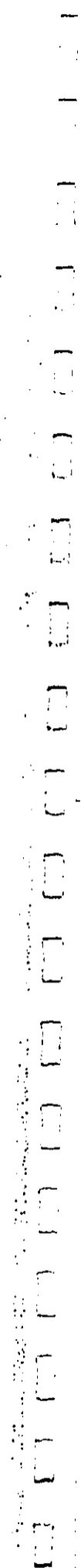
From: Director of Health

Subject: Environmental Impact Statement Preparation Notice (EISP/N)
 Kailua Elderly Housing
 Tax Map Key: 4-3-55: 11

76

Thank you for allowing us to review and comment on the subject EISP/N. We provide the following comments relating to noise:

1. There are concerns regarding potential noise impacts on the proposed development from existing land uses surrounding the project site. Activities associated with commercial facilities can result in adverse impacts on residents of the proposed elderly housing. Potential noise impacts may occur from vehicular traffic, including heavy vehicles utilized for deliveries and services; and noise from stationary equipment such as air conditioning units, exhaust fans and generators.
2. Construction activities must comply with the provisions of Title 11, 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.
 - b. Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers.
 - c. The contractor must comply with the requirements specified in the regulations and conditions issued with the permit.



DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

630 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
PHONE 527-2427 OR FAX 527-8288



FRANK ZAHN
DIRECTOR

MICHAEL SCARFONE
DIRECTOR
GAIL M. KOITO
MEMBER OFFICER

January 23, 1991

Dr. John C. Lewin
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

77 Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice

Dear Dr. Lewin:

Thank you for your review and comment dated January 4, 1991 regarding the subject EIS Preparation Notice.

We acknowledge your concern regarding the potential noise impacts on the proposed development from existing land uses in the immediate vicinity of the project site. These specific impacts were considered during the planning of the subject project and consequently a noise impact study is being conducted during the current phase of planning. The findings of this study will be presented in the Draft Environmental Impact Statement and mitigation measures to address any impacts will also be included.

The construction plans and specifications will state that all construction activities will comply with applicable construction rules and regulations including Title 11.

Administrative Rules, Chapter 43, Community Noise Control for Oahu and Chapter 42, Vehicular Noise Control for Oahu.

A copy of the Draft EIS will be sent to your office upon its completion. Should you require any additional information, please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
Director



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
1101 KALANOAU AVENUE, 11TH FLOOR
HONOLULU, HAWAII 96813

WILLIAM W. RAY, CHAIRMAN
BOARD OF LAND AND NATURAL RESOURCES

- SECRETARY
- DEPUTY SECRETARY
- ADMINISTRATIVE SERVICES
- PLANNING
- ARCHAEOLOGICAL SERVICES
- COMMUNITY DEVELOPMENT
- CONSERVATION
- CONSTRUCTION
- DESIGN AND ARCHITECTURE
- EDUCATION
- GENERAL INVESTIGATIONS
- LAND USE
- PLANNING
- STATE PARKS
- WATER RESOURCE MANAGEMENT

January 9, 1991

Ms. Eileen Mark
Department of Housing & Community Development
City & County of Honolulu
850 South King Street
Honolulu, Hawaii 96813

Dear Ms. Mark:

SUBJECT: City & County of Honolulu - EIS Preparation Notice -- Kailua Elderly
Housing (C&C Dept. Housing & Community Development)
Kailua, Koolaulou, O'ahu
TWR: 4-2-55:11

78

This responds to a November 8, 1990, submittal of this EIS Preparation Notice to our office, requesting comments. We apologize for the late response. Our office moved in September and was effectively closed for a month, resulting in a backlog of reviews.

A review of our files show that the subject parcel has not been archaeologically surveyed, so we are uncertain if significant historic sites are present. However, a subsurface archaeological site (state site no. 80-11-2030) is present southwest across Kihapai Street, close to Kawaiunui Marsh. This cultural layer, evidently a habitation site, yielded carbon dates of A.D. 1374 to 1630 and prehistoric Hawaiian artifacts. Thus, it is possible similar sites are in the project area.

The site is currently an asphalted parking lot, which will have to be demolished and bulldozed for removal. Also, the ground will be excavated for water, sewer, electric, gas, and telephone lines and for the lower level of the parking garage. These land disturbing activities could impact any historic site that might be present.

In order to determine if significant historic sites are present, it is our recommendation that an archaeologist monitor the removal of the parking lot and then excavate 2-3 subsurface test units to determine if historic sites are present. If sites or remains are present, then the archaeologist must adequately document these sites and offer a significance evaluation. These findings and significance evaluation should be submitted to our division for adequacy review and approval.

Ms Eileen Mark
January 9, 1991
Page Two

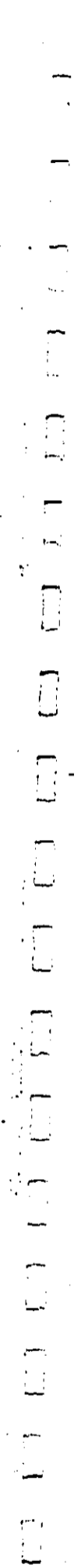
If significant historic sites prove to be present, then an acceptable mitigation plan would have to be developed in consultation with our division. If you have any questions regarding this review, please contact Carol Kawachi at 507-0015.

Sincerely,

DON HIBBARD, Director
Historic Preservation Program

cc: Dept of General Planning

91 JAN 11 PM 1:20
COMMUNICATIONS SECTION



DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH BEECH STREET FIFTH FLOOR
HONOLULU HAWAII 96813
PHONE 532-4237 FAX 532-7418



FRANCE 2381
1-800-368-2868

MICHAEL SCARFONE
DIRECTOR
GAIL H. KAJI-O
DEPUTY DIRECTOR

Mr. Don Hibbard
January 28, 1991
Page Two

A copy of the Draft EIS will be sent to your Department when it is completed. If you have any questions, please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone

Michael Scarfone
Director

January 28, 1991

Mr. Don Hibbard
Department of Land and Natural Resources
State Historic Preservation Division
33 South King Street, 6th Floor
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice

Dear Mr. Hibbard:

Thank you for your review and comment dated January 9, 1991 regarding the subject EIS Preparation Notice.

Your comment that the site has not been archaeologically surveyed has been noted and your recommendation that an archaeologist monitor the site clearing will be taken under advisement. Your office will be contacted prior to any clearing action and advanced coordination will be conducted to insure that no archaeological artifacts are unduly removed or damaged. In the event that any archaeological artifacts are uncovered, all work will cease until a thorough survey and assessment has been conducted and appropriate mitigation measures are developed. These findings would then be submitted to your office for review and approval.



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE - STORC PRESERVATION DIVISION
11 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813

REF: HP-JLE

RECEIVED 1 5 1991

Michael N. Scarfone
Department of Housing and Community Development
City and County of Honolulu
650 South King Street, 5th Floor
Honolulu, Hawaii 96813

Dear Mr. Scarfone:

SUBJECT: City and County, Department of Housing and Community
Development -- Kailua Elderly Housing Project
Kailua, Ko'olaupoko, Oahu
TRK: 4-3-55: 1

Thank you for your letter of January 28, 1991, which responds to our comments regarding this project. The process that you propose to deal with the possible impacts of this project on historic sites differs from that outlined in our comments.

As a direct City and County undertaking, compliance with HRS Chapter 6E, the State's historic preservation law, is required. Our division is the agency with which compliance actions must be fulfilled. The law requires the agency undertaking the project to take into account the effect of the undertaking on historic sites. In practice, at both the federal and state level for years, this means that it must be determined if significant historic sites are present and, if so, attempts to mitigate any adverse effects to such sites must be made.

Prior to construction, an adequate archaeological inventory survey must be completed to determine if significant historic sites are present at the site. As noted in our letter of January 9, 1991, this will involve monitoring of work to remove the parking lot and archaeological excavations sufficient to determine the presence or absence of significant subsurface deposits. If no subsurface sites are found then an assessment of "no effect" can be made and the project may commence. If significant subsurface deposits are present, as is likely given the location of the project, then mitigation in the form of further archaeological excavation and analysis may be needed in order to reach a "no adverse effect" determination.

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

- DEVELOPMENT
- WILSON W. JAMES
- WALTER TAGUCHI
- RUSSELL W. FURUNDI
- AGRICULTURE DEVELOPMENT
- SCIENTIFIC RESOURCES
- CONSERVATION AND
- COMMERCE AND TOURISM
- RECREATION DEVELOPMENT
- CONSERVATION
- PLANNING AND DESIGN
- PLANNING AND DESIGN
- PLANNING AND DESIGN
- LAND MANAGEMENT
- LAND MANAGEMENT
- LAND MANAGEMENT

Mr. Michael N. Scarfone
Page 2

Since you appear to be disagreeing with this recommendation, we cannot give our written approval that you have complied with Chapter 6E, H.R.S. Rapid resolution would be to meet and reach an agreement on compliance procedures for this project. Please contact Dr. Tom Dye, our Archaeologist for Oahu, at 587-0014 to schedule a meeting, or if you have any questions about our response.

Very truly yours,

WILLIAM W. PATY
Chairperson and State
Historic Preservation Officer

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

150 SOUTH KING STREET, 31st FLOOR
HONOLULU, HAWAII 96813
PHONE: 533-4427 • FAX: 533-9499



MICHAEL N. SCARFONE
DIRECTOR
CITY AND COUNTY OF HONOLULU
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

February 26, 1991

Mr. Don Hibbard
Department of Land and Natural Resources
Historic Preservation Division
33 South King Street, 6th Floor
Honolulu, Hawaii 96813

Dear Mr. Hibbard:

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice

This is in response to your letter of February 15, 1991 and clarifies our previous correspondence to your office dated January 28, 1991, regarding archaeological subsurface tests to be conducted at the Kailua Elderly Housing Project site. Be assured that we are not in disagreement with your recommendations. The Department will be initiating archaeological studies at the project site. Such tests shall be conducted under the supervision of an archaeologist in coordination with site clearing activities to maximize work effort efficiencies. Identified sites will be adequately evaluated and documented. As previously stated, your office will be notified prior to this activity.

As there is no apparent disagreement from our perspective, a special meeting to resolve issues does not appear to be necessary. However, we would be happy to arrange for one should the State Historic Preservation Program have additional concerns. Please contact me at 523-4427 if you would like to further discuss this matter.

Sincerely,
Original signed by
Michael N. Scarfone
MICHAEL N. SCARFONE
Director

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

430 SOUTH KING STREET, 21ST FLOOR
HONOLULU, HAWAII 96813
PHONE: 533-2001 / FAX: 533-2149



MICHAEL B. SCARDONE
DIRECTOR
Cell: M. Kaito
SECRETARY

JOSEPH K. CONANT
EXECUTIVE DIRECTOR

WE MEET EVERY 10th

STATE OF HAWAII
DEPARTMENT OF BUDGET AND FINANCE
HOUSING FINANCE AND DEVELOPMENT CORPORATION
SEVEN WAICFRONT PLAZA, SUITE 300
500 ALA MOANA BOULEVARD
HONOLULU, HAWAII 96813
(808) 533-2149

90:PLNG/5601jt

November 28, 1990

January 23, 1991

Mr. Benjamin B. Lee
Chief Planning Officer
Department of General Planning
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Lee:

Re: Environmental Impact Statement Preparation Notice (EISP) for the Proposed Kailua Elderly Housing

Mr. Joseph K. Conant
Department of Budget and Finance
Housing Finance and Development Corporation
Seven Waicfront Plaza, Suite 300
500 Ala Moana Boulevard
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice

Dear Mr. Conant:

We have reviewed the subject EISP and have the following questions:

- To what extent is the feasibility of the project affected if all 80 of the units were made available to lower- and moderate-income seniors? Additionally, how is the "gap group" elderly defined?
- Of the 166 parking stalls planned, how many will be designated exclusively for elderly tenants?

Thank you for the opportunity to comment.

Sincerely,

JOSEPH K. CONANT
Executive Director

JT:eks

c: Dept. of Housing and Community Development,
Attn: Eileen Marx

Thank you for your review and comment dated November 28, 1990 regarding the subject EIS Preparation Notice.

The financial feasibility of the proposed project would be compromised if all units are targeted exclusively to low- and moderate-income seniors. As you are aware, in the absence of the project-based rent subsidies, rents affordable to low and moderate income tenants are insufficient to service the debt on the new developments. It is also desirable that units in the project be affordable to a range of income groups since this will promote integration within the community. The "gap group" elderly definition is the same as the traditional "gap group" definition recognized by the City and County. This is defined by an income range of 80 to 120 percent of the median income for the City and County of Honolulu.

Of the parking stalls planned, 20 will be dedicated for the use of the residents of the subject project.

NOV 29 P2:14
DEPT. OF HOUSING AND COMM. DEVELOPMENT



A copy of the Draft EIS will be sent to your Department when it is completed. If you have any questions, please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone

Michael Scarfone
Director

MS



University of Hawaii at Manoa

Environmental Center
Crawford 317 - 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (Hon) 618-7361

November 19, 1990
PH:6077

Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Sir/Hadam:

Environmental Impact Statement Preparation Notice
Kailua Elderly Housing
Kailua, Oahu

Thank you for your November 8, 1990 letter which included the environmental assessment for this project.

2

We note the potential hazards to the elderly population from automobile exhaust fumes from the two-story parking structure below the proposed issue, including appropriate mitigative measures.

We look forward to reviewing the Draft EIS and hope that our comments will be useful in its preparation.

Yours truly,

John T. Harrison
John T. Harrison, Ph.D.
Environmental Coordinator

cc: Ms. Eileen Mark, DHCD
AM Partners, Inc. ✓
Lee Lyttle

AN EQUAL OPPORTUNITY EMPLOYER

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

150 SOUTH KING STREET, 21ST FLOOR
HONOLULU, HAWAII 96813
PHONE 522-4227 • FAX 522-5493



FRANK PAIN
DIRECTOR

January 17, 1991

Mr. John T. Harrison
Environmental Center
University of Hawaii at Manoa
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Subject: Kailua Elderly Housing Project
Environmental Impact Statement Preparation Notice

Dear Mr. Harrison:

Thank you for your review and comments dated November 19, 1990 regarding the subject EIS Preparation Notice.

We acknowledge your concerns about the ambient air quality of the proposed project, in particular the potential hazards from the parking structure located below the residential units. An air quality study is presently being conducted to address this concern and this information, along with recommended mitigation measures, will be included in the Draft EIS.

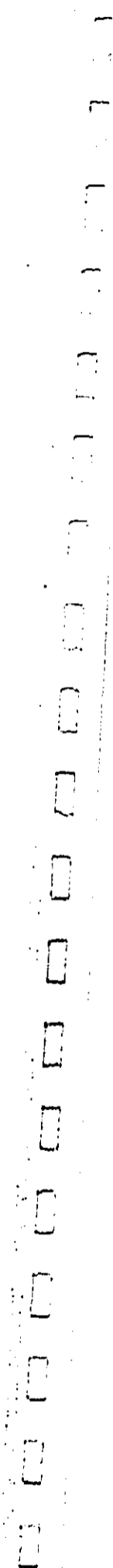
A copy of the Draft EIS will be forwarded to the Environmental Center when it is completed. If you have any questions, please call Eileen Mark at 527-5095.

Sincerely yours,

Paul Kaito

for
Michael Scarfone
Director

MICHAEL SCARFONE
DIRECTOR
Gail H. Kaito
REPRESENTATIVE



PHONE CONTACT

ESTHER UEDA
CULTURE DIVISION



STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT, AND TOURISM
LAND USE COMMISSION
Room 184, Old Federal Building
335 Merchant Street
Honolulu, Hawaii 96813
Telephone: 521-4111

ESTHER UEDA
DIRECTOR



DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

450 SOUTH KING STREET 21ST FLOOR
HONOLULU HAWAII 96813
PHONE 527-6237 • FAX 527-2438

MICHAEL SCARFONE
DIRECTOR
GAIL M. KAHO
COMMUNITY DEVELOPMENT

November 13, 1990

January 23, 1991

Department of General Planning
650 South King Street
Honolulu, Hawaii 96813

Ms. Esther Ueda
Land Use Commission
335 Merchant Street, Room 104
Honolulu, Hawaii 96813

Gentlemen:

We have reviewed the EIS preparation notice that was received on November 7th along with the consultant's letter dated November 8, 1990. The Land Use Commission has no comment at this time other than to confirm that the subject property is in the State Urban District.

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice

83 We appreciate the opportunity to comment on this matter.

Dear Ms. Ueda:

Sincerely,

This is in response to your letter of November 13, 1990.

Esther Ueda

ESTHER UEDA
Executive Officer

Thank you for taking the time to review the EIS preparation notice for the proposed Kailua Elderly Housing Project. We appreciate your confirmation that the subject property is located in the State Urban District.

EU:to

cc: DHCD, Attn: Ms. Eileen Mark
AM Partners Inc.

A copy of the Draft EIS will be sent to your office upon its completion. Should you require any additional information, please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone

Michael Scarfone
Director

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
 530 SOUTH KING STREET
 HONOLULU, HAWAII 96813



FRANK F. FEE
 DIRECTOR

POSTERNA M. MAGALDI, JR.
 CHIEF PLANNING OFFICER

TE-6298
 PL90-1.360

December 5, 1990

MEMORANDUM

TO: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
 DEPARTMENT OF GENERAL PLANNING

FROM: JOSEPH H. MAGALDI, JR., DIRECTOR

SUBJECT: KAILUA ELDERLY HOUSING
 EIS PREPARATION NOTICE, TNK: 4-3-55: 11

This is in response to a letter from AM Partners, Inc. dated November 8, 1990 requesting our comments on the EIS Preparation Notice for the subject project.

We have no objections to the proposed project. We understand that vehicular access will be provided to the project's parking area from both Aulike Street and Onawa Street. Schematic plans should be included in the EIS showing the proposed driveways and connections to public streets.

The parking consultant should contact our Parking Branch during the preparation of the EIS to clarify the proposed operations of the existing City parking facility. An assessment should be made on the adequacy of the number of proposed parking stalls in relation to the present utilization and the anticipated increase in demand generated by this housing project.

If you have any questions, please contact Mel Hirayama of my staff at Local 4119.

Joseph H. Magaldi, Jr.
 JOSEPH H. MAGALDI, JR.

cc: Eileen Mark

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET, 3RD FLOOR
 HONOLULU, HAWAII 96813
 PHONE: 522-2421 FAX: 522-7198



FRANK F. FEE
 DIRECTOR

MICHAEL W. SCARFONE
 DIRECTOR
 CAIL H. KAITO
 SUPERVISOR

January 17, 1991

Mr. Joseph M. Magaldi, Jr.
 Department of Transportation Services
 City and County of Honolulu
 Honolulu Municipal Building
 650 South King Street
 Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
 Environmental Impact Statement (EIS) Preparation Notice

Dear Mr. Magaldi:

Thank you for your comments of December 5, 1990 regarding the subject EIS Preparation Notice.

Schematic plans will be included in the EIS showing the proposed driveways and connections to public streets. The project designers will be in contact with your department to review the adequacy of the proposed parking plan.

As stated in the EIS Preparation Notice, the proposed facility will replace all existing parking and will include an additional 20 stalls for resident parking use. This 20 stall provision was recommended by the Department since previous projects of this nature have experienced a demand for parking stalls by only 25 percent of the total unit counts. Consequently, parking stall demand for the subject project's unit count of 80 is expected to be adequately met by the planned 20 parking stalls for residents.



Guest parking will be accommodated by the general public parking area which will replace the existing parking facility. Additionally, 6 of the general public parking stalls will be reserved to meet handicap parking requirements. Handicap parking is not presently provided in the existing parking facility. The Parking Branch will be contacted at the appropriate design phase to confirm the operational suitability of the parking facility.

If you have any questions, please call Eileen Mark at 527-5095.

Sincerely Yours,

Paul Kaito

Michael Scarfone
Director

BUILDING DEPARTMENT
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
150 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 527-5227 & 527-5228



FRANK E. KAS
DIRECTOR

HERBERT K. MURAOKA
DIRECTOR AND BUILDING SUPERINTENDENT

PB 90-978

November 8, 1990

MEMO TO: DEPARTMENT OF GENERAL PLANNING
DEPARTMENT OF HOUSING & COMMUNITY DEVELOPMENT
Attn: Eileen Mark
FROM: HERBERT K. MURAOKA
DIRECTOR AND BUILDING SUPERINTENDENT
SUBJECT: KAILUA ELDERLY HOUSING

88
88
We have reviewed the Environmental Impact Statement
Preparation Notice (EISP) for the subject project and have no
comments.

Thank you for the opportunity to review the EISP.

James Harada
HERBERT K. MURAOKA
Director and Building Superintendent

cc: J. Harada

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
150 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 527-5227 & 527-5228



FRANK E. KAS
DIRECTOR

MICHAEL SCARFONE
DIRECTOR
CALL 4, KALITO
527-5228

January 17, 1991

Mr. Herbert K. Muraoka
Building Department
650 South King Street
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice

Dear Mr. Muraoka:

This is in response to your letter of November 8, 1990, in which you indicated that
you have no comments regarding the subject EIS preparation notice.

Thank you for taking the time to review the EIS preparation notice for the
proposed Kailua Elderly Housing Project. We will be sending a copy of the Draft
EIS when it becomes available. Should you require any additional information,
please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
Director

150 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 527-5227 & 527-5228

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



FRANK P. JEN
DIRECTOR

SAM CALLEJO
DIRECTOR AND CHIEF ENGINEER
C. MICHAEL STREET
HONOLULU, HAWAII 96813

In reply refer to:
ENV 90-275(449)

11(90-3073

November 23, 1990

MEMORANDUM

TO: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: SAM CALLEJO, DIRECTOR AND CHIEF ENGINEER

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT
PREPARATION NOTICE (EISPN)
KAILUA ELDERLY HOUSING
(TAX MAP KEY: 4-3-55: 11)

87

We have reviewed the subject EISPN and have the following comment:

1. We have no objections to the proposed elderly housing development.

Sam Callejo
SAM CALLEJO
Director and Chief Engineer

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
410 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 823-2427 & 741-377-5498



FRANK P. JEN
DIRECTOR

MICHAEL M. SCARFONE
DIRECTOR
CAILI M. KAITO
SENIOR DIRECTOR

May 3, 1991

Mr. Sam Callejo
Director and Chief Engineer
Department of Public Works
650 South King Street
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation
Notice

Dear Mr. Callejo:

We apologize for the delay in responding to your comments on the EISPN. Thank you for your letter of November 23, 1990, in which you indicated that you have no objections to the proposed project.

We appreciate your time spent to review the EIS preparation notice for the proposed Kailua Elderly Housing Project. Should you require additional information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
Director

RECEIVED

NOV 26 PM 1:3

11(90-3073

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



FRANK P. KAHU
DIRECTOR

WALTER M. OZAWA
DIRECTOR
ALUMINUM & COPPER
RECREATION DIVISION

December 6, 1990

TO: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: WALTER H. OZAWA, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR THE PROPOSED KAILUA ELDERLY HOUSING
LOCATION : KAILUA, OAHU
TAX MAP KEY : 4-3-55: 11

Thank you for asking us to review and comment on the proposed project.
We offer the following comments.

The project will need to comply with the City's Park Dedication Ordinance No. 4621 as specified in the City's Park Dedication Rules and Regulations. Street Tree Planting Plans (Section 5-513) are to be reviewed and approved by DPR.

Should you have any questions, please contact Lester Lai of the Advance Planning Branch at extension 4696.

WMO:s1

cc: Department of Housing
& Community Development
✓ AH Partners Inc.

Walter M. Ozawa
WALTER H. OZAWA, Director

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
430 SOUTH KING STREET 31ST FLOOR
HONOLULU, HAWAII 96813
PHONE 533-4427 • FAX 537 3499



FRANK P. KAHU
DIRECTOR

MICHAEL SCHEFFERT
DIRECTOR
GAIL M. KALISO
DEPUTY DIRECTOR

January 23, 1991

Mr. Walter M. Ozawa
Department of Parks and Recreation
650 South King Street
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice

Dear Mr. Ozawa:

Thank you for your review and comments dated December 6, 1990 regarding the subject EIS Preparation Notice.

The City and County will be seeking an exemption to the Park Dedication Ordinance No. 4621 as specified in the Park Dedication Rules and Regulations through Chapter 201E of the Hawaii Revised Statutes. A significant amount of passive park-like areas will be included in the project plan, but these spaces may not qualify as park space as defined by Ordinance No. 4621. The project architect will coordinate with your staff to insure that an appropriate solution can be realized.

Your comment that Street Tree Planting Plans (Section 5-513) must be reviewed and approved by the Department of Parks and Recreation, is noted.

13 12 11 10 9 8 7 6 5 4 3 2 1

A copy of the Draft EIS will be sent to your Department when it is completed.
Should you require any additional information, please call Eileen Mark at 527-5995.

Sincerely yours,

Michael Scarfone

Michael Scarfone
Director



BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
830 SOUTH BERTANA STREET
HONOLULU HAWAII 96813



November 29, 1990

FRANK FAS, Mayor
DONALD B. GOTH, Chairman
SISTER M. DANIELA, J.M. Check, O.S.F.
M. CHAN
SAMUEL LEE
EDWARD Y. MAIYA
WALTER O. WATSON, JR.
MARGARET H. YAMASAKI
KAZU HAYASHIDA
Member at Large

TO: MICHAEL SCARFONE, DIRECTOR
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

ATTN: EILEEN MARK

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: AM PARTNERS, INC.'S LETTER OF NOVEMBER 8, 1990 REGARDING
THE ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR THE PROPOSED KAILUA ELDERLY HOUSING PROJECT

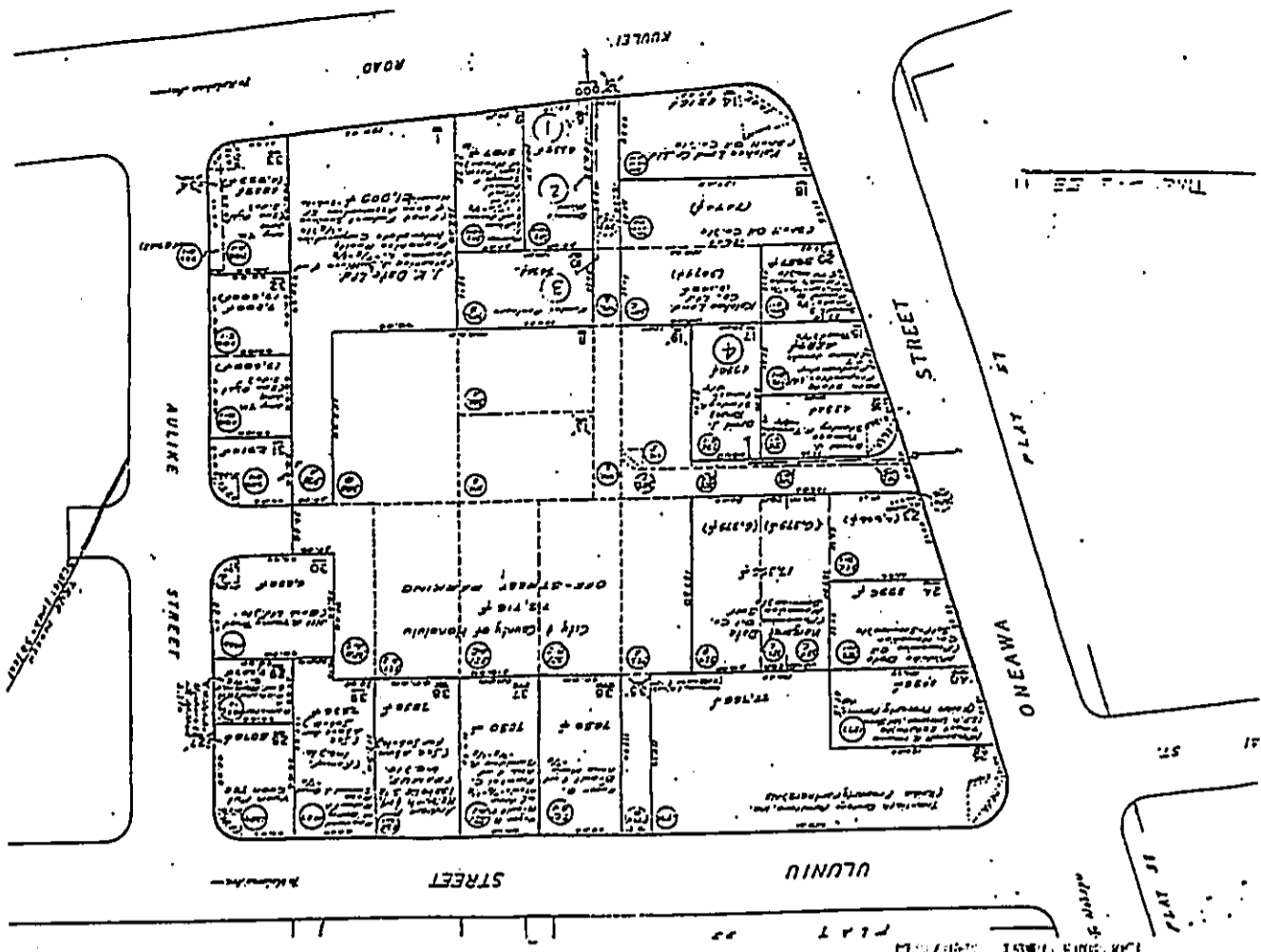
We have the following comments on the proposed project:

1. There are no existing water services for the site of the proposed project.
2. The availability of water for the proposed project will be determined when the building permit is submitted for our review and approval.
3. If water is made available, the developer will be required to pay our Water System Facilities Charges.
4. If a meter larger than three-inches is required, construction plans must be submitted for our review and approval.
5. Although there are no water services for the site, private property piping for two adjacent lots (T.M.K.s: 4-3-55: 10 and 17) are located within the parcel (see attached map). The two lots are landlocked; therefore, provisions should be made to continue water service to the lots.

If you have any questions, please contact Bert Kuoaka at 527-5235.

Attachment
cc: Department of General Planning

Per Water... man's greatest need - use it wisely



DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

890 SOUTH KING STREET, 27TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 533-4433 • FAX: 537-8488



PLANNING DIVISION

MICHAEL N. SCARFONE
DIRECTOR

Call Kaito
for assistance

Mr. Kazu Hayashida
February 8, 1991
Page 2

A copy of the Draft EIS will be forwarded for your review when it is completed. If you have any questions, please call Eileen Mark at 527-5095.

February 8, 1991

Sincerely,

Michael N. Scarfone

MICHAEL N. SCARFONE
Director

MEMORANDUM

TO: Kazu Hayashida, Manager and Chief Engineer
Board of Water Supply

FROM: Michael N. Scarfone

SUBJECT: Kailua Elderly Housing Project
Environmental Impact Statement Preparation Notice

91 Thank you for your review and comments on the subject EIS Preparation Notice. The following comments are offered in response to your letter of November 29, 1990.

1. We understand that no existing water services are presently located on site. We will coordinate with your Customer Service Division to arrange an appropriate connection for the proposed project.
2. A request for water availability will be made concurrently with the submission of the building permit for Board of Water Supply review and approval.
3. The Water System Facilities Charges are acknowledged.
4. If the project's water demand requires the use of a meter larger than three inches, the construction plans will be submitted to the Board of Water Supply for review and approval.
5. We understand that lots identified by Tax Map Keys: 4-3-55: 10 and 17 have private property piping. We will coordinate with the Board of Water Supply to insure that water service to these lots is maintained.

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1418 SOUTH BERTANINA STREET, ROOM 305
HONOLULU, HAWAII 96814



FRANKIE JESS
DATE:

LOU LEE CAMARA
DATE:

FRANKIE JESS
DATE:



DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
810 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE 527-5095

MICHAEL SCARFONE
DATE:

November 15, 1990

TO: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING
FROM: DONALD S. H. CHANG, ACTING FIRE CHIEF
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
KAILUA ELDERLY HOUSING

January 23, 1991

Mr. Lionel E. Camara
Fire Department
1455 South Bertanina Street, Room 305
Honolulu, Hawaii 96814

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice

We have reviewed the subject material provided and have no additional comments.

Should you have any questions, please contact Battalion Chief Attilio Leonard of our Administrative Services Bureau at local 3832.

Donald S. H. Chang
DONALD S. H. CHANG
Acting Fire Chief

Dear Mr. Camara:

This is in response to your letter of November 15, 1990 in which you indicated that you have no comments regarding the subject EIS preparation notice.

Thank you for taking the time to review the EIS preparation notice for the proposed Kailua Elderly Housing Project. We will be sending a copy of the Draft EIS when it becomes available. Should you require any additional information, please call Eileen Mark at 527-5095.

Sincerely yours,

Gail M. Kaito

Gail M. Kaito
Deputy Director

AKL:ny

Copy to: DHCD (Attn: Ms. E. Mark)

RECEIVED BY THE CITY AND COUNTY OF HONOLULU

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1015 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96814

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
610 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE 533-4437 / FAX 537-1498



FRANK E. KANE
DIRECTOR

MICHAEL S. NAKAMURA
CHIEF OF POLICE

FRANK E. KANE
DIRECTOR

MICHAEL S. NAKAMURA
CHIEF OF POLICE

REFERENCE ES-2K

November 15, 1990

January 17, 1991

90 NOV 16 12:41
HONOLULU
& COMMUNITY DEVELOPMENT

TO: BENJAMIN E. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: MICHAEL S. NAKAMURA, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

Chief Michael S. Nakamura
Honolulu Police Department
1455 South Beretania Street
Honolulu, Hawaii 96814

Subject: Kailua Elderly Housing Project
Environmental Impact Statement (EIS) Preparation Notice

SUBJECT: KAILUA ELDERLY HOUSING EIS PREPARATION NOTICE

We have reviewed the EIS preparation notice for the Kailua elderly housing project and found nothing in it that requires comment by this department.

Dear Chief Nakamura:

This is in response to your letter of November 15, 1990, in which you indicated that you have no comments regarding the subject EIS preparation notice.

Thank you for the opportunity to review this proposal.

MICHAEL S. NAKAMURA
Chief of Police

Thank you for taking the time to review the EIS preparation notice for the proposed Kailua Elderly Housing Project. A copy of the Draft EIS will be sent to your office when it is completed. Should you require any additional information, please call Eileen Mark at 527-5095.

Chester E. Hughes
CHESTER E. HUGHES
Assistant Chief of Police
Support Services Bureau

Sincerely yours,

cc: JHCDV

Michael Scarfone

Michael Scarfone
Director

1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100

CHAPTER XV
PARTIES CONSULTED DURING
DEIS REVIEW PERIOD

XV. PARTIES CONSULTED DURING DRAFT EIS PERIOD

The City and County Department of Housing and Community Development has determined that an environmental impact statement must be prepared for the proposed Kailua Elderly Housing project pursuant to Chapter 343, Hawaii Revised Statutes. A Draft Environmental Impact Statement (DEIS) for the project was published on March 8, 1991 in the OEOC Bulletin which was followed by a 45-day review period which ended on April 22, 1991. Copies of the DEIS were mailed to the following list of consulted parties. Sixteen of the thirty four parties consulted responded in writing. These comments and their respective responses are provided in this section.

<u>Federal</u>	<u>Date of Comment</u>
Department of Housing and Urban Development	
U.S. Army Corps of Engineers	April 15, 1991
U.S. Department of the Interior, Fish & Wildlife Service	March 29, 1991
U.S. Department of Agriculture (Soils Conservation)	March 25, 1991
Department of Navy	March 26, 1991
 <u>State</u>	
Department of Defense	March 13, 1991
Department of Education	
Department of Business and Economic Development	March 13, 1991
Office of State Planning, Governor's Office	April 17, 1991
Department of Health	March 25, 1991
Department of Land and Natural Resources	April 24, 1991
Department of Land and Natural Resources, Historic Preservation Office	
Office of Environmental Quality Control	April 1, 1991
Department of Transportation	March 21, 1991
Department of Agriculture	
Hawaii Housing Authority	
Housing Finance and Development Corporation	April 23, 1991
University of Hawaii Environmental Center	April 18, 1991
Land Use Commission	March 15, 1991
Department of Accounting and General Services	March 20, 1991
 <u>City</u>	
Department of General Planning	May 3, 1991
Department of Land Utilization	March 27, 1991
Department of Transportation Services	May 1, 1991
Building Department	March 15, 1991
Department of Public Works	March 21, 1991

Department of Parks and Recreation
Board of Water Supply
Fire Department
Honolulu Police Department
Office of Human Resources
Department of Finance

March 28, 1991
April 12, 1991
March 12, 1991
March 15, 1991

Others

Hawaiian Electric Company, Inc.

March 27, 1991

Councilmember David Kahanu
City Council
City and County of Honolulu
Honolulu, Hawaii 96813

Councilmember John Henry Felix
City Council
City and County of Honolulu
Honolulu, Hawaii 96813

Ms. Bonnie Heim, Chair
Kailua Neighborhood Board No. 31

Kailua Chamber of Commerce
P.O. Box 1496
Kailua, Hawaii 96734

Kailua Community Council
c/o Satellite City Hall
629-A Kailua Road
Kailua, Hawaii 96734

Ms. Pearl Ching
Pali Seniors

Mr. Flip Grisolano
Kailua Seniors

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 (x) AGENCY ACTION

TITLE: KAILUA ELDERLY HOUSING DEIS

LOCATION: Kailua, Koolauapoko, Oahu

PROPOSING AGENCY/APPLICANT: Dept of Housing & Community Development
City & County of Honolulu

ACCEPTING AUTHORITY/APPROVING AGENCY: Department of General Planning
City & County of Honolulu

PUBLICATION DATE: 03 08 91 DEADLINE FOR COMMENTS: 04 22 91

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Dept. of Hawaiian Home Lands (a) *		
Dept. of Health	1	
Dept. of Land & Natural Resources	3	
DLNR State Historic Preservation Officer	1	
Dept of Business & Economic Development	1	
DBED Library	1	
Housing Finance & Development Corporation	1	
Dept. of Transportation	3	
State Archives	1	
State Energy Office	1	
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U.S. Geological Survey (a) *		

(a)*Copy desired only if project involves agency's responsibility

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Honolulu, HI 96813
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Maui News (b)**		
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<u>CITY AND COUNTY OF HONOLULU (b)**</u>		
Board of Water Supply	1	
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Dept. of Public Works	1	
Dept. of Transportation Services	1	
Fire Dept.	1	
Municipal Reference and Records Center (Oahu only)	1	
Police Dept.	1	
<u>COUNTY OF HAWAII (b)**</u>		
Planning Dept.		
Dept. of Parks and Recreation		
Dept. of Public Works		
Dept. of Research and Development		
Dept. of Water Supply		
University of Hawaii - Hilo Campus Library		
<u>COUNTY OF MAUI (b)**</u>		
Planning Dept.		
Dept. of Parks and Recreation		
Dept. of Public Works		
Dept. of Water Supply		
Economic Development Agency		
Maui Community College Library		
<u>COUNTY OF KAUAI (b)**</u>		
Planning Dept.		
Dept. of Public Works		
Dept. of Water Supply		
Kauai Community College Library		
<u>NON-GOVERNMENTAL AGENCIES</u>		
American Lung Association	1	
Hawaiian Electric Company	1	
Office of Hawaiian Affairs	1	
<u>LIBRARIES</u>		
U.H. Hamilton Library, Hawaiian Collection	1	
Legislative Reference Bureau	1	

(b)** Copy desired only if project is in respective county.

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Kaneohe Regional Library	1	
Pearl City Regional Library	1	
Hilo Regional Library	1	
Wailuku Regional Library	1	
Lihue Regional Library	1	
OAHU:		
Aiea Library		
Aina Haina Library		
Ewa Beach Community-School Library		
Hawaii Kai Library		
Kahuku Community-School Library		
Kailua Library	1	
Kalihi-Palama Library		
Liliha Library		
Manoa Library		
McCully-Moiliili Library		
Mililani Library		
Wahiawa Library		
Waialua Library		
Waianae Library		
Waikiki-Kapahulu Library		
Waimanalo Community-School Library	1	
Waipahu Library		
HAWAII		
Bond Memorial (Kohala) Library		
Holualoa Library		
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Lanai Community-School Library		
KAUAI		
Hanapepe Library		
Kapaa Library		
Koloa Community-School Library		
Waimea Library		

OTHERS

Councilmember Stephen Holmes
City Council
City & County of Honolulu
Honolulu, Hawaii 96813

Councilmember John Henry Felix
City Council
City & County of Honolulu
Honolulu, Hawaii 96813

Kailua Chamber of Commerce
P.O. Box 1496
Kailua, Hawaii 96734

Kailua Community Council
c/o Satellite City Hall
629-A Kailua Road
Kailua, Hawaii 96734

Ms. Bonnie Heim, Chair
Kailua Neighborhood Board No. 31
14 Aulike Street
Apt. #1006
Kailua, HI 96734

Ms. Pearl Ching
Pali Seniors
1211 Punua Way
Kailua, HI 96734

Mr. Flip Grisolano
Kailua Seniors
1070 Lunaai Street
Kailua, HI 96734

CHAPTER XVI
DEIS COMMENTS AND RESPONSES



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT SHAFTER, HAWAII 96813

REPLY TO
ATTENTION OF:

Planning Division

April 15, 1991

FRANK JAHN
MAJOR



DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
890 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 527-4427 • FAX: 527-8188

MICHAEL SCARFONE
DIRECTOR
SAM M. BAUTO
SCOUTS DIRECTOR

Mr. Benjamin B. Lee
Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Mr. Lee:

We have reviewed the Draft Environmental Impact Statement for the Kailua Elderly Housing. Our previous comments (letters dated July 10 and December 11, 1990) have been incorporated into the document. We have no additional comments.

Sincerely,

Kisuk Cheung
Kisuk Cheung
Director of Engineering

Copies Furnished:

Department of Housing and Community Development
Attn: Ms. Eileen Mark
City and County of Honolulu
650 S. King Street, 8th Floor
Honolulu, Hawaii 96813

AM Partners, Inc.
Attn: Taeyong Kim
1164 Bishop Street, Suite 1000
Honolulu, Hawaii 96813

Office of Environmental Quality Control
State of Hawaii
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

May 1, 1991

Mr. Kisuk Cheung
Director of Engineering
Department of the Army
Honolulu District Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858-5440

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Cheung:

Thank you for your letter of April 15, 1991, acknowledging that your previous comments regarding the subject project have been incorporated into the Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
Director

UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

P. O. BOX 50004
HONOLULU, HAWAII
96850

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
110 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 527-4427 X FAX 527-5095



MIKE SCARFONE
DIRECTOR
CITY AND COUNTY
OF HONOLULU

FRANKY FERN

March 25, 1991

April 15, 1991

Mr. Benjamin B. Lee
Chief Planning Officer
Department of General Planning
City & County of Honolulu
650 S. King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Mr. Lee:

Subject: Draft Environmental Impact Statement (DEIS) -
Kailua Elderly Housing, Kailua, Koolauloko, Oahu

We have reviewed the above-mentioned DEIS and have no comments to offer at this time. However, we would appreciate the opportunity to review the final EIS.

Sincerely,

Michael Scarfone
WARREN H. LEE
State Conservationist

Mr. Warren M. Lee
State Conservationist
U. S. Department of Agriculture
Soil Conservation Service
P. O. Box 50004
Honolulu, Hawaii 96850

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Lee:

Thank you for your letter of March 25, 1991, in which you indicated that you have no comments regarding the subject Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. A copy of the Final EIS will be sent to your office when it is completed. Should you require any additional information, please call Eileen Mark at 527-5095.

Sincerely yours,

Eileen Mark
for Michael Scarfone
Director

cc: Ms. Eileen Mark, Department of Housing & Community Development, City & County of Honolulu, 650 S. King Street, Honolulu, HI 96813
Mr. Teeyong Kim, AH Partners, Inc. 1164 Bishop Street, Suite 1000, Honolulu, Hawaii 96813
Office of Environmental Quality Control, 220 S. King Street, Fourth Fl., Honolulu, Hawaii 96813



DEPARTMENT OF THE NAVY
 COMMANDER
 NAVAL BASE PEARL HARBOR
 BOX 110
 PEARL HARBOR, HAWAII 96860-0110

11010
 Ser 00F(236)/0793
 26 MAR 1991

Mr. Benjamin B. Lee
 Chief, Planning Officer
 Department of General Planning
 City & County of Honolulu
 650 South King St., 8th Floor
 Honolulu, Hawaii 96813

Dear Mr. Lee:

**DRAFT ENVIRONMENTAL IMPACT STATEMENT
 (DEIS) FOR KAILUA ELDERLY HOUSING**

We reviewed the subject DEIS and have no comments to offer. Since we have no further use for the DEIS, it is being returned to the Office of Environmental Quality Control.

Thank you for the opportunity to review the draft.

Sincerely,

W. K. LIU
 Assistant Base Civil Engineer
 by direction of
 the Commander

Copy to:
 C&C Dept of Hsg & Comm Dev
 AM Partners
 DEQC (w/DEIS)

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
 810 SOUTH KING STREET 8TH FLOOR
 HONOLULU, HAWAII 96813
 PHONE: 533-4437 • FAX: 537-8499



FRANCE FARM
 HOUSE

MICHAEL SCARFONE
 DIRECTOR
 GAIL M. KAITO
 DEPUTY DIRECTOR

April 15, 1991

W. K. Liu
 Assistant Base Civil Engineer
 Department of the Navy
 Naval Base Pearl Harbor
 Box 110
 Pearl Harbor, Hawaii 96860-5020

Subject: Kailua Elderly Housing Project
 Draft Environmental Impact Statement (DEIS)

Dear Mr. Liu:

Thank you for your letter of March 26, 1991, in which you indicated that you have no comments regarding the subject Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
 Director

11010 Ser 00F(236)/0793 26 MAR 1991

JOHN W. HARRIS
DIRECTOR



STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD, HONOLULU, HAWAII 96816-4995

March 13, 1991

Engineering Office

Mr. William Medeiros
Department of General Planning
City & County of Honolulu
650 S. King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Mr. Medeiros:

Kailua Elderly Housing

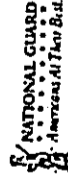
Thank you for providing us the opportunity to review the above subject project.

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

Sincerely,

Jerry M. Matsuda
Jerry M. Matsuda
Lieutenant Colonel
Hawaii Air National Guard
Contracting & Engineering Officer

cc: Ms. Eileen Mark
(Dept. of Housing & Comm. Dev.)
Mr. Taeyong Kim
(AH Partners, Inc.)
OEQC



EDWARD V. RICHARDSON
BRIGADIER GENERAL



WALTER M. HARRIS
LIEUTENANT GENERAL
3949 DIAMOND HEAD ROAD

FRANKIE KASH
MAJOR

May 1, 1991

Lt. Colonel Jerry M. Matsuda
Contracting and Engineering Officer
State of Hawaii
Department of Defense
Office of the Adjutant General
3949 Diamond Head Road
Honolulu, Hawaii 96816-4995

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Lt. Colonel Matsuda:

Thank you for your letter of March 13, 1991, in which you indicated that you have no comments regarding the subject Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
Director

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
450 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE 527-4227 / FAX 527-5188



MICHAEL SCARFONE
DIRECTOR
GEN. M. HARRIS
DEPUTY DIRECTOR



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

JOHN WAIKAI
DIRECTOR
MURRAY E. JONES
DEPUTY DIRECTOR
BARBARA KIM STANTON
DEPUTY DIRECTOR
DANNY DECHUA
DEPUTY DIRECTOR

IMPACT DIVISION, 311 MERCHANT ST., 8TH FLOOR, HONOLULU, HAWAII 96813 PHONE: (808) 541-3388 FAX: (808) 541-4243

March 13, 1991

Department of General Planning
City & County of Honolulu
Municipal Office Building, 8th Floor
650 South King Street
Honolulu, Hawaii 96813

Dear Sir:

Subject: Kailua Elderly Housing DEIS
Kailua, Koolaulupoko, Oahu, THK: 4-3-55:11

We wish to inform you that we have no comments to offer on the subject environmental impact statement.

Thank you for the opportunity to review the document.

Sincerely,

Maurice H. Kaya
Maurice H. Kaya
Energy Program Administrator

MHK:hkeis27

cc: Department of Housing and Community Development
✓ AM Partners, Inc.

**DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU**

810 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 533-4237 FAX: 533-5488



FRANK E. PATE
DIRECTOR

MICHAEL SCARFONE
DIRECTOR
CARL M. RAYO
DEPUTY DIRECTOR

April 15, 1991

Mr. Maurice H. Kaya
Energy Program Administrator
Department of Business, Economic Development & Tourism
Energy Division
335 Merchant Street, Room 110
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

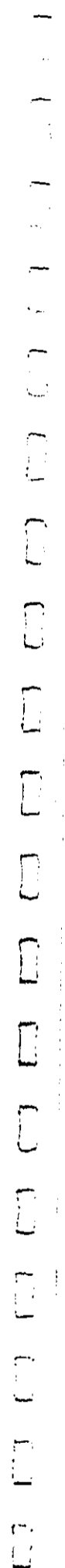
Dear Mr. Kaya:

Thank you for your letter of March 13, 1991, in which you indicated that you have no comments regarding the subject Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
for Director





OFFICE OF STATE PLANNING

Office of the Governor

STATE CAPITAL, HONOLULU, HAWAII 96813 TELEPHONE 522-1414-1415

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

430 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE 522-4227 • FAX 527-8318



FRANK FISH

MICHAEL SCARFONE
DIRECTOR
KAILUA ELDERS
DEVELOPMENT

April 17, 1991

The Honorable Benjamin B. Lee
Chief Planning Officer
Department of General Planning
630 South King Street
Honolulu, Hawaii 96813

Dear Mr. Lee:

Subject: Draft Environmental Impact Statement (DEIS)
Kailua Elderly Housing (TKR 4-3-55:11)
Kailua, Oahu

We have reviewed the Draft Environmental Impact Statement (DEIS) for the proposed construction of an affordable housing project consisting of 84 residential units, a multi-purpose meeting room/meal facility, landscaped garden terrace, mini park, loading stalls and 167 parking stalls for the elderly in Kailua. The project site is located on 1.76 acres of land in the Urban Land Use District.

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

Thank you for the opportunity to comment.

Sincerely,

Harold S. Masumoto
Harold S. Masumoto
Director

cc: Dept. of Housing & Community Development
✓/M Partners, Inc.

May 1, 1991

Mr. Harold S. Masumoto, Director
Office of State Planning
State Capitol
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Masumoto:

Thank you for your letter of April 17, 1991, in which you stated that you have no comments regarding the subject Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
Director

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

430 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE 933-0277 / 741-973-0188



MIKE SCARFONE
DIRECTOR
GAR M BRISTO
COUNTY DIRECTOR

STATE FILE
NUMBER

May 3, 1991

Dr. John C. Lewin
Director of Health
Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Dr. Lewin:

Thank you for your letter of March 25, 1991. The following has been prepared in response to your comments.

1. Your comments that the proposed project is located within the proposed critical wastewater disposal area, in the existing "Pass" Zone, below the existing UIC Line, and that no new cesspools will be allowed within the subject area in the future, have been duly noted.
2. The subject project will be connected to the existing public sewer system. The project sewer system will comply with Department of Health's Administrative Rules Chapter 11-62, and will be available for review upon completion of the detailed wastewater plans.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Bill Kato

Michael Scarfone
Director

(Signature)

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HAWAII 96813

March 25, 1991

Mr. Melvin Murakami
Department of General Planning
City & County of Honolulu
650 South King Street 8th Floor
Honolulu, HI 96813

Dear Mr. Murakami:

Subject: Kailua Elderly Housing Draft Environmental
Impact Statement
Kailua, Koolauopoko, Oahu
TMK: 4-3-55: 11

We have reviewed the material on the above project submitted by your office. We have the following comments to offer:

The above project is located within the proposed critical wastewater disposal area, as determined by the Oahu Wastewater Advisory Committee. It is also in the "Pass" Zone and below the UIC Line. In the future, no new cesspools will be allowed in the subject area.

It has been determined that the subject project is within the County sewer service system. As the area is severed, we have no objections to the proposed housing project development provided that the project is connected to the public sewers. However, we do reserve the right to review the detailed wastewater plans for conformance to the Department of Health's Administrative Rules Chapter 11-62, "Wastewater Systems".

Should you have any further questions, please contact Harold Yee of the Wastewater Branch at telephone 543-8287.

Very truly yours,

John C. Lewin
JOHN C. LEWIN, M.D.
Director of Health

cc: Department of Housing & Community Development
JAH Partners, Inc.
Office of Environmental Quality Control

[Faint vertical text or markings on the right margin]

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

110 SOUTH KING STREET 5TH FLOOR
HONOLULU HAWAII 96813
PHONE 933-4227 • FAX 933-4288



FRANK CASH
DIRECTOR

WILLIAM W. PATY
DIRECTOR
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

Mr. William W. Paty
May 10, 1991
Page Two

May 10, 1991

Mr. William W. Paty, Director
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Paty:

Thank you for your DEIS comments dated April 24, 1991, in which you stated that the DEIS appears to meet your requirements pursuant to HRS 6-E, that prior to below grade construction an adequate archaeological inventory survey must be completed to determine if significant subsurface historic sites are present at the site. We also acknowledge your concerns and recommendations regarding the proposed project, as follows:

- Archaeological monitoring will be conducted during the removal of the parking lot and subsequent archaeological excavations will be conducted to determine the presence or absence of significant subsurface deposits.
- Below grade construction may commence if no subsurface sites are found. If significant subsurface deposits are present, further archaeological excavations and analysis may be needed for your agency to reach a "no effect" determination. Below grade construction will not commence until the termination of such excavation.

- The Final EIS will be revised to clarify your agency's concerns with respect to historic and archaeological resources.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. If you have any questions, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Gail Keito

Michael Scarfone
Director

for

110 SOUTH KING STREET 5TH FLOOR
HONOLULU HAWAII 96813
PHONE 933-4227 • FAX 933-4288

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

810 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 833-6637 • FAX: 837-3436



MICHAEL SCARFONE
DIRECTOR
GARY M. HAYES
DEPUTY DIRECTOR

BRIAN J. CHOY
Acting Director

FRANK FARM
MANAGER



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813

April 1, 1991

Ms. Eileen Mark
Department of Housing and Community Development
650 South King Street, 5th Floor
Honolulu, Hawaii 96813

Dear Ms. Mark:

SUBJECT: Kailua Elderly Housing
Draft Environmental Impact Statement

We have reviewed the document listed above and have no comments to offer at this time.

Thank you for the opportunity to submit comments on this project.

Sincerely,

Brian J. Choy

Brian J. J. Choy

cc: Lovell Chun, AM Partners
Melvin Marchant, ECP

May 3, 1991

Mr. Brian J. J. Choy
Acting Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Choy:

Thank you for your letter of April 1, 1991, in which you indicated that you have no comments regarding the subject Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone

Michael Scarfone
Director

JOHN MAHE
SECRETARY



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

EDWARD Y. HIRATA
DIRECTOR
SUSAN PALMISTO
ALYSON
JONCEY O'NEILL
JEANNE K. SCHULTZ
CAVALINA TSUDA
MIRREY RIVERA TO

HWY-PS
2.6122

FRANKIE FARR
MAILER

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

430 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 522-4227 • FAX: 527-3498



MICHAEL SCARFONE
DIRECTOR
GAIL M. KAITO
DEPUTY DIRECTOR

May 3, 1991

Dr. Bruce Anderson
Director
Office of Environmental Quality
Control
465 South King Street, Room 115
Honolulu, Hawaii 96813

Dear Dr. Anderson:

Draft Environmental Impact Statement (DEIS)
Kailua Elderly Housing Project, Oahu, TMK: 4-3-55: 11
Thank you for your transmittal of March 11, 1991 requesting our
review of the subject DEIS.

The proposed project will not affect our State highway
facilities. Our previous comment has been satisfactorily
addressed.

Very truly yours,

Edward Y. Hirata
Director of Transportation

Mr. Edward Y. Hirata
Director of Transportation
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

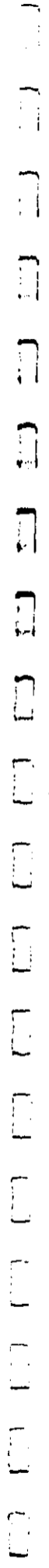
Dear Mr. Hirata:

Thank you for your letter of March 21, 1991, in which you stated that the
proposed project will not affect State highway facilities.

We appreciate your participation in reviewing the Draft EIS for the
proposed Kailua Elderly Housing Project. Should you require any additional
information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Director



DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

850 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE 522-4227 • FAX 527-5095



MICHAEL SCARFONE
DIRECTOR
GAIL M. MARK
DEPUTY DIRECTOR



STATE OF HAWAII
DEPARTMENT OF BUDGET AND FINANCE
HOUSING FINANCE AND DEVELOPMENT CORPORATION
SEVEN WATERFRONT PLAZA, SUITE 300
500 ALA MOANA BOULEVARD
HONOLULU, HAWAII 96813
FAX (808) 527-5095

JOSEPH K. CONANT
EXECUTIVE DIRECTOR

FRANK P. KIM
DIRECTOR

May 1, 1991

91:PLNG/1884jt

April 23, 1991

TO: Department of General Planning
City and County of Honolulu
FROM: Joseph K. Conant
Executive Director
SUBJECT: Draft EIS for the Proposed Kailua Elderly Housing
Project

Thank you for the opportunity to review the subject draft EIS.
We are supportive of the City's efforts to increase affordable
rental housing opportunities on Oahu.

JT:eks

c: Eileen Mark, DHCD
AM Partners, Inc.
Office of Environmental Quality Control

Mr. Joseph K. Conant
Executive Director
Department of Budget and Finance
Housing Finance and Development Corporation
Seven Waterfront Plaza, Suite 300
500 Ala Moana Boulevard
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement

Dear Mr. Conant:

Thank you for your letter of April 23, 1991 supporting the City's efforts to
develop affordable rental units on Oahu.

We appreciate your participation in reviewing the Draft EIS for the
proposed Kailua Elderly Housing Project. Should you require any additional
information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
Director



University of Hawaii at Manoa

Environmental Center
A Unit of Water Resources Research
650 South King Street, 8th Floor
Honolulu, Hawaii 96813
Telephone: (808) 957-7461

April 18, 1991
PE:0578

Department of General Planning
City and County of Honolulu
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Sir/Madam:

Draft Environmental Impact Statement (EIS)
Kailua Elderly Housing Project
Kailua, Oahu

The above referenced project includes development of 24 residential units for the elderly, a multi-purpose meeting room and meal facility, landscaped garden terraces, a mini park, loading stalls, and parking for 147 vehicles.

The Environmental Center has reviewed this Draft EIS with the assistance of Harlan Hashimoto, Public Health; Colette Browne, Social Work; and Lee Lyttle, Environmental Center.

General Comment

Our reviewers generally were supportive of the project's thrust towards providing housing for the elderly community. Because of the special characteristics of this segment of the population, it is important that facility design features affecting health and safety exceed minimal standards wherever possible.

Development Criteria (page 9)

The author provides an excellent breakdown of the criteria for site utilization. It would be most helpful to include a similar breakdown of design considerations affecting resident convenience and safety, including but not limited to distances from units to elevators, special lighting, wheelchair navigable hallways and door openings, and security measures.

An Equal Opportunity/Affirmative Action Institution

Department of General Planning
April 18, 1991
Page 2

Existing Demand for Housing and Social Environment (page 25)

In 1979, the State Department of Planning and Economic Development estimated that the elderly population would expand by approximately 75 percent between 1980 and 2000. Further, the 1985 U.S. Census estimated that the percentage of the elderly in Hawaii's population would grow from 10 to 20 percent by 2025. These facts should be pointed out in this section.

Air Quality (page 45)

This section fails to discuss potential respiratory health hazards to an elderly population living directly above a parking structure. Exhaust fans for this area are mentioned only incidentally and in another section addressing the noise effects (page 46). The venting of this area should far exceed minimum standards.

Thank you for the opportunity to comment on this document.

Yours truly,

John T. Harrison, Ph.D.
Environmental Coordinator

cc: OEQC
Eileen Mark
M Partners, Inc.
Roger Fujioka
Harlan Hashimoto
Colette Browne
Lee Lyttle

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
430 SOUTH KING STREET, 31st FLOOR
HONOLULU, HAWAII 96813
PHONE 532-4227 • FAX 532-8488



MICHAEL SCARFONE
DIRECTOR
DAN M. KING
SENIOR MANAGER

Dr. John T. Harrison
May 10, 1991
Page Two

May 10, 1991

Dr. John T. Harrison
Environmental Coordinator
University of Hawaii at Manoa
Environmental Center
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Dr. Harrison:

Thank you for your letter of April 18, 1991. The following has been prepared in response to your comments.

1. **General Comment**
The design of the proposed project will exceed minimal standards wherever possible, in recognition of the needs of elderly residents.
2. **Development Criteria**
Your concerns regarding design considerations affecting resident convenience and safety are acknowledged. In response, the Final Environmental Impact Statement has documented functional considerations used in the current design. They include the following:
 - Elevators conveniently or centrally located to minimize distance to residential units.
 - Lighting strategically located to ensure resident security and safety.

- Facilities designed according to Uniform Federal Accessibility Standards (UFAS) to ensure appropriate accessibility for the physically handicapped.
- Surface material, signage, and lighting to enhance accessibility and convenience.
- Limited and securable access to be provided to all resident areas.

3. **Existing Demand for Housing & Social Environment**
Your comment on the estimated elderly population in Hawaii by the State Department of Planning and Economic Development and the 1985 U.S. Census has been acknowledged and incorporated into the final Environmental Impact Statement.

4. **Air Quality**
Your concern regarding the possible health hazards to an elderly population living above a parking structure has been noted. In response to your concerns, the project design was reviewed in consultation with the project air quality consultant and the following mitigations were identified:

Ample ventilation of the parking areas will reduce the possibility of infiltration of fumes to residential units above the parking structure. Intake fans will supply fresh air to the lower parking level at the normally prescribed 1.5 cfm per square foot of floor space. Air will then circulate through the lower level and exit to the upper level via stairwells, ramps and other openings.

The upper parking level will rely on natural ventilation to remove fumes from the parking structure. State design guidelines require that at least half of the wall area along

Dr. John T. Harrison
May 10, 1991
Page Three

40 percent of the perimeter be open in naturally vented parking facilities. This equates to at least 20 percent of the wall area. The present design designates 20 percent of the wall area on the upper parking level as open. A large portion of these openings face toward the north. Northeast trade winds will have a near-direct approach to the openings in these walls, giving maximum natural ventilation.

Infiltration of fumes to residential units above the parking structure via stairwells, elevator shafts and other openings will be prevented by designing the facilities such that any "chimney" effects are avoided. This includes the provision for a lobby enclosure and doorways to the elevator located on the upper parking level.

The above information will be incorporated into the "Mitigation Measures" section of the FEIS.

We thank you for your participation in reviewing the Draft EIS for the Proposed Kailua Elderly Housing Project. Should you require any additional information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
Director

MS

PAUL W. LINDSEY
COMMISSIONER



STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
Room 114, Old Federal Building
333 Siverman Street
Honolulu, Hawaii 96813
Telephone: 548-4111

ESTHER UEDA
EXECUTIVE OFFICER

ESTHER UEDA
DIRECTOR

March 15, 1991

Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Gentlemen:

Subject: Draft Environmental Impact Statement for Kailua
Elderly Housing at Kailua, Koolauapoko, Oahu,
TRK No. 4-3-55:11

We have reviewed the Draft EIS and have no comments at this
time other than to confirm that the subject property is
designated within the State Land Use Urban District.

Thank you for the opportunity to comment on this matter.

Sincerely,

ESTHER UEDA
Executive Officer

EU:to

cc: DHCD
AM Partners
OEQC

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

855 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE 527-4527 • FAX 527-5498



MICHAEL SCARFONE
DIRECTOR
GAIL M. RAITO
DEPUTY DIRECTOR

April 15, 1991

Ms. Esther Ueda
Executive Officer
Department of Business, Economic Development & Tourism
Land Use Commission
335 Merchant Street, Room 104
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Ms. Ueda:

Thank you for your letter of March 15, 1991, in which you indicated that you have
no comments regarding the subject Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed
Kailua Elderly Housing Project. Should you require any additional information,
please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Director

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

930 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 521-4277 • FAX: 527-5188



FRANKIE JARA
VICE

(P)1274.1

MICHAEL SCARFONE
DIRECTOR
GAIL W. HIND
CHIEF OF BUREAU

MAR 20 1991

April 15, 1991

Department of General Planning
City and County of Honolulu
550 South King Street, 8th Floor
Honolulu, Hawaii 96813

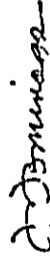
Attention: Mr. Melvin Murakami
Gentlemen:

Subject: Kailua Elderly Housing
Draft EIS

Thank you for the opportunity to review the subject document. We have no comments to offer.

Should there be any questions, please contact Mr. Ralph Yukumoto of the Planning Branch at 548-7192.

Very truly yours,


TEUANE TOMINAGA
State Public Works Engineer

RY:jk
cc: Department of Housing and Community Development,
City and County of Honolulu
✓AH Partners, Inc.
Office of Environmental Quality Control

Mr. Teuane Tomimaga
State Public Works Engineer
Department of Accounting & General Services
Public Works Division
1151 Punchbowl Street
Honolulu, Hawaii 96813

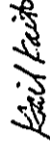
Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Tomimaga:

Thank you for your letter of March 20, 1991, in which you indicated that you have no comments regarding the subject Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Fifteen Mark at 527-5095.

Sincerely yours,



Michael Scarfone
Director

SEV 37:57:57 Teletype 7021 : 5-10-91 11:21:55M :

CHCP-

EGS 538 0027:22

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

440 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK EARL
DIRECTOR

BENJAMIN B. LEE
CHIEF PLANNING OFFICER
440 SOUTH KING STREET
HONOLULU, HAWAII 96813

MM 3/91-793

May 3, 1991

MEMORANDUM

Mike

TO: MICHAEL N. SCARFONE, DIRECTOR
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

ATTN: EILEEN MARK

FROM: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT
KAILUA ELDERLY HOUSING
LOCATION: KAILUA, OAHU
TAX MAP KEY: 4-3-55: 11

This is in response to your request for comments on the Draft Environmental Impact Statement (DEIS) for the proposed project. We have reviewed the DEIS and have no comments. Should you have any questions, please call Melvin Murakami of our staff at 527-6020.

BEL:lh

B. Lee
BENJAMIN B. LEE
Chief Planning Officer

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

440 SOUTH KING STREET 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE 527-6027 • FAX 527-5088



FRANK EARL
DIRECTOR

MICHAEL SCARFONE
DIRECTOR
GAIL H. KAITO
DEPUTY DIRECTOR

May 17, 1991

Mr. Benjamin B. Lee
Chief Planning Officer
Department of General Planning
650 South King Street
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Lee:

Thank you for your letter of May 3, 1991, in which you indicated that you have no comments regarding the subject Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Gail Kaito
Michael Scarfone
Director

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

400 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 531-4131



FRANK J. JARI
DIRECTOR

DONALD A. CLEGG
DIRECTOR
DEPARTMENT OF LAND UTILIZATION

3/1-1127

LUB/91-1517 (AC)

March 27, 1991

MEMORANDUM

TO : BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM : DONALD A. CLEGG, DIRECTOR OF LAND UTILIZATION

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR
PROPOSED KAILUA ELDERLY HOUSING PROJECT
KAILUA, OAHU. TAX MAP KEY 4-3-55: 11

Thank you for the opportunity to review and comment on the above-referenced project. Please allow our memorandum of February 21, 1991 to serve as our response to the DEIS.

Should you have any questions, please contact Art Challacombe of our staff at extension 4107.

Donald Clegg
DONALD A. CLEGG
Director of Land Utilization

DAC:fm
Encl.
cc: Dept. of Housing & Community Development
A.M. Partners, Inc.

DGP:fam

RECEIVED

'91 FEB 27 PM 3:18

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

400 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 531-4131



FRANK J. JARI
DIRECTOR

DONALD A. CLEGG
DIRECTOR
DEPARTMENT OF LAND UTILIZATION
(AM)

February 21, 1991

MEMORANDUM

TO: MICHAEL SCARFONE, DIRECTOR
DEPARTMENT OF HOUSING & COMMUNITY DEVELOPMENT

FROM: DONALD A. CLEGG, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

SUBJECT: REQUEST TO REVIEW PROPOSED EXEMPTIONS AUTHORIZED BY
SECTION 201E-210 HRS AND 46-15.1 HRS
KAILUA ELDERLY HOUSING PROJECT, KAILUA, OAHU
TAX MAP KEY: 4-3-55: 11

In reply to your memorandum of February 13, 1991, the following are our comments regarding the request for exemptions for the subject project:

Zoning

1. Exemption from the Development Plan is under the purview of the Department of General Planning.
2. We have no objections to permit the proposed A-2 Medium Density Apartment use in a B-2 Community Business District. The A-2 District standards and regulations under the Land Use Ordinance shall be applicable to the project except for items exempted under section 201E, HRS.
3. Exemptions from Ordinance 83-8 to designate the site for government building modification is under the purview of the Department of General Planning.
4. We have no objections to the proposed off-street parking spaces of one parking space for four units for this project for elderly persons.
5. We have no objections to permit the building height to exceed the 40-foot height limit by 5 feet for approximately 25 percent of the roof line.

Michael Scarfone
Page 2

6. We have no objections to exemption from the Park Dedication Ordinance since a private recreational park area is proposed on site. The matter should also be reviewed and approved by the Department of Parks and Recreation.

Should you have any questions, please contact Mr. Art Muraoka, Chief-Design Division, at 523-4251.

Donald A. Clegg

DONALD A. CLEGG
Director of Land Utilization

DAC:9C
DHCD:9kc

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

450 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE 333-4127 • FAX 337-3488



FRANK PASH
2008

MICHAEL SCARFONE
DIRECTOR
CAIL M. KAITO
DEPUTY DIRECTOR

Mr. Donald A. Clegg
May 3, 1991
Page Two

May 3, 1991

Mr. Donald A. Clegg
Director of Land Utilization
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Subject: Kaihala Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Clegg:

Thank you for your letter of March 27, 1991. We acknowledge your request that the following comments from your memo dated February 21, 1991 regarding various exemptions proposed for the project pursuant to Chapter 201-E HRS serve as your responses to the DEIS:

1. Exemptions from the Development Plan and Ordinance §3-8 (to designate the site for government building modification) are under the purview of the Department of General Planning.
2. DLU has no objections to the following requests for exemptions:
 - To permit the proposed A-2 Medium Density Apartment use in a B-2 Community Business District. The proposed project will comply with the Land Use Ordinance A-2 District standards and regulations except for items exempted under Section 201E, HRS;
 - The proposed provision for off-street parking spaces based on one parking space for four units;

- To allow the building height to exceed the 40-foot height limit by five feet for approximately 25 percent of the roof line;
- To exempt the project from Park Dedication requirements, since a private recreational park area is proposed on the site. The Department of Parks and Recreation will be contacted for review and approval at the appropriate time.

We appreciate your participation in reviewing the Draft EIS for the proposed Kaihala Elderly Housing Project. Should you require any additional information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone

Michael Scarfone
Director

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL ENGINEERING
450 SOUTH KING STREET
HONOLULU, HAWAII 96813



STANDARD FORM NO. 64

JOSEPH M. MAGALDI, JR.
DIRECTOR

Benjamin B. Lee
Page 2
May 1, 1991

6. The minimum vertical clearances from floor to floor and from floor to overhead obstruction should be 9 feet and 7 feet, respectively.

Should you have any questions, please contact Lance Watanabe of my staff at local 4199.

TE-1346
TE-1517
PL91.1.076
PL91.1.113

May 1, 1991

MEMORANDUM

TO: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: JOSEPH M. MAGALDI, JR., DIRECTOR

SUBJECT: KAILUA ELDERLY HOUSING
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
TAX MAP KEY: 4-3-55: 11

cc: Department of Housing and
Community Development
AH Partners, Inc.
Office of Environmental
Quality Control

JOSEPH M. MAGALDI, JR.

This is in response to the DEIS submitted to our department for review by the Office of Environmental Quality Control.

Our concerns are as follows:

1. Loading zones should be located in areas where they are easily accessible to all project tenants and designed such that no maneuvering of vehicles should occur on any public street.
2. If underground parking is to be provided, adequate drainage facilities should be constructed to prevent flooding in the lower levels.
3. Construction plans should be submitted to our department for review.
4. Access locations to the project should be submitted to our department for approval before design of the project is initiated.
5. We recommend that the neighborhood board be informed of the progress in the implementation of the interim parking plan.

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

430 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE 832-4337 • FAX 837-8438



MICHAEL SCARFONE
DIRECTOR
CHILDREN'S SERVICES
DEPARTMENT

Mr. Joseph M. Magaldi, Jr.
May 10, 1991
Page Two

May 10, 1991

Mr. Joseph M. Magaldi, Jr., Director
Department of Transportation Services
650 South King Street
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Magaldi:

Thank you for your letter of May 1, 1991 regarding the subject Draft Environmental Impact Statement. The following has been prepared in response to your comments.

1. Based on the City & County Land Use Ordinance, one loading zone is required for the project. This loading zone has been located on-grade at the Aulike side of the building. The elevators to the residential floors are located conveniently nearby. This loading zone location is very accessible to project tenants. In addition, no maneuvering on public streets will be required since by using the parking garage entrance driveway and drop-off area, maneuvering of vehicles using this zone can be accomplished entirely within the property.
2. Adequate drainage of the underground parking level will be provided by area drains which will connect to the City & County storm drain system.
3. Construction plans will be submitted for DTS review as part of the Building Permit review process. Progress drawings have

been submitted and reviewed by DTS at key stages of the contract documents preparation.

4. The Neighborhood Board will be informed of the progress in the implementation of the interim parking plan.
5. Parking garage floor-to-floor heights are 9 feet for the lower parking level and 9 feet-8 inches for the upper parking level. Distances from floor to overhead obstruction at both parking floors will exceed the 6'-6" Uniform Building Code vertical clearance requirement to provide 7'-0" in clear height.

We appreciate your participation in reviewing the Draft EIS for the Kailua Elderly Housing Project. If you have any questions, please call Ms. Eileen Mark at 527-5095.

Sincerely Yours,

Michael Scarfone

Michael Scarfone
Director

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 833-4227 • FAX: 837-5418



FRANK P. JARVIS
MAYOR

MICHAEL SCARFONE
DIRECTOR
Cell: H. Keiko
DEPUTY DIRECTOR

PB 91-259

March 15, 1991

April 15, 1991

MEMO TO: BENJAMIN LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: HERBERT K. MURAOKA
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: KAILUA ELDERLY HOUSING
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

We have reviewed the DEIS for the subject project and have no comments to offer.

Herbert K. Muraoka
HERBERT K. MURAOKA
Director and Building Superintendent

Mr. Herbert K. Muraoka
Director & Building Superintendent
Building Department
650 South King Street
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Muraoka:

Thank you for your letter of March 15, 1991, in which you indicated that you have no comments regarding the subject Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
Director

JH:jo
cc: J. Harada
Dept. of Housing & Comm. Development
AM Partners, Inc.
Office of Environmental Quality Control

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



FRANK P. FASI
DIRECTOR

SAM CALLEJO
DIRECTOR AND CHIEF ENGINEER
C. MICHAEL STREET
HONOLULU, HAWAII 96813
In reply refer to:
ENV 91-57(449)

March 21, 1991

MEMORANDUM

TO: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: SAM CALLEJO, DIRECTOR AND CHIEF ENGINEER

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
KAILUA ELDERLY HOUSING
THK: 4-3-55: 11

We have reviewed the subject DEIS and have the following comments:

1. We have no objections to the proposed elderly housing project.
2. On page 30, the last sentence of the first paragraph under Item 5. Wastewater should read...Treated sewage is subsequently pumped out to Kailua Bay (not Kaneohe Bay).
3. What provision is being made to provide interim parking during construction?

SAM CALLEJO
Director and Chief Engineer

cc: DHCD (Eileen Mark)
/AM Partners, Inc. (Taeyong Kim)
OEQC

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
410 SOUTH KING STREET, 21ST FLOOR
HONOLULU, HAWAII 96813
PHONE: 832-6123 • FAX: 832-6498



FRANK P. FASI
DIRECTOR

May 3, 1991

Mr. Sam Callejo
Director and Chief Engineer
Department of Public Works
650 South King Street
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Callejo:

Thank you for your letter of March 21, 1991 regarding the subject Draft Environmental Impact Statement. The following has been prepared in response to your comments.

1. Your comment that you have no objections to the proposed project is noted.
2. Your comment referencing page 30 is noted and the sentence has been revised to read "Kailua Bay".
3. Your concern regarding the provision of interim parking during the construction of the project is addressed on page 53 and 54, and also in Appendix F of the Draft Environmental Impact Statement.

The most current Interim Parking Plan will provide approximately 113 parking stalls for public use (including nine loading stalls) and 22 separate parking stalls for use by construction workers. The plan consists of the following elements as shown in the table on the next page:

MICHAEL W. SCARFONE
DIRECTOR

CAIL X. KAJITO
ELDERLY DIVISION

Mr. Sam Callejo
 May 3, 1991
 Page Two

LOCATION	PUBLIC STALLS			CONSTRUCTION STALLS
	PARKING	LOADING	TOTAL	
VARIOUS PRIVATE & PUBLIC SITES	57	57
EXISTING MUNICIPAL PARKING LOT	33	3	36
PRIVATE SITES FOR CONSTRUCTION WORKER STALLS	22
ON-STREET ADJUSTMENTS, METERING, & LOADING ZONES ON ULUNU STREET	14	6	20
TOTAL	104	9	113	22

Once construction commences, adjustments to this plan to improve its workability may be made, if necessary.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Ms. Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone

Michael Scarfone
 Director

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

440 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK FERRI
DIRECTOR

WALTER M. OZAWA
DIRECTOR
ALVIN K. CHU
DEPUTY DIRECTOR

March 28, 1991

TO: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: WALTER M. OZAWA, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT
KAILUA ELDERLY HOUSING
LOCATION : KAILUA, OAHU
TAX MAP KEY : 4-3-55: 11

We have reviewed the Draft Environmental Impact Statement for the proposed Kailua Elderly Housing project and have no comments to offer. Should you have any questions, please contact Lester Lai of our Advance Planning Branch at extension 4696.

Walter M. Ozawa
WALTER M. OZAWA, Director

WHO:s1
cc: Department of Housing
& Community Development
✓ AM Partners, Inc.

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

440 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE 523-4427 • FAX 523-5498



FRANK FERRI
DIRECTOR

MICHAEL M. SCARFONE
DIRECTOR
Cell: H. Keito
DEPUTY DIRECTOR

April 15, 1991

Mr. Walter M. Ozawa, Director
Department of Parks and Recreation
650 South King Street
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Ozawa:

Thank you for your letter of March 28, 1991, in which you indicated that you have no comments regarding the subject Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
Director

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU



April 12, 1991

TO: BENJAMIN B. LEE, DIRECTOR
DEPARTMENT OF GENERAL PLANNING

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED
KAILUA ELDERLY HOUSING PROJECT, TMK: 4-3-55: 11, AULIKE
STREET

We have no objections to the proposed elderly housing project. The comments that we provided in our November 29, 1990 memorandum (attached) on the Environmental Impact Statement Preparation Notice for the proposed project are still applicable.

If you have any questions, please contact Bert Kuiuoka at 527-5235.

Attachment

cc: Department of Housing and Community Development
AM Partners, Inc.
Office of Environmental Quality Control

November 29, 1990

TO: MICHAEL SCARFONE, DIRECTOR
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

ATTN: EILEEN MARK

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: AM PARTNERS, INC.'S LETTER OF NOVEMBER 8, 1990 REGARDING
THE ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
FOR THE PROPOSED KAILUA ELDERLY HOUSING PROJECT

We have the following comments on the proposed project:

1. There are no existing water services for the site of the proposed project.
2. The availability of water for the proposed project will be determined when the building permit is submitted for our review and approval.
3. If water is made available, the developer will be required to pay our Water System Facilities Charges.
4. If a meter larger than three-inches is required, construction plans must be submitted for our review and approval.
5. Although there are no water services for the site, private property piping for two adjacent lots (TMKs: 4-3-55: 10 and 17) are located within the parcel (see attached map). The two lots are landlocked; therefore, provisions should be made to continue water service to the lots.

If you have any questions, please contact Bert Kuiuoka at 527-5235.

Attachment

cc: Department of General Planning

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1455 SOUTH BERETANIA STREET, ROOM 305
HONOLULU, HAWAII 96814



FRANK E. JAH
MAILER

LIONEL E. CAMARA
FIRE CHIEF
DONALD M. CHANG
DEPUTY FIRE CHIEF

March 12, 1991

TO: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING
FROM: LIONEL E. CAMARA, FIRE CHIEF
SUBJECT: KAILUA ELDERLY HOUSING DEIS
KAILUA, KOOLAUPOKO, OAHU--THK: 4-3-55:11

We have reviewed the subject material provided and have no additional comments.

Should you have any questions, please contact Battalion Chief Attilio Leonardi of our Administrative Services Bureau at 943-3838.

Lionel E. Camara
LIONEL E. CAMARA
Fire Chief

AKL:ny

Copy to: DHCD (Ms. Eileen Mark)
AM Partners, Inc. (Taejong Kim)
Environmental Quality Control

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
810 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 527-4227 • FAX: 527-5688



FRANK E. JAH
MAILER

MICHAEL M. SCARFONE
DIRECTOR
CALL M. KEITO
DEPUTY DIRECTOR

April 15, 1991

Mr. Lionel E. Camara, Fire Chief
Fire Department
1455 South Beretania Street, Room 305
Honolulu, Hawaii 96814

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Camara:

Thank you for your letter of March 12, 1991, in which you indicated that you have no comments regarding the subject Draft Environmental Impact Statement.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Eileen Mark at 527-5095.

Sincerely yours,

Eileen Mark
Michael Scarfone
for Director

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1415 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813-1111



FRANKIE PAE
MAIL ROOM

SG-LX

March 15, 1991

MICHAEL S. NAKAMURA
Chief
MARGO M. KAMAHARA
Deputy Chief

FRANKIE PAE
MAIL ROOM

TO: BENJAMIN E. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: MICHAEL S. NAKAMURA, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: KAILUA ELDERLY HOUSING PROJECT, DRAFT ENVIRONMENTAL
IMPACT STATEMENT (DEIS), KAILUA, KOOLAUPOKO, OAHU,
TMK: 4-3-55:11

We have reviewed the DEIS for the above-referenced project and have no objections to the development.

We expressed our noise concerns in a letter to the Department of Housing and Community Development, dated February 14, 1991. We would like to, again, suggest that apartments be equipped with air conditioners as a means to minimizing surrounding external noise.

Thank you for the opportunity to provide comments.

MICHAEL S. NAKAMURA
Chief of Police

By *Michael S. Nakamura*
CHESTER E. HUGHES
Assistant Chief of Police
Support Services Bureau

cc: DHCD
AM Partners, Inc.,
OEQC

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

430 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 522-4222 • FAX: 527-5498



MICHAEL SCARFONE
Director
Call: M. Kaito
Support Director

April 15, 1991

Chief Michael S. Nakamura
Chief of Police
Honolulu Police Department
1455 South Beretania Street
Honolulu, Hawaii 96814
Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Chief Nakamura:

Thank you for your letter of March 15, 1991, in which you indicated that you have no objections regarding the subject Draft Environmental Impact Statement.

Your concern regarding the provision of air conditioners to minimize external noise in the residential units has been taken into consideration. Due to budget constraints, providing air conditioning to each rental unit is unlikely. However, provisions for window mounted units have been included in the design of the units.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Eileen Mark at 527-5095.

Sincerely yours,

Michael Scarfone
Michael Scarfone
Director

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96820-0001

ENV 2-1
JA/G

March 27, 1991

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

890 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 822-6237 • FAX: 827-5488



MICHAEL SCARFONE
DIRECTOR
GAIL M. FAITO
DEPUTY DIRECTOR

FRANK FISH
VICE



William A. Bonnet
Manager
Environmental Department

Mr. Melvin Murakami
Department of General Planning
City & County of Honolulu
Municipal Office Building, 8th Floor
650 South King Street
Honolulu, HI 96813

Dear Mr. Murakami:

Subject: Draft Environmental Impact Statement (DEIS) for Kailua Elderly Housing

We have reviewed the subject DEIS, and have no comments on the proposed project at this time. HECO shall reserve comments pertaining to the protection of existing power lines bordering the project area until construction plans are finalized.

Sincerely,

cc: Eileen Hark, Dept. of Housing & Community Development
Taeyong Kim, AH Partners, Inc.

May 3, 1991

Mr. William A. Bonnet, Manager
Environmental Department
Hawaiian Electric Company
P. O. Box 2750
Honolulu, Hawaii 96840-0001

Subject: Kailua Elderly Housing Project
Draft Environmental Impact Statement (DEIS)

Dear Mr. Bonnet:

Thank you for your letter of March 27, 1991, in which you indicated that you have no comments at this time regarding the subject Draft Environmental Impact Statement. Your office will be contacted upon completion of the construction plans to insure that existing power lines adjacent to the project site are not impacted.

We appreciate your participation in reviewing the Draft EIS for the proposed Kailua Elderly Housing Project. Should you require any additional information, please call Ms. Eileen Hark at 527-5095.

Sincerely yours,

Michael Scarfone
Director

CHAPTER XVII
REFERENCES

XVII. REFERENCES

B.D. Neal & Associates. Potential Impacts On Air Quality (Letter). February 1991.

Community Resources, Inc. Social and Economic Impacts Of The Proposed Kailua Elderly Housing Project. Prepared for Am Partners, Inc. February 1991.

Department of Planning and Economic Development (DPED). The State of Hawaii Data Book. Honolulu. 1989.

Ernest K. Hirata & Associates, Inc. Foundation Investigation Kailua Elderly Housing Kailua, Oahu, Hawaii. Prepared for City & County - Department of Housing & Community Development. October 22, 1990.

Federal Emergency Management Agency. FIRM Flood Insurance Rate Map. City and County of Honolulu, Hawaii. September 4, 1987.

Traffic Management Consultants. Traffic Impact Assessment Report For The Proposed Kailua Elderly Housing. Prepared for Am Partners, Inc. February 1991.

University of Hawaii, Department of Geography. Atlas of Hawaii. Second Edition. University of Hawaii Press. 1983.

United States Department of Agriculture Soil Conservation Service. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. August 1972.

Y. Ebisu & Associates. Noise Study For The Proposed Kailua Elderly Housing Project. Prepared for AM Partners, Inc. February 1991.

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**APPENDIX A
SOILS STUDY**

FOUNDATION INVESTIGATION

KAILUA ELDERLY HOUSING

KAILUA, OAHU, HAWAII

TMK: 4-3-55: 11

for

CITY & COUNTY OF HONOLULU

DEPT. OF HOUSING & COMMUNITY DEVELOPMENT

W.O. 90-2022
October 22, 1990

ERNEST K. HIRATA & ASSOCIATES, INC.

EH



ERNEST K. HIRATA & ASSOCIATES, INC.

Soils and Foundation Engineering

ERNEST K. HIRATA P.E.
PAUL S. MORIMOTO P.E.
JUNG K. KIM P.E.
DAVID M. KITAMURA P.E.

Mailing Address: P.O. Box 1028, Aiea, Hawaii 96701-1028
99-1433 Koaha Place, Aiea, Hawaii 96701 Phone (808) 486-0787 Fax (808) 486-0570

October 22, 1990
W.O. 90-2022

City & County of Honolulu
Dept. of Housing & Community Development
650 South King Street, 5th Floor
Honolulu, Hawaii 96813

Attention: Mr. Doug Gillman

Gentlemen:

Our report, "Foundation Investigation, Kailua Elderly Housing, Kailua, Oahu, Hawaii, TMK: 4-3-55: 11," dated October 22, 1990, our Work Order 90-2022 is enclosed. This investigation was conducted in general conformance with the scope of work presented in our proposal dated May 15, 1990.

The surface soil covering the site was classified as brown silty sand. The silty sand was in a medium dense condition and extended to depths ranging from 3 to 3.5 feet. Underlying the silty sand was medium dense sand. The sand was tan in color, grading with coral fragments at deeper depths. Underlying the sand at depths ranging from 19 to 24 feet was calcareous rubblestone. The rubblestone stratum consisted of partially cemented coral fragments, sand, and silt in a medium dense to dense condition. Groundwater was encountered in all our borings at depths ranging from 8.3 to 9.2 feet below existing grade.

Conventional spread footings may be used to support the structure. An allowable bearing value of 3000 PSF may be used in the design of footing founded on the medium dense to dense sand. Additional geotechnical recommendations for development of the site are presented in this report.

We appreciate this opportunity to be of service. Should you have any questions concerning this report, please feel free to call on us.

Very truly yours,

Ernest K. Hirata & Associates, Inc.



Ernest K. Hirata President

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SITE CONDITIONS	2
FIELD EXPLORATION	2
SOIL CONDITIONS	3
CONCLUSIONS AND RECOMMENDATIONS	
Foundations	4
Lateral Design	5
Foundation Settlement	5
Floor Slabs	5
Site Grading	6
Construction Monitoring	6
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APPENDIX

Appendix of Laboratory Testing	Pages 1 and 2
Boring Logs	Plates A1 through A10
Consolidation Test Reports	Plates B1 through B3
Direct Shear Test Results	Plates C1 and C2
CBR Stress Penetration Curve	Plate D
Location Map	Plate 1
Site Plan	Plate 2

APPENDIX OF LABORATORY TESTING

Classification

Field classification is verified in the laboratory, also in accordance with the Unified Soil Classification System. Laboratory classification was determined by visual examination. The final classification is shown at the appropriate locations on the Boring Logs, Plates A1 through A10.

Moisture-Density

The field moisture content and dry unit weight are determined for each of the undisturbed samples. The information is useful in providing a gross picture of the soil consistency between borings and any local variations. The dry unit weight is determined in pounds per cubic foot while the moisture content is determined as a percentage of the dry unit weight. Samples are obtained from a 3 inch O.D. split tube sampler. Test results are shown at the appropriate depths on the Boring Logs, Plates A1 through A10.

Consolidation

Settlement predictions of the soil's behavior under load are made on the basis of consolidation test results. Loads are applied in several increments in a geometric progression, and the resulting deformations are recorded at selected time intervals. Porous stones are placed in contact with the top and bottom of each specimen, having an inside diameter of 2.40 inches and a height of 1 inch, to permit addition and release of pore fluid. Results of tests on undisturbed samples are plotted on the Consolidation Test Reports, Plates B1 through B3.

The proposed housing development will consist of a five story structure, including a half basement level. The two lower levels will be used for parking, and will have plan dimensions of approximately 210 by 220 feet. The three levels of housing units will have an L-shape configuration, extending along the northwest and southwest property lines.

Design of the project is still in its preliminary stages; however we understand that the structure will be of masonry and wood frame construction. Structural loads were not available at the time of this report.

SITE CONDITIONS

The project site is located in Kailua, Oahu, within the block bordered by Kuulei Road, Oneawa, Uluniu, and Aulike Streets. The property is situated in the center of the block, bordered on all sides by commercial buildings.

The site is relatively level with ground elevations generally ranging from +9 to +11. The site is paved with asphaltic concrete and presently used for ongrade parking. Several large trees are located in the central portion of the site.

FIELD EXPLORATION

The site was explored on August 6 through 9, 1990 by drilling five exploratory test borings with a truck mounted drilling machine. The borings varied in depth from 35 to 36.5 feet. The soils

were continuously logged by our field engineer and classified by visual examination in accordance with the Unified Soil Classification System. The approximate boring locations are shown on Plate 2, and the soils encountered are logged on Plates A1 through A10.

Undisturbed and bag samples were recovered from the borings for selected laboratory testing and analyses. Undisturbed samples were obtained by driving a 3 inch O.D. thin-walled split tube sampler with a 140 pound hammer from a height of 30 inches. The blow count required for twelve inches of penetration is shown on the enclosed Boring Logs.

SOIL CONDITIONS

Relatively uniform subsurface soil conditions were encountered by our exploratory borings. The surface soil consisted of brown silty sand. The silty sand was in a medium dense condition and extended to depths ranging from 3 to 3.5 feet. Underlying the silty sand was medium dense sand. The sand was tan in color, grading with coral fragments at deeper depths.

Underlying the sand at depths ranging from 19 to 24 feet was calcareous rubblestone. The rubblestone stratum consisted of partially cemented coral fragments, sand, and silt. The coralline material was medium dense to dense, and extended to the maximum depths drilled.

Groundwater was encountered in all our borings at depths ranging from 8.3 to 9.2 feet below existing grade.

CONCLUSIONS AND RECOMMENDATIONS

Conventional spread footings may be used to support the proposed structure. Although finish grades were not available at the time of this report, we expect that excavations on the order of 6 feet will be required for the half basement level. Footings may be founded directly on the tan sand encountered at that depth.

Groundwater was encountered at depths of 8.3 to 9.2 feet below existing grade. Assuming that the half basement will not extend below depths of about 6 feet, we do not expect groundwater to affect the basement slabs.

Due to the granular nature of the onsite soils, we believe that shoring will be required for the basement excavations. In addition, the Contractor should be held responsible for complying with OSHA standards for excavations.

Foundations

Conventional spread footings founded on the medium dense to dense sand may be used to support the structure. Footings may be designed for a bearing value of 3000 pounds per square foot, and should be a minimum of 16 inches in width, and embedded at least 24 inches below existing grade.

The bottom of all footing excavations should be thoroughly compacted with a vibratory sled or similar equipment prior to placement of reinforcing steel and concrete.

Lateral Design

The bearing value indicated above is for the total of dead and frequently applied live loads, and may be increased by one-third for short duration loading which includes the effect of wind and seismic forces. Resistance to lateral loading may be provided by friction acting at the base of foundations and by passive earth pressure acting on the buried portions of foundations.

An allowable coefficient of friction of 0.4 may be used with the dead load forces. Passive earth pressure may be computed as an equivalent fluid having a density of 300 pounds per cubic foot with a maximum earth pressure of 3000 pounds per square foot. Unless covered by pavement or concrete slabs, the upper 12 inches of soil should not be considered in computing lateral resistance.

For active earth pressure considerations, equivalent fluid pressures of 40 and 55 pounds per cubic foot per foot of depth may be used for freestanding and restrained conditions, respectively. To prevent buildup of hydrostatic pressures, weepholes or subdrains should be included in the design of all retaining structures.

Foundation Settlement

Structural loads were not available at the time of this report. The final building loads should be forwarded to our office, when available, for our review.

Floor Slabs

To provide uniform support and a capillary break, all slabs on grade should be underlain by a four inch cushion of clean gravel, such as #3 Fine (ASTM Size 67). All building slabs should also be

protected by a plastic moisture barrier placed between the slab and cushion material. A thin layer of sand may also be placed between the slab and moisture barrier to aid the curing process.

Site Grading

The project site should be cleared of all asphaltic concrete, concrete, vegetation, and other deleterious material. Prior to placement of fill, the existing ground should be scarified to a depth of six inches and compacted to a minimum 95 percent compaction as determined by ASTM D 1557-78.

The onsite soils may be reused in compacted fills provided all rock fragments larger than six inches in maximum dimension are removed. Any imported structural fill shall be well-graded, non-expansive granular material. Specifications for imported structural fill should state that not more than 20 percent of soil by weight shall pass the #200 sieve. In addition, the P.I. of that portion of the soil passing the #40 sieve shall not be greater than 10. Yard fill necessary for landscaping need not adhere to these specifications.

All structural fill shall be placed in horizontal lifts restricted to eight inches in loose thickness and compacted to a minimum 95 percent compaction as determined by ASTM D 1557-78. Fill placed in areas which slope steeper than 5:1 (horizontal to vertical), should be continually benched as the fill is brought up in lifts.

Construction Monitoring

The preparation of all footing excavations for placement of reinforcing steel and concrete should

be monitored by an engineer from our staff. All structural fill placement should also be monitored and tested by personnel from our office.

Limitations

The boring logs indicate the approximate subsurface soil conditions encountered only at those times and locations where our borings were made, and may not represent conditions at other times and locations.

During construction, should subsurface conditions differ from those encountered in our borings, we should be advised immediately in order to review and to revise our recommendations.

Our professional services were performed, findings obtained, and recommendations prepared in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. This warranty is in lieu of all other warranties expressed or implied.



Respectfully submitted,

Ernest K. Hirata & Associates, Inc.

Paul S. Morimoto

Paul S. Morimoto, P.E.

This work was prepared by
me or under my supervision

FOUNDATION INVESTIGATION

KAILUA ELDERLY HOUSING

KAILUA, OAHU, HAWAII

TMK: 4-3-55: 11

INTRODUCTION

This report presents the results of our foundation investigation performed for the proposed elderly housing project in Kailua, Oahu. The purpose of this investigation was to determine the nature of the soils underlying the site, to ascertain their engineering properties, and to provide geotechnical recommendations for the design of foundations, floor slabs, resistance to lateral pressures, and site grading.

This investigation included drilling five exploratory test borings, obtaining representative soil samples, selected laboratory testing and analyses, and the preparation of this report. The general location of the project site is shown on the enclosed Location Map, Plate 1. The approximate exploratory boring locations are shown on the Site Plan, Plate 2. Also attached is an Appendix which describes the laboratory testing procedures.

PROJECT CONSIDERATIONS

Information concerning the proposed project was furnished by personnel from your staff, and AM Partners Inc., Architects.



ERNEST K. HIRATA & ASSOCIATES, INC.

Soils and Foundation Engineering

99-1433 Koaha Place • Aiea, Hawaii 96701-1028 • Phone 486-0787

BORING LOG

W.O. 90-2022

BORING NO. B1 DRIVING WT. 140 lb. DATE OF DRILLING 8-7-90
SURFACE ELEV. 9.7± DROP 30 in. WATER LEVEL @ 9.0 ft.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	DESCRIPTION
0		SM					Silty SAND - Mottled grayish brown, moist, medium dense. Covered by 2 inches of asphaltic concrete pavement and by 3.5 inches of base course material.
5		SP	18	73	21		
			23	91	8		SAND - Tan, moist, medium dense.
10			36	82	42		
15			17	89	33		Grading with coral fragments from 15 feet.
20			12	75	22		
25			34	116	18		CALCAREOUS RUBBLESTONE - Mottled light gray, medium dense to dense.
30			76	117	11		Grading to tan color from 29 feet.

Plate A1



ERNEST K. HIRATA & ASSOCIATES, INC.

Soils and Foundation Engineering

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BORING LOG

W.O. 90-2022

BORING NO. B1 (cont.) DRIVING WT. 140 lb. DATE OF DRILLING 8-7-90

SURFACE ELEV. 9.7± DROP 30 in. WATER LEVEL @9.0 ft.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACT-ION (%)	DESCRIPTION
30			29	99	6		
35							
40							End boring at 35.5 feet.
45							
50							
55							
60							

Plate A2



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BORING LOG

W.O. 90-2022

BORING NO. B2 DRIVING WT. 140 lb. DATE OF DRILLING 8-8-90
SURFACE ELEV. 9.8± DROP 30 in. WATER LEVEL @ 8.3 ft.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	DESCRIPTION
0		SM					Silty SAND - Brown, moist, medium dense. Covered by 2.5 inches of asphaltic concrete and by 3.5 inches of base course material.
			32	78	14		
5		SP					SAND - Tan, moist, medium dense.
			18	86	9		
10							
			42	90	29		
15							Grading with coral fragments from 15 feet.
			16	93	34		
20							CALCAREOUS RUBBLESTONE - Tan, firm to medium dense, with silt pockets.
			8	Tip Recovery			
25							
			11	Tip Recovery			
30							Grading dense to medium hard from 28 feet. Plate A3
			123/5"	Tip Recovery			



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BORING LOG

W.O. 90-2022

BORING NO. B2 (cont.) DRIVING WT. 140 lb. DATE OF DRILLING 8-8-90
SURFACE ELEV. 9.8± DROP 30 in. WATER LEVEL @ 8.3 ft.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	DESCRIPTION
30			130/8"		6		End boring at 35 feet.
35							
40							
45							
50							
55							
60							

Plate A4



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BORING LOG

W.O. 90-2022

BORING NO. B3 DRIVING WT. 140 lb. DATE OF DRILLING 8-7-90
 SURFACE ELEV. 9.8± DROP 30 in. WATER LEVEL @ 8.5 ft.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	DESCRIPTION
0		SM	19	79	16		Silty SAND - Brown, moist, medium dense. Covered by 2 inches of asphaltic concrete and by 3.5 inches of base course material.
5		SP	18	81	11		SAND - Tan, medium dense to dense.
10			55	91	31		
15			50	86	37		
20			18	68	28		CALCAREOUS RUBBLESTONE - Tan and light gray, medium dense.
25			20	No Recovery			
30							

Plate A5



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BORING LOG

W.O. 90-2022

BORING NO. B3 (cont.) DRIVING WT. 140 lb. DATE OF DRILLING 8-7-90
SURFACE ELEV. 9.8± DROP 30 in. WATER LEVEL @ 8.5 ft.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	DESCRIPTION
30			12	No Recovery			
			50/No	Penetration			
35			30	119	11		
						End boring at 36.5 feet.	
40							
45							
50							
55							
60							

Plate A6



ERNEST K. HIRATA & ASSOCIATES, INC.

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BORING LOG

W.O. 90-2022

BORING NO. B4 DRIVING WT. 140 lb. DATE OF DRILLING 8-9-90
SURFACE ELEV. 11.0± DROP 30 in. WATER LEVEL @ 8.3 ft.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	DESCRIPTION
0		SM	21	75	16		Silty SAND - Brown, moist, medium dense. Covered by 2 inches of asphaltic concrete pavement and by 4 inches of base course material.
5		SP	13	80	12		SAND - Tan, medium dense to dense.
10			59	87	15		
15			26	100	26		Grading with coral fragments from 14 feet.
20			24	110	16		CALCAREOUS RUBBLESTONE - Tan and light gray, medium dense to dense.
25			23	93	18		
30			105/10	118	10		

Plate A7



ERNEST K. HIRATA & ASSOCIATES, INC.

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BORING LOG

W.O. 90-2022

BORING NO. B4 (cont.) DRIVING WT. 140 lb. DATE OF DRILLING 8-9-90
SURFACE ELEV. 11.0± DROP 30 in. WATER LEVEL @ 8.3 ft.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	DESCRIPTION
30			31	98	10		
35							
							End boring at 35.5 feet.
40							
45							
50							
55							
60							

Plate A8



ERNEST K. HIRATA & ASSOCIATES, INC.

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BORING LOG

W.O. 90-2022

BORING NO. B5 DRIVING WT. 140 lb. DATE OF DRILLING 8-6-90
 SURFACE ELEV. 10.5± DROP 30 in. WATER LEVEL @ 9.2 ft.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	DESCRIPTION
0		SM					Silty SAND - Brown, moist, medium dense. Covered by 6 inches of asphaltic concrete pavement.
	■		23	78	19		
5	●	SP	17	78	13		SAND - Tan, moist, medium dense.
	▼		32	81	38		
10	●						
	■		28	74	30		Grading with coral and shell fragments from 14 feet.
15	●						
	■		28	84	16		
20	●						
	■		14	111	17		CALCAREOUS RUBBLESTONE - Tan and light gray, medium dense to dense.
25	●						
	■		64	78	16		
30	●						

Plate A9



ERNEST K. HIRATA & ASSOCIATES, INC.

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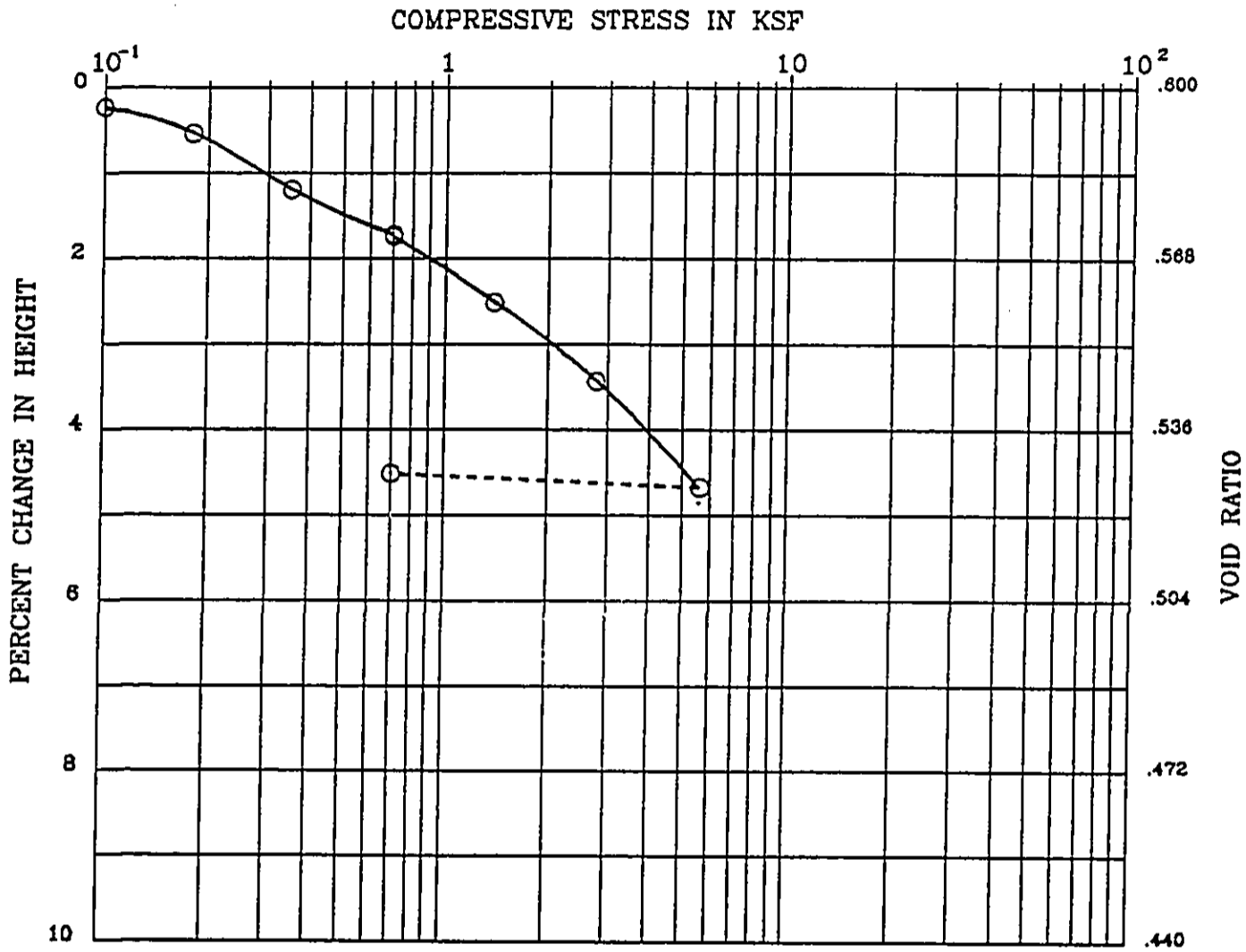
BORING LOG

W.O. 90-2022

BORING NO. B5 (cont.) DRIVING WT. 140 lb. DATE OF DRILLING 8-6-90
SURFACE ELEV. 10.5± DROP 30 in. WATER LEVEL @ 9.2 ft.

DEPTH (FEET)	GRAPH SYMBOL	UNIFIED SOIL CLASSIFICATION	BLOWS/FT.	DRY DENSITY (PCF.)	MOISTURE CONTENT (%)	RELATIVE COMPACTTION (%)	DESCRIPTION
30			31	87	13		
35							
40							End boring at 35.5 feet.
45							
50							
55							
60							

Plate A10



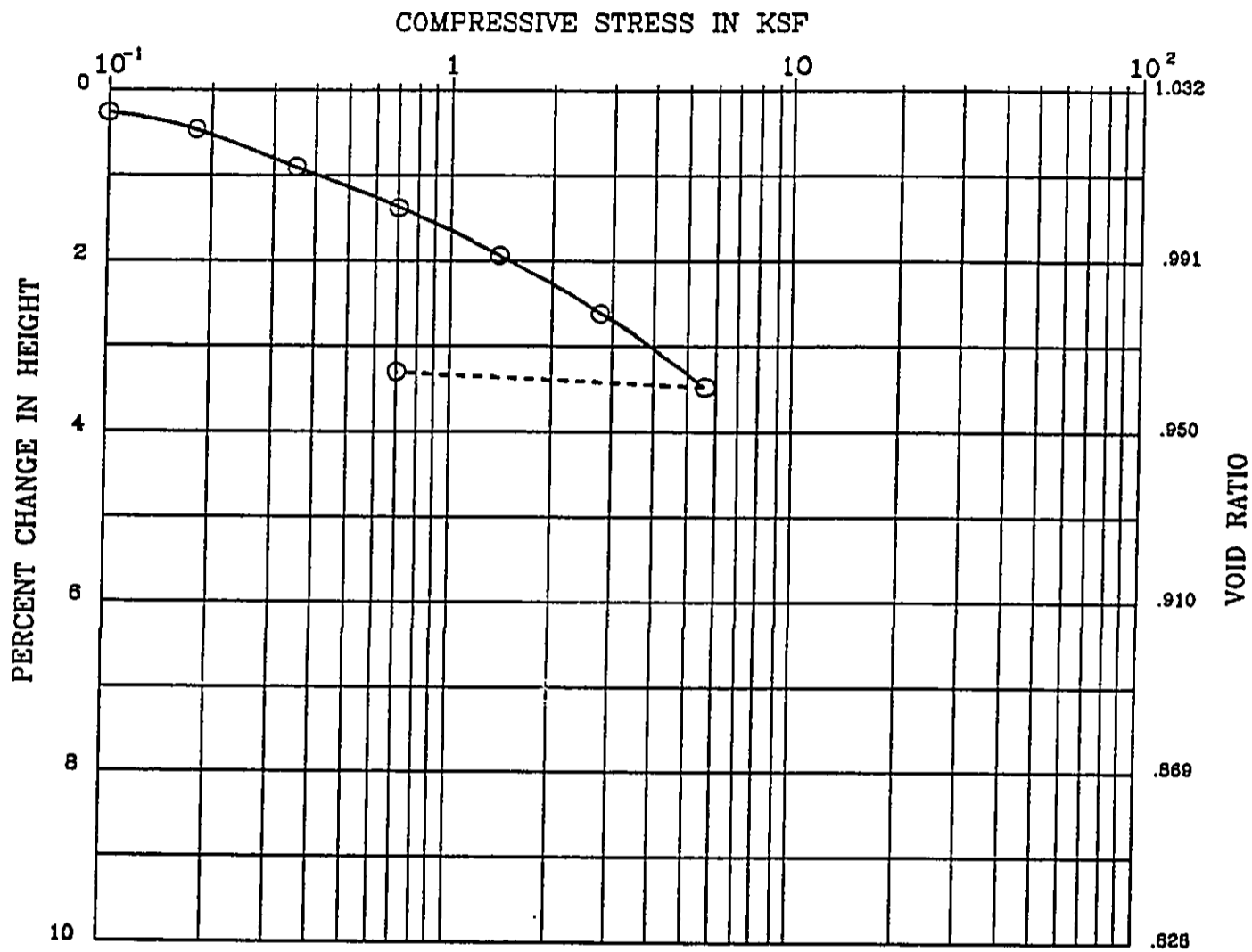
BORING : B1
 DEPTH (ft) : 24'
 SPEC. GRAVITY : 2.84

DESCRIPTION : Calcareous Rubblestone
 LIQUID LIMIT :
 PLASTIC LIMIT :

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	17.2	110.9	82	.600
FINAL	18.5	116.1	100	.528

Remark : Water added 700 PSF Date: 8/15/90

W.O. 2022	Kailua Elderly Housing	
Ernest K. Hirata & Associates, Inc.	CONSOLIDATION TEST	Plate B1



BORING : B4
 DEPTH (ft) : 5'
 SPEC. GRAVITY : 2.70

DESCRIPTION : Tan Sand
 LIQUID LIMIT :
 PLASTIC LIMIT :

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	8.9	83.0	23	1.032
FINAL	6.7	84.1	18	1.005

Remark : Date: 8/15/90

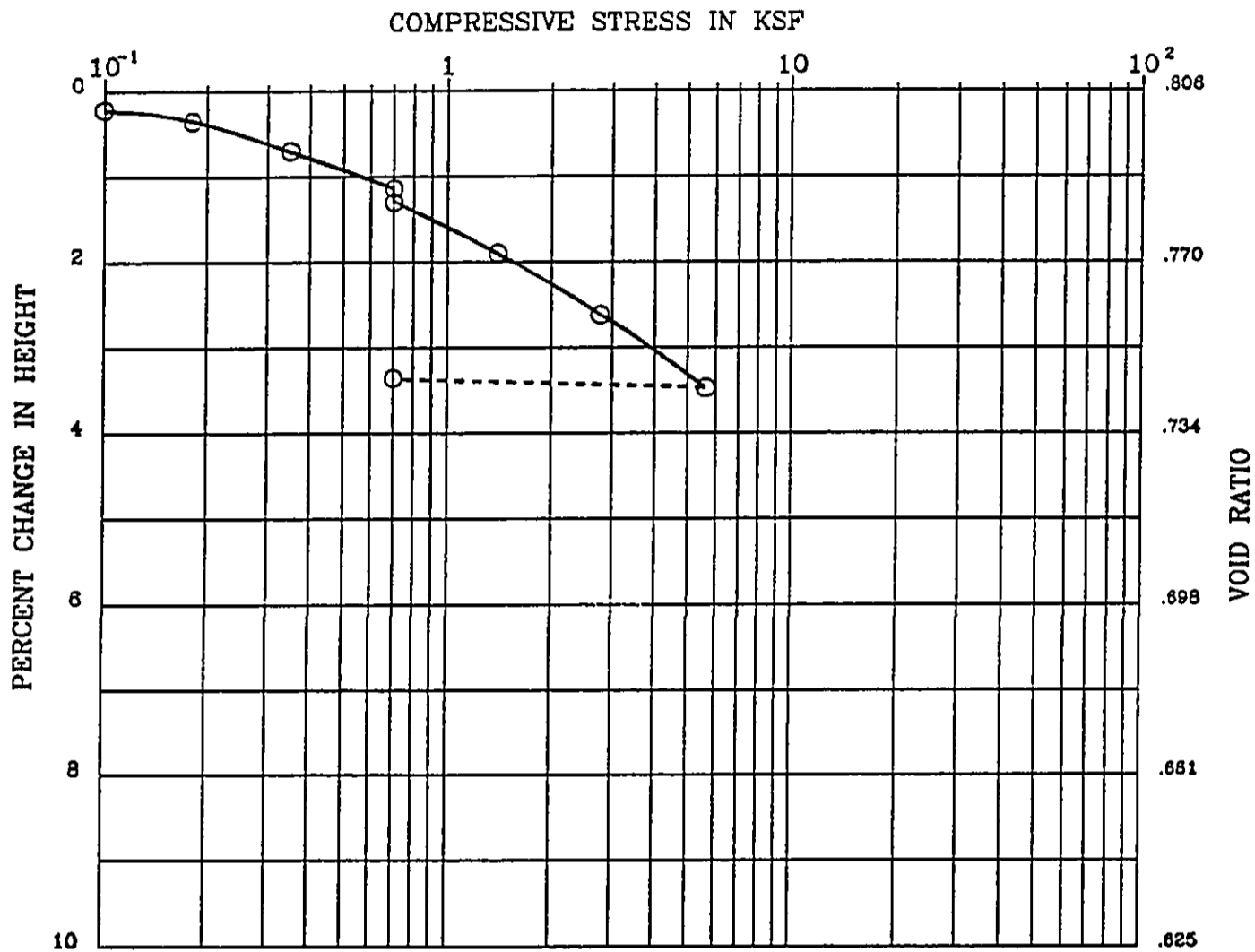
W.O. 2022

Kailua Elderly Housing

Ernest K. Hirata
 & Associates, Inc.

CONSOLIDATION TEST

Plate B2



BORING : B4
 DEPTH (ft) : 14'
 SPEC. GRAVITY : 2.77

DESCRIPTION : Tan Sand
 LIQUID LIMIT :
 PLASTIC LIMIT :

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	26.2	95.7	90	.806
FINAL	26.8	99.0	100	.745

Remark : Water added 700 PSF Date: 8/18/90

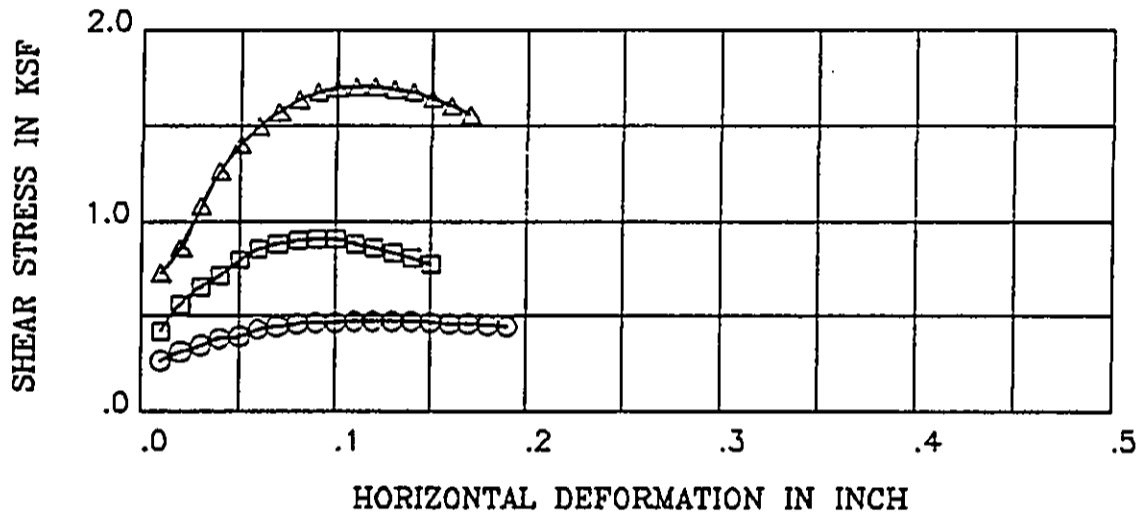
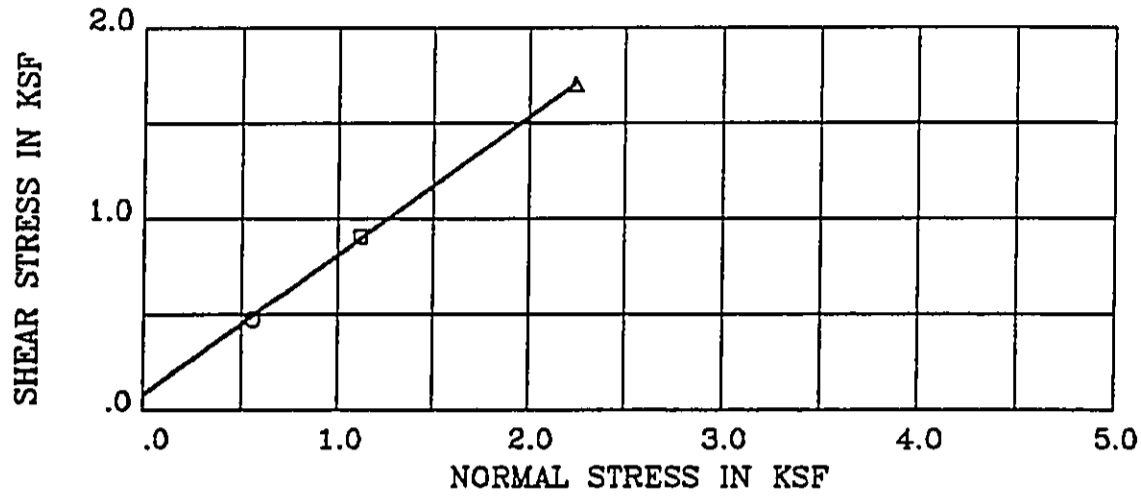
W.O. 2022

Kailua Elderly Housing

Ernest K. Hirata
& Associates, Inc.

CONSOLIDATION TEST

Plate B3



BORING/SAMPLE : B1 DEPTH (ft) : 5
 DESCRIPTION : Tan Sand
 STRENGTH INTERCEPT (C) : .079 KSF (PEAK STRENGTH)
 FRICTION ANGLE (PHI) : 36.0 DEG (PEAK STRENGTH)

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	8.0	91.3	.845	.56	.48	.45
□	8.0	91.3	.845	1.12	.91	.77
△	8.0	91.3	.845	2.24	1.70	1.55

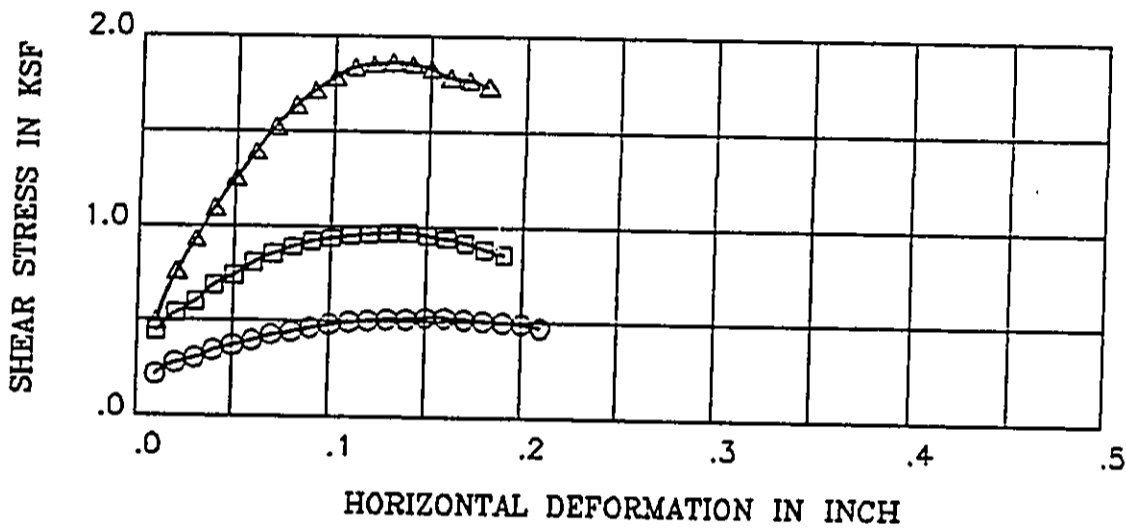
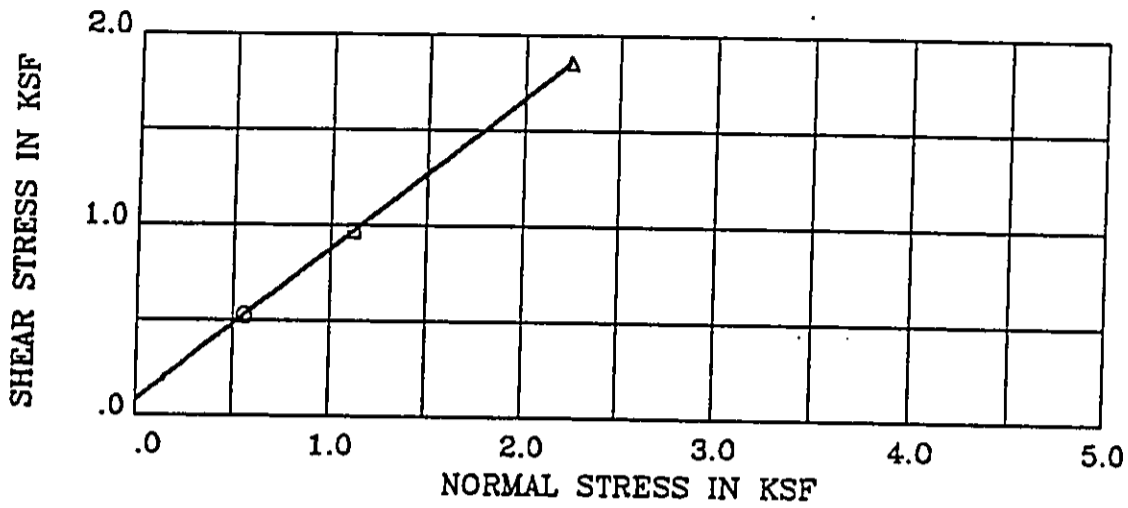
Remark : Date: 8/15/90

W.O. 2022

Kailua Elderly Housing

Ernest K. Hirata
& Associates, Inc.

DIRECT SHEAR TEST Plate C1



BORING/SAMPLE : B3 DEPTH (ft) : 2
 DESCRIPTION : Brown Silty Sand
 STRENGTH INTERCEPT (C) : .081 KSF (PEAK STRENGTH)
 FRICTION ANGLE (PHI) : 38.5 DEG (PEAK STRENGTH)

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	15.6	78.5	1.146	.56	.52	.48
□	15.6	78.5	1.146	1.12	.97	.85
△	15.6	78.5	1.146	2.24	1.86	1.73

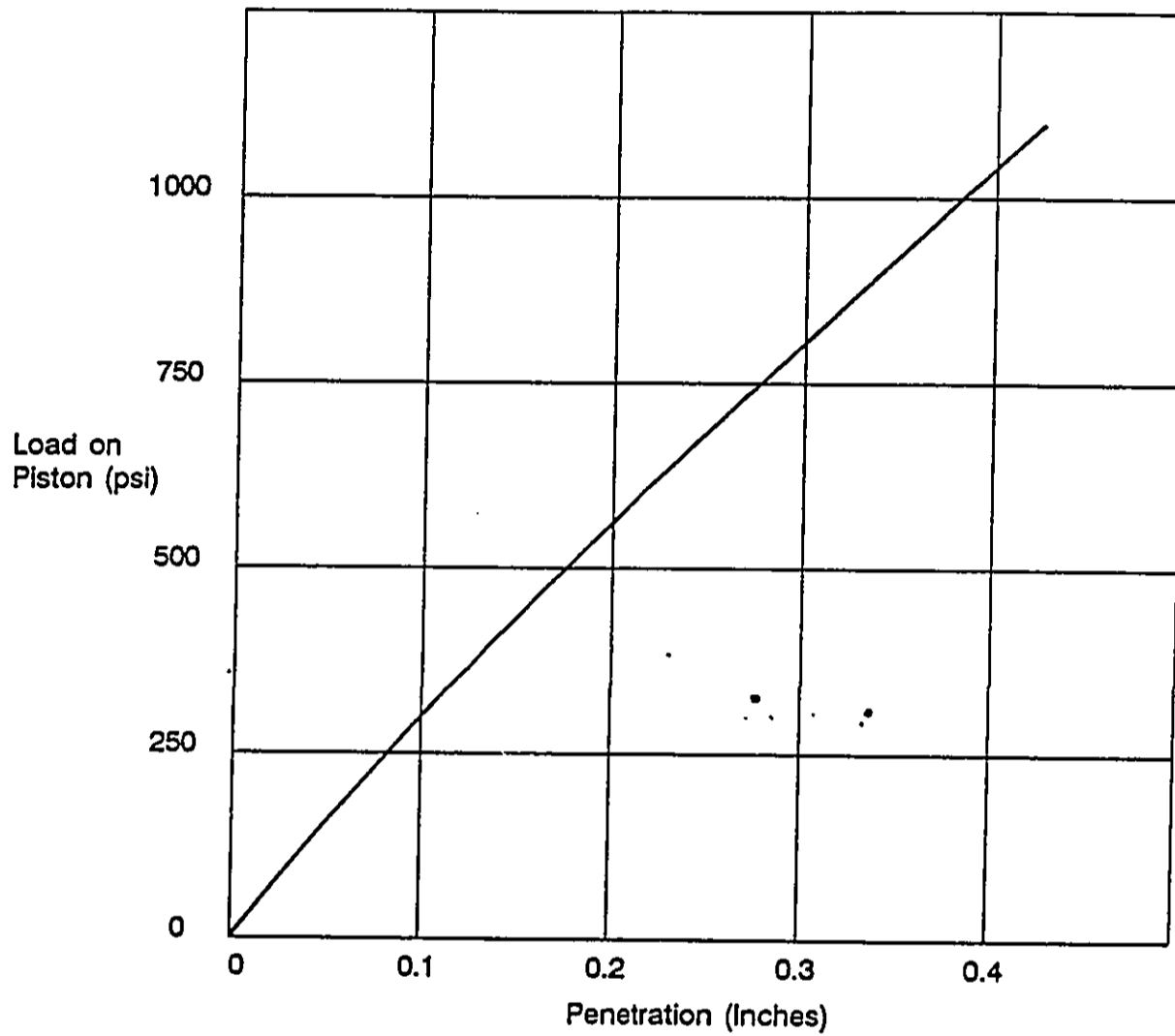
Remark : Date: 8/15/90

W.O. 2022

Kailua Elderly Housing

Ernest K. Hirata
& Associates, Inc.

DIRECT SHEAR TEST Plate C2



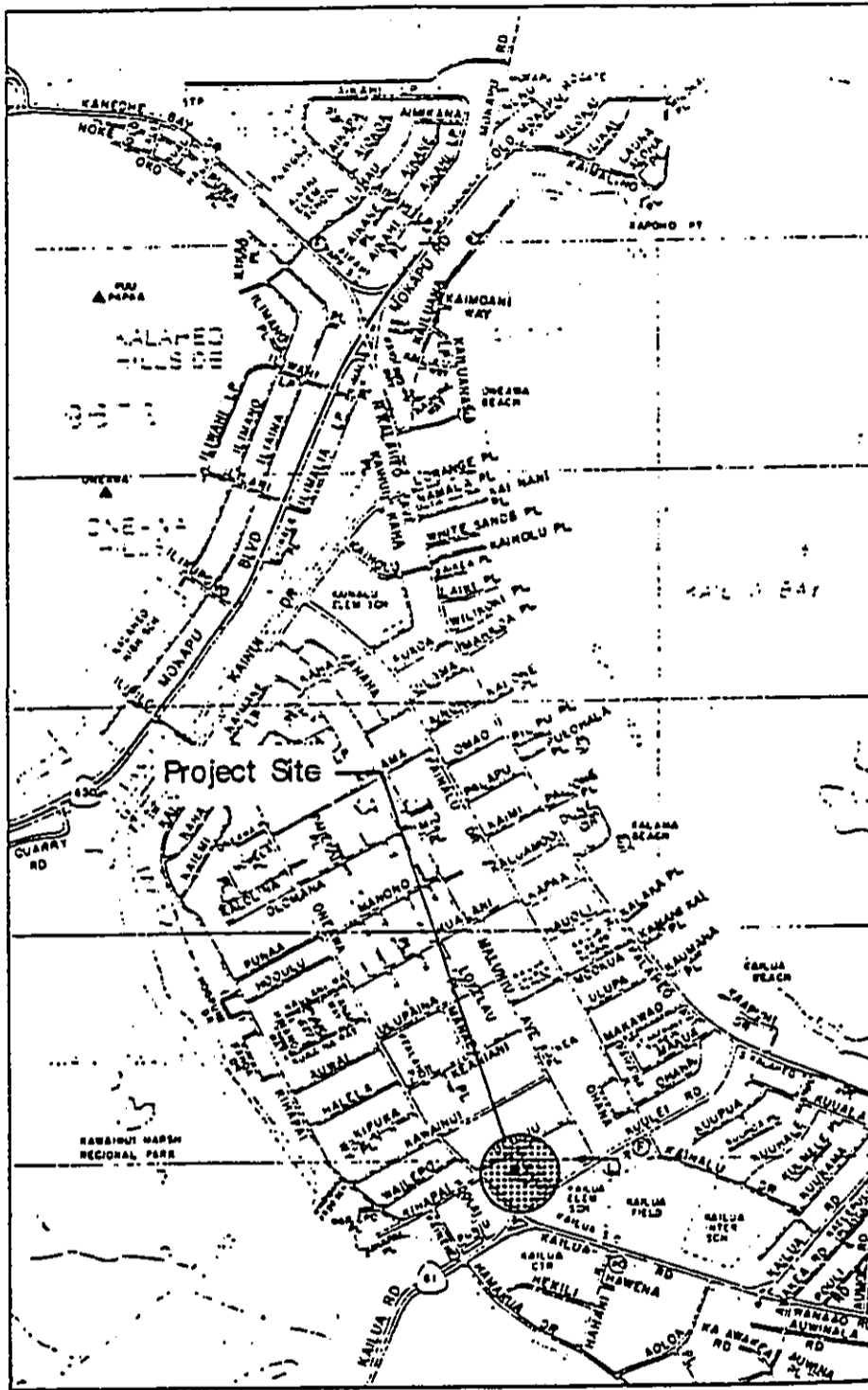
Soil Data

Location: Boring B3 at 12 inches
 Description: Tan Silty Sand
 Maximum Density: 114.0 PCF
 Optimum Moisture: 15.0%

Test Results

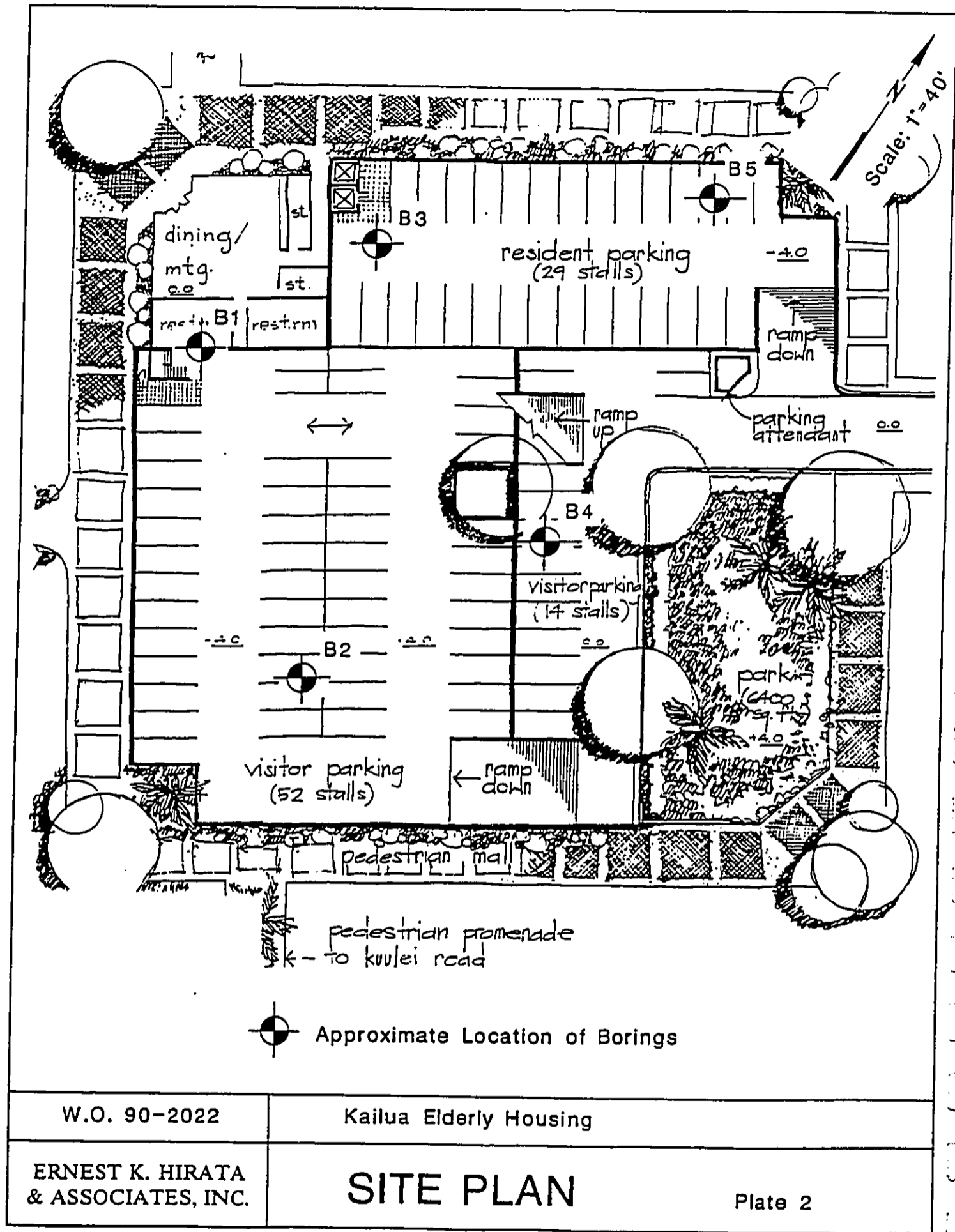
CBR Value: 29% Expansion: 0

W.O. 90-2022	Kailua Elderly Housing
ERNEST K. HIRATA & ASSOCIATES, INC.	CBR STRESS PENETRATION CURVE Plate D



Reference: Bryan's Sectional Maps

W.O. 90-2022	Kailua Elderly Housing Project	
ERNEST K. HIRATA & ASSOCIATES, INC.	LOCATION MAP	Plate 1



W.O. 90-2022

Kailua Elderly Housing

ERNEST K. HIRATA
& ASSOCIATES, INC.

SITE PLAN

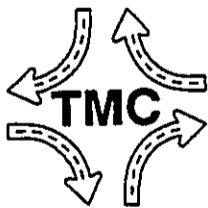
Plate 2

**APPENDIX B
TRAFFIC STUDY**

**TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED**

KAILUA ELDERLY HOUSING

**PREPARED FOR
AM PARTNERS
MAY 14, 1991**



**PREPARED BY
THE TRAFFIC MANAGEMENT CONSULTANT**

RANDALL S. OKANEKU, P. E. * PRINCIPAL **1188 BISHOP STREET, SUITE 1907
HONOLULU, HAWAII 96813**

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**TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED
KAILUA ELDERLY HOUSING**

I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to assess the traffic impacts resulting from the proposed Kailua Elderly Housing in Kailua, Oahu, Hawaii. This report presents the findings and recommendations of the study.

B. Scope of Study

The scope of this study includes:

1. Description of the proposed project.
2. Description of the study area and existing land uses.
3. Evaluation of existing roadway and traffic conditions.
4. Estimation of future traffic without the proposed project.
5. Analysis of future roadway and traffic conditions without the proposed project.
6. Development of trip generation characteristics for the proposed project.
7. The identification and analysis of traffic impacts resulting from site-generated traffic.
8. Recommendation of improvements that would mitigate the traffic impacts resulting from the development of the proposed project.

C. Study Area

The study area for the traffic analysis is defined by the intersections surrounding the project site. These include the intersections of: Kailua Road, Oneawa Street, and Kuulei Road; Kuulei Road and Aulike Street; Aulike Street and the public parking access driveways; Aulike Street and Uluniu Street; and Oneawa Street, Uluniu Street, and Kihapai Street.

II. PROJECT DESCRIPTION

A. Location

The proposed Kailua Elderly Housing project is located in Kailua Town, within a block bounded by Oneawa Street, Kuulei Road, Aulike Street, and Uluniu Street. The 1.76 acre site is identified as Tax Map Key 4-3-55:11. Exhibit 1 shows the location of the proposed project.

B. Existing Use

The project site is currently being used as an at-grade municipal parking lot, containing 146 stalls. The project site is surrounded on all sides by commercial uses, including fast food restaurants, professional offices, and a service station. The State Land Use designation is urban and the City & County zoning is B-2 Business.

C. Site Plan and Access

Exhibit 2 shows the proposed site plan. Vehicular access for the site is proposed via an existing driveway on Aulike Street. Existing pedestrian access between the site and Kuulei Road, Oneawa Street, and Uluniu Street would be maintained. The existing one way vehicular entrance to the public parking off Oneawa Street would be eliminated. Existing access to adjacent properties would be maintained.

D. Proposed Land Use Intensity

The City & County of Honolulu Department of Housing and Community Development is proposing to develop 80 residential rental units for elderly and handicapped households. The project would replace the existing 146 public parking stalls and add approximately 20 additional parking stalls for resident use, for a total of 166 stalls. The proposed project is expected to be built out and occupied by early 1993.

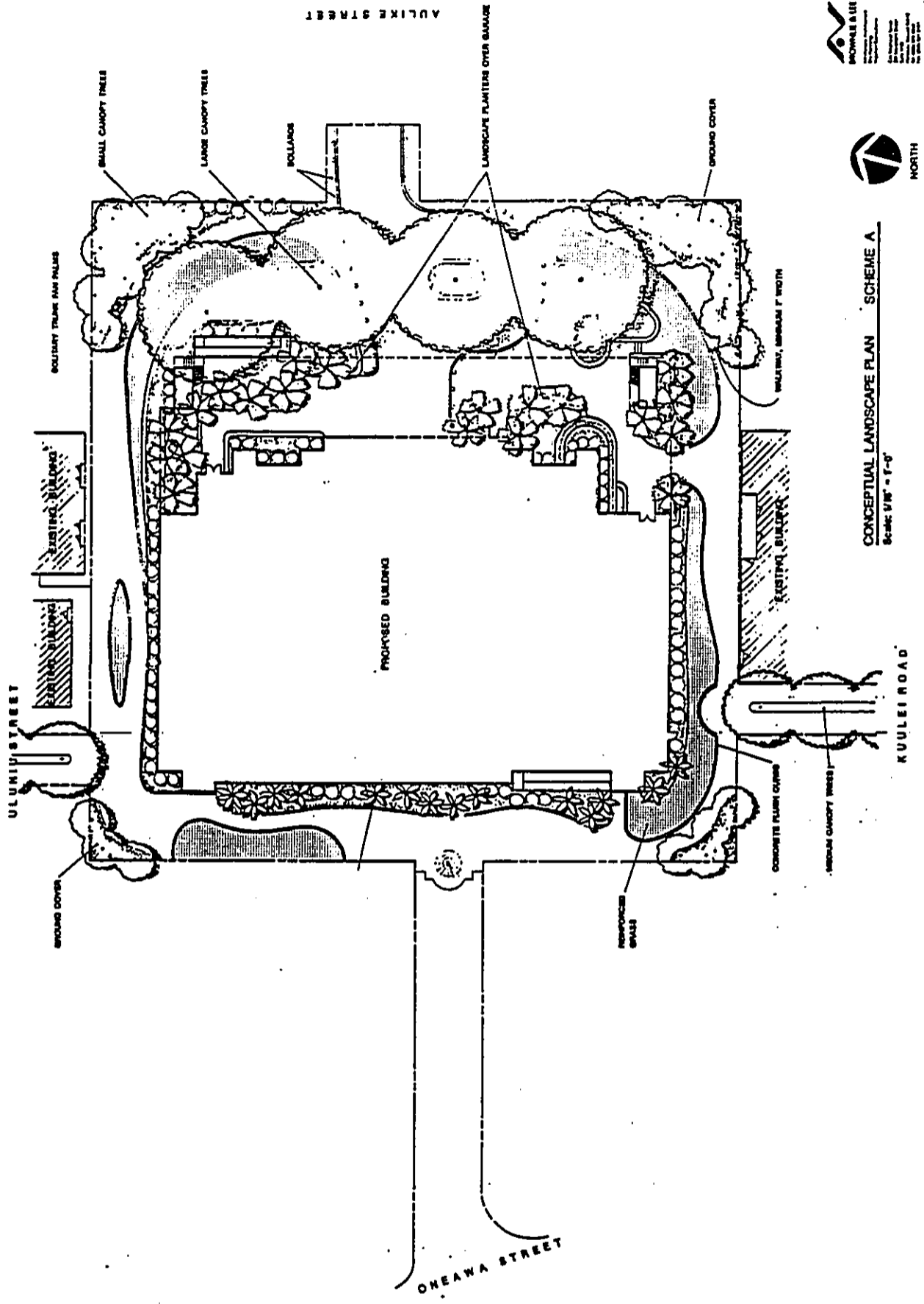


EXHIBIT 2 - SITE PLAN

123 456 789 1011 1213 1415 1617 1819 2021 2223 2425 2627 2829 3031 3233 3435 3637 3839 4041 4243 4445 4647 4849 5051 5253 5455 5657 5859 6061 6263 6465 6667 6869 7071 7273 7475 7677 7879 8081 8283 8485 8687 8889 9091 9293 9495 9697 9899 100101 102103 104105 106107 108109 110111 112113 114115 116117 118119 120121 122123 124125 126127 128129 130131 132133 134135 136137 138139 140141 142143 144145 146147 148149 150151 152153 154155 156157 158159 160161 162163 164165 166167 168169 170171 172173 174175 176177 178179 180181 182183 184185 186187 188189 190191 192193 194195 196197 198199 200201 202203 204205 206207 208209 210211 212213 214215 216217 218219 220221 222223 224225 226227 228229 230231 232233 234235 236237 238239 240241 242243 244245 246247 248249 250251 252253 254255 256257 258259 260261 262263 264265 266267 268269 270271 272273 274275 276277 278279 280281 282283 284285 286287 288289 290291 292293 294295 296297 298299 300301 302303 304305 306307 308309 310311 312313 314315 316317 318319 320321 322323 324325 326327 328329 330331 332333 334335 336337 338339 340341 342343 344345 346347 348349 350351 352353 354355 356357 358359 360361 362363 364365 366367 368369 370371 372373 374375 376377 378379 380381 382383 384385 386387 388389 390391 392393 394395 396397 398399 400401 402403 404405 406407 408409 410411 412413 414415 416417 418419 420421 422423 424425 426427 428429 430431 432433 434435 436437 438439 440441 442443 444445 446447 448449 450451 452453 454455 456457 458459 460461 462463 464465 466467 468469 470471 472473 474475 476477 478479 480481 482483 484485 486487 488489 490491 492493 494495 496497 498499 500501 502503 504505 506507 508509 510511 512513 514515 516517 518519 520521 522523 524525 526527 528529 530531 532533 534535 536537 538539 540541 542543 544545 546547 548549 550551 552553 554555 556557 558559 560561 562563 564565 566567 568569 570571 572573 574575 576577 578579 580581 582583 584585 586587 588589 590591 592593 594595 596597 598599 600601 602603 604605 606607 608609 610611 612613 614615 616617 618619 620621 622623 624625 626627 628629 630631 632633 634635 636637 638639 640641 642643 644645 646647 648649 650651 652653 654655 656657 658659 660661 662663 664665 666667 668669 670671 672673 674675 676677 678679 680681 682683 684685 686687 688689 690691 692693 694695 696697 698699 700701 702703 704705 706707 708709 710711 712713 714715 716717 718719 720721 722723 724725 726727 728729 730731 732733 734735 736737 738739 740741 742743 744745 746747 748749 750751 752753 754755 756757 758759 760761 762763 764765 766767 768769 770771 772773 774775 776777 778779 780781 782783 784785 786787 788789 790791 792793 794795 796797 798799 800801 802803 804805 806807 808809 810811 812813 814815 816817 818819 820821 822823 824825 826827 828829 830831 832833 834835 836837 838839 840841 842843 844845 846847 848849 850851 852853 854855 856857 858859 860861 862863 864865 866867 868869 870871 872873 874875 876877 878879 880881 882883 884885 886887 888889 890891 892893 894895 896897 898899 900901 902903 904905 906907 908909 910911 912913 914915 916917 918919 920921 922923 924925 926927 928929 930931 932933 934935 936937 938939 940941 942943 944945 946947 948949 950951 952953 954955 956957 958959 960961 962963 964965 966967 968969 970971 972973 974975 976977 978979 980981 982983 984985 986987 988989 990991 992993 994995 996997 998999 1000

III. EXISTING TRAFFIC CONDITIONS

A. Site Accessibility

1. Area Roadway System

Kailua Road is a four to six lane arterial roadway, providing the primary access to Kailua Town. At Oneawa Street, Kailua Road turns westward. The intersection of Kailua Road, Kuulei Road, and Oneawa Street is signalized. Kuulei Road continues in the makai direction from Kailua Road. Kuulei Road is a two way, four lane, 64 foot wide roadway with on street parking on both sides of the road.

Aulike Street is stop-controlled at Kuulei Road, forming a tee-intersection. Aulike Street is a two lane, two way, 40 foot wide roadway with on street parking on both sides of the road. The access driveways to two municipal parking lots form a four way, stop-controlled intersection on Aulike Street, about midway between Kuulei Road and Uluniu Street. The access driveway to the project site is a two way, two lane roadway with no provisions for on street parking. Aulike Street forms a stop-controlled, tee-intersection with Uluniu Street.

Uluniu Street is a two lane, two way, 40 foot wide roadway with on street parking on both sides of the road. Uluniu Street is a local road between Maluniu Avenue and Oneawa Street. Uluniu Street is signalized at its intersection with Oneawa Street and Kihapai Street.

Oneawa Street is a two way, two to five lane roadway between Kailua Road and Uluniu Street. Oneawa Street is major collector road between Kailua Road and Mokapu Boulevard.

2. Transit Service

City bus service is provided on Kuulei Road, Kailua Road, and Oneawa Street. The site is also expected to be serviced by the City Handivan operation.

B. Traffic Volumes and Conditions

1. General

a. Field Investigation

The field investigation was conducted during the week of January 28, 1991. A peak period traffic count survey was conducted between the hours of 7:00 AM and 9:00 AM and 3:30 PM and 5:30 PM within the study area. Additional traffic count data on Kailua Road were obtained from the State Department of Transportation.

b. Capacity Analysis Methodology

The highway capacity analysis, performed for this study, is based upon procedures presented in the "Highway Capacity Manual", Special Report 209, Transportation Research Board, 1985 and the "Highway Capacity Software", Federal Highways Administration. Capacity analysis calculations are included in the Appendix.

Level of Service (LOS) is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS "A" through "F", LOS "A" being the best operating condition and LOS "F" the worst operating condition.

"Volume-to-capacity" (v/c) ratio is another measure that indicates the relative traffic demand to the road carrying capacity. A v/c ratio of 1.00 indicates that the roadway is operating at its capacity.

2. AM Peak Hour Traffic Analysis

The AM peak hour of traffic generally occurs between 7:15 AM and 8:15 AM. In general, the traffic circulation in the study area operates at satisfactory Levels of Service during the AM peak hour of traffic. The left turn from Aulike Street to makai bound Kuulei Road operates at LOS "E". The left turn movement from makai bound Kuulei Road to Aulike Street operates at LOS "D". Left turn volume warrant exists under AM peak hour conditions for a left turn lane on makai bound Kuulei Road at Aulike Street. However, field observations indicate that the existing traffic signal at the intersection of Kuulei Road and Maluniu Avenue creates adequate gaps in traffic for the left turn movement. Exhibit 3 shows the existing AM peak hour of traffic.

A traffic count survey conducted during AM peak hour of traffic showed 29 vehicles per hour (vph) entering the municipal parking lot from Oneawa Street.

3. PM Peak Hour Traffic Analysis

The PM peak hour of traffic generally occurs between 4:15 PM and 5:15 PM. During the PM peak hour traffic, the overall traffic circulation in the study area operates at satisfactory Levels of Service. The left turn from Aulike Street to makai bound Kuulei Road operates at LOS "E". Left turn volume warrant exists under PM peak hour conditions for a left turn lane on makai bound Kuulei Road at Aulike Street. Furthermore, the PM peak hour traffic demands at the intersection of Kuulei Road and Aulike Street satisfy peak hour volume warrant for a traffic signal, according to the Manual on Uniform Traffic Control Devices (MUTCD). As discussed previously, the existing traffic signals at intersections adjacent to Aulike Street on Kuulei Road create adequate gaps in traffic to allow Aulike Street traffic to turn onto Kuulei Road.

The intersection of Kailua Road, Kuulei Road, and Oneawa Street operates at an overall LOS "C", however the makai bound approach of Kailua Road and the through movements on Kuulei Road and on Oneawa Street operate at LOS "D" during the existing PM peak hour of traffic. Exhibit 4 shows the existing PM peak hour traffic.

A traffic count survey conducted during PM peak hour of traffic showed 32 vph entering the municipal parking lot from Oneawa Street.

IV. PROJECTED TRAFFIC

A. Site-Generated Traffic

1. Trip Generation Methodology

The trip generation methodology used in this study is based upon trip rates developed for retirement community on Oahu by the State Department of Transportation. These rates are presented in "Site-Oriented Trip Generation Rates for Oahu, User's Manual". The trip rates, used in this analysis, have been documented at other similar sites on Oahu by the State DOT. Trip

rates are developed, empirically, by correlating the vehicle trip generation data, collected on Oahu over a period of one week, with various land use characteristics, such as vehicle trips per dwelling unit.

2. Trip Generation Characteristics

The trip generation analysis is based upon 80 elderly housing units. The existing municipal parking would be replaced within the proposed project site and would not result in a net increase in traffic generated by the public parking.

The proposed project is expected to generate 343 vehicle trip ends during the average weekday. During the AM peak hour of traffic of adjacent street traffic, the project is expected to generate 15 vehicles per hour (vph), 9 vph entering and 6 vph exiting the site. During the PM peak hour of traffic, the project is expected to generate 22 vph, 10 vph entering and 12 vph exiting the site. According to the Institute of Transportation Engineers (ITE) recommended guidelines for traffic impact studies, the trips generated by the proposed project are not considered to be significant. Table 1 presents the trip generation characteristics for the proposed project.

Table 1. Trip Generation Characteristics				
Land Use Intensity: 80 Elderly Housing Units			Trip Rate	Vehicle Trips
Average Weekday Vehicle Trip Ends			4.29	343
Peak Hour of Adjacent Street Traffic	AM	Enter	0.11	9
		Exit	0.08	6
		Total	0.19	15
	PM	Enter	0.12	10
		Exit	0.15	12
		Total	0.27	22

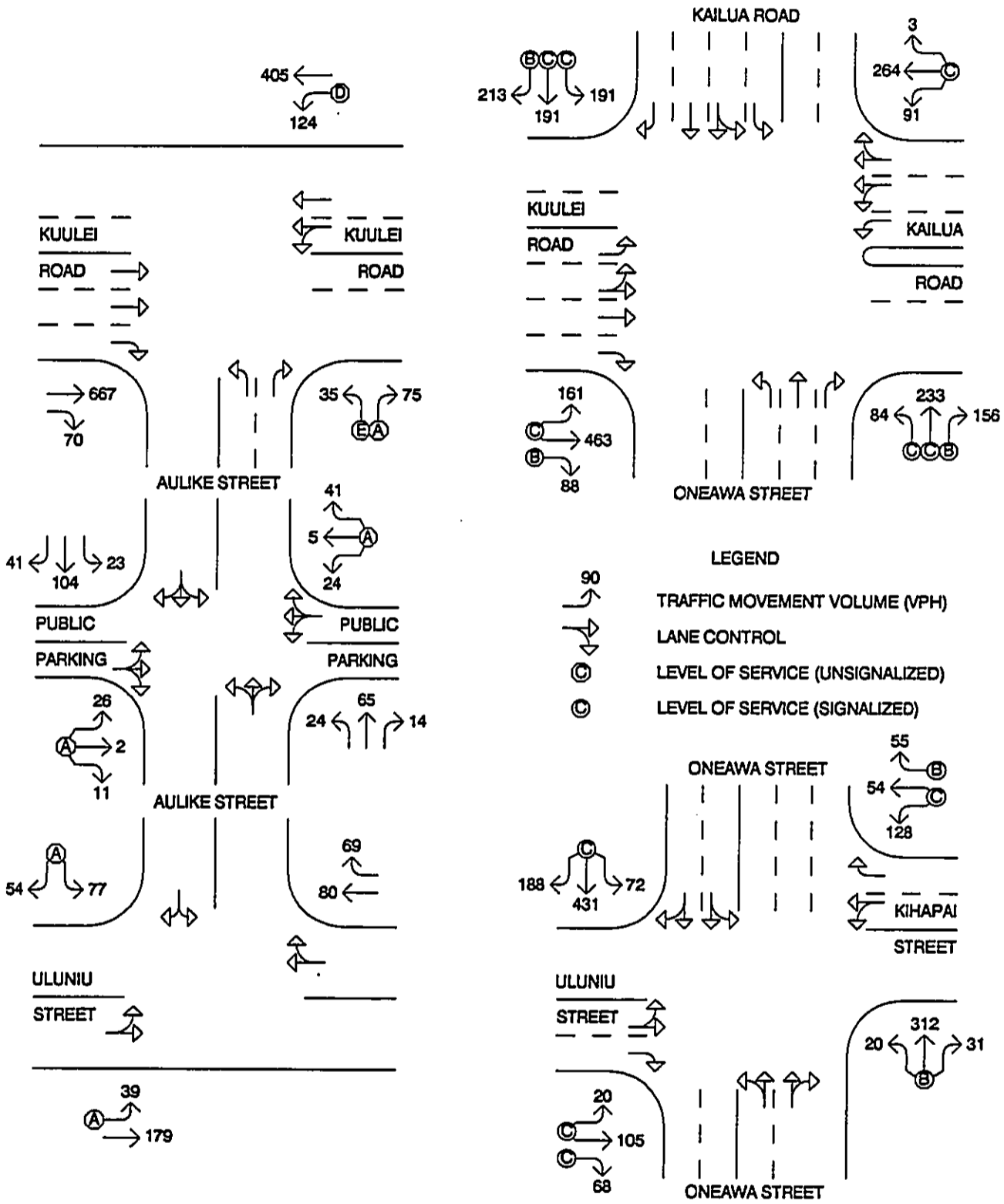


EXHIBIT 5 - 1993 AM PEAK HOUR TRAFFIC W/O PROJECT

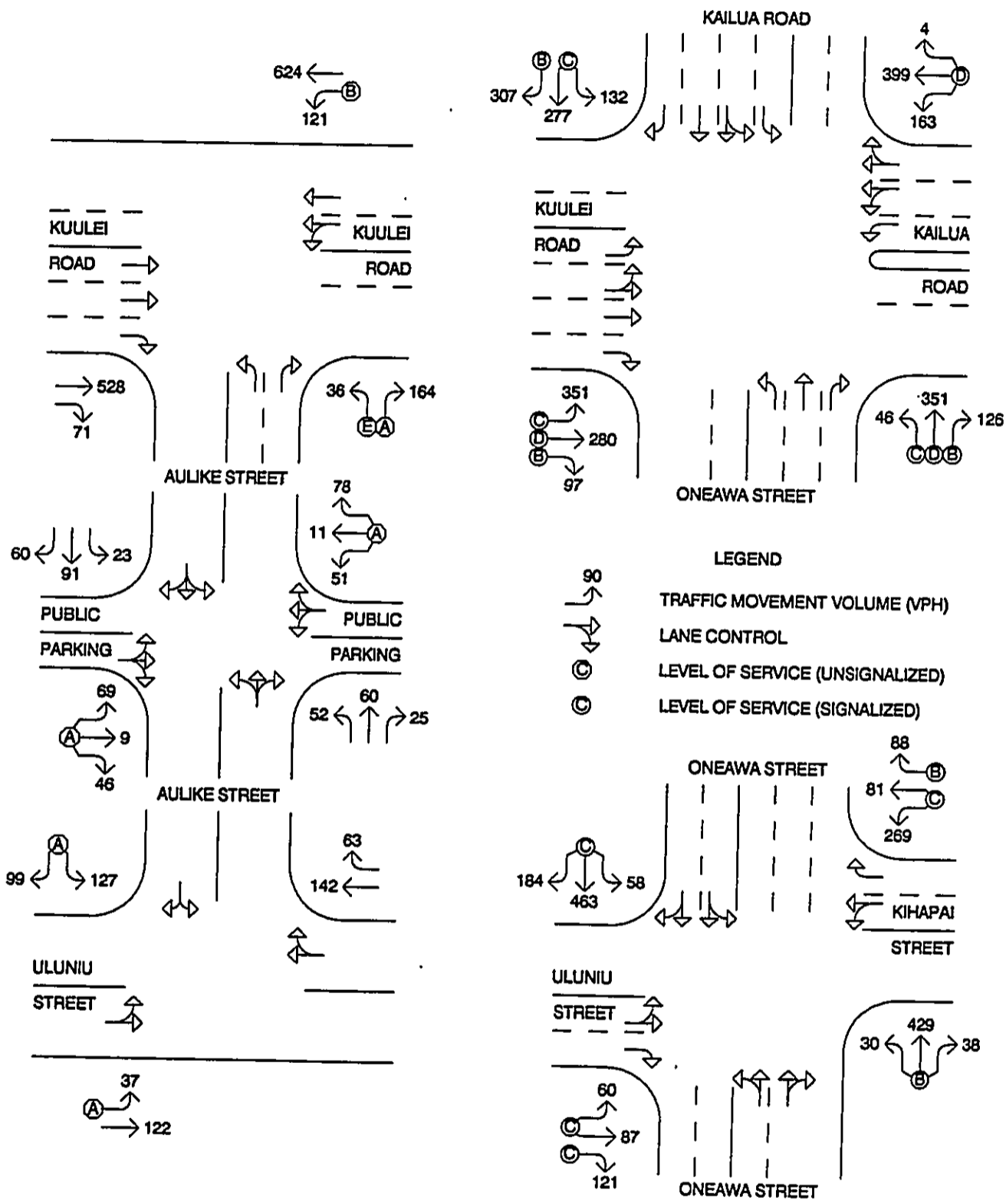


EXHIBIT 6 - 1993 PM PEAK HOUR TRAFFIC W/O PROJECT

B. External Traffic

1. Forecasting Methodology

The travel forecast is based upon State DOT historical traffic data, dating back to 1980, on Kailua Road at Kawainui Bridge. Linear regression techniques were performed on the historical data to obtain the growth rate of traffic in the vicinity. Based upon this analysis, it was determined that traffic increases at a rate of approximately 0.5% per year. This growth factor was used in projecting traffic demands to the Year 1993.

2. Total Traffic Volumes Without Project

Exhibits 5 and 6 show the 1993 AM and PM peak hour traffic without project. With only a 1% growth in traffic projected for the Year 1993, the traffic operations are not changed significantly over the existing condition. Left turn volume warrant exists under peak hour conditions for a left turn lane on makai bound Kuulei Road at Aulike Street. Traffic signals are still warranted at the intersection of Kuulei Road and Aulike Street.

C. Total Traffic With Project

The traffic entering the project includes the project-generated traffic and the existing traffic generated by the municipal parking. Exhibits 7 and 8 show the 1993 AM and PM peak hour traffic with the project-generated traffic. The traffic impact analysis is discussed in the following section.

V. TRAFFIC IMPACT ANALYSIS

Vehicles entering the municipal parking lot from Oneawa Street would be diverted to the Aulike Street entrance. The left turn from Aulike Street to makai bound Kuulei Road would operate at LOS "F" during the AM peak hour of traffic. Traffic operations in the rest of the study area would not be significantly affected.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

Traffic operations within the study area generally operate at satisfactory LOS. The growth in traffic since 1980 has been relatively stable, growing at only 0.5% per year.

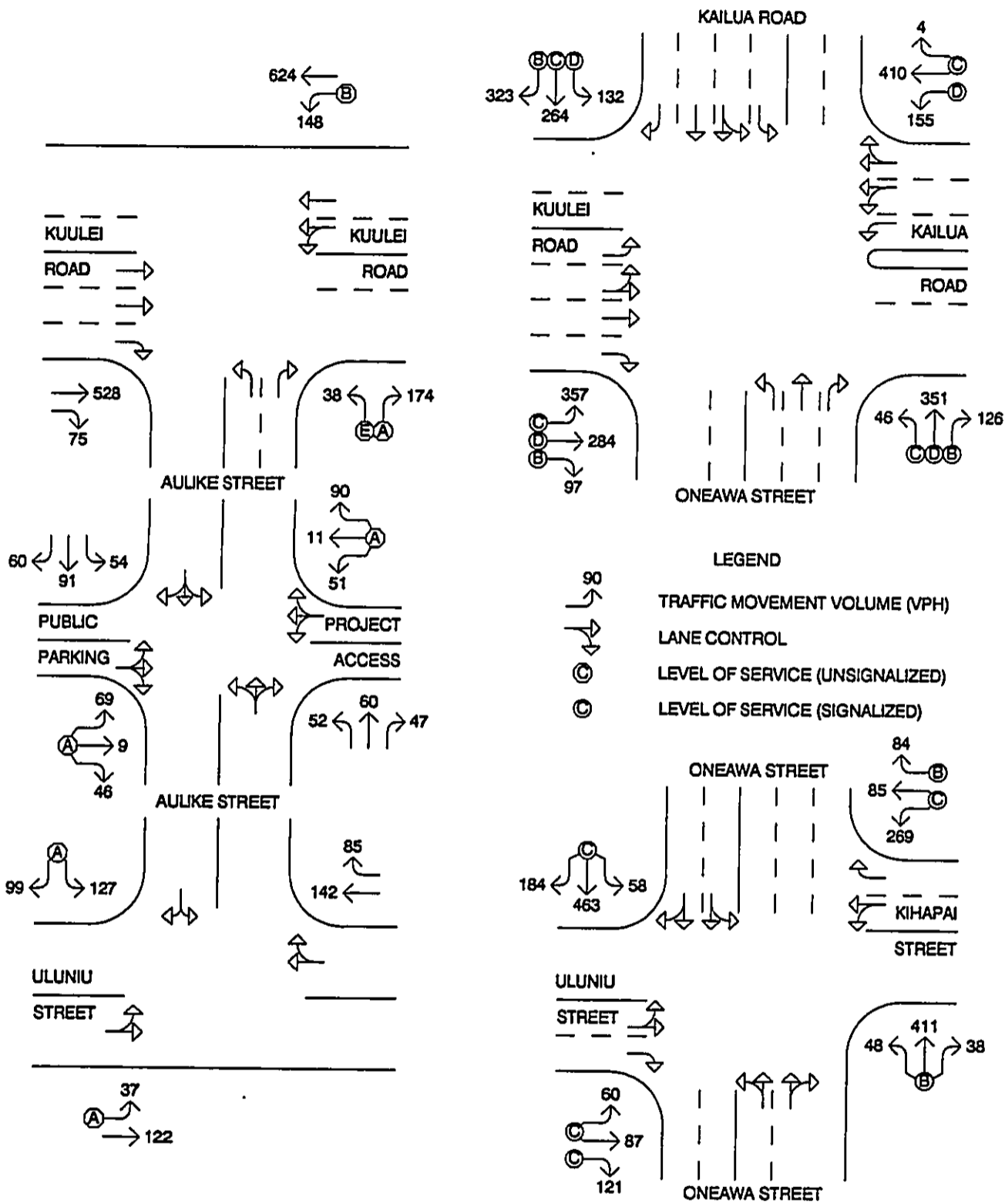


EXHIBIT 8 - CUMULATIVE PM PEAK HOUR TRAFFIC W/PROJECT

The proposed Kailua Elderly Housing Project is not expected to have any significant traffic impacts on the surrounding roadways. The increase in traffic resulting from the proposed project is not expected to be perceivable by the average motorist. The proximity of the project site to bus service, restaurants, shopping opportunities, and health services encourage non-automobile modes of transportation. The single entry off Aulike Street should provide for all the vehicular access needs for the proposed project.

B. Recommendations

No roadway improvements are recommended at this time. Future consideration should be given to a traffic signal installation at the intersection of Kuulei Road and Aulike Street to facilitate side street access and pedestrian crossing.

APPENDIX
CAPACITY ANALYSIS CALCULATIONS

**Existing Peak Hour Conditions
Capacity Analysis Calculations**



1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..KAILUA ROAD/ONEAWA STREET/KUULEI ROAD/KAILUA ROAD
AREA TYPE.....OTHER
ANALYST.....RSO
DATE.....1/30/90
TIME.....EXISTING AM PEAK HR
COMMENT.....FILENAME KAIONEXA

	VOLUMES				:	GEOMETRY							
	EB	WB	NB	SB		EB	WB	NB	SB	EB	WB	NB	SB
LT	83	189	90	159	:	L	10.5	L	10.0	L	11.0	L	10.0
TH	231	189	261	458	:	T	10.5	LT	10.0	LT	11.0	LT	10.0
RT	154	211	3	87	:	R	10.5	T	10.0	TR	12.0	T	10.0
RR	0	0	0	0	:		12.0	R	11.0		12.0	R	12.0
					:		12.0		12.0		12.0		12.0
					:		12.0		12.0		12.0		12.0

	ADJUSTMENT FACTORS									
	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	4	0.84	50	Y	26.8	3
WB	0.00	2.00	N	0	4	0.82	50	Y	26.8	3
NB	0.00	2.00	N	0	4	0.69	50	Y	25.9	3
SB	0.00	2.00	Y	20	4	0.84	50	Y	25.9	3

SIGNAL SETTINGS										CYCLE LENGTH = 90.0			
		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4		
EB	LT	X				NB	LT	X					
	TH	X					TH	X					
	RT	X					RT	X					
	PD	X					PD	X					
WB	LT		X			SB	LT		X				
	TH		X				TH		X				
	RT		X				RT		X				
	PD		X				PD		X				
GREEN		19.0	17.0	0.0	0.0	GREEN		16.0	18.0	0.0	0.0		
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	0.0	0.0		

LEVEL OF SERVICE								
	LANE	GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L		0.263	0.233	21.5	C	19.0	C
	T		0.696	0.233	23.5	C		
	R		0.303	0.433	10.8	B		
WB	L		0.376	0.211	23.3	C	19.3	C
	T		0.659	0.211	23.7	C		
	R		0.416	0.433	11.6	B		
NB	L		0.397	0.200	24.2	C	22.4	C
	LTR		0.578	0.200	21.8	C		
SB	L		0.541	0.222	24.8	C	22.7	C
	LT		0.777	0.222	24.4	C		
	R		0.193	0.456	9.5	B		

INTERSECTION: Delay = 20.9 (sec/veh) V/C = 0.728 LOS = C

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..KAILUA ROAD/ONEAWA STREET/KUULEI ROAD/KAILUA ROAD
AREA TYPE.....OTHER
ANALYST.....RSO
DATE.....1/30/90
TIME.....EXISTING PM PEAK HR
COMMENT.....FILENAME KAIONEXP

	VOLUMES				:	GEOMETRY							
	EB	WB	NB	SB		EB	WB	NB	SB	L	LT	TR	R
LT	46	131	161	348	:	L	10.5	L	10.0	L	11.0	L	10.0
TH	348	274	395	277	:	T	10.5	LT	10.0	LT	11.0	LT	10.0
RT	125	304	4	96	:	R	10.5	T	10.0	TR	12.0	T	10.0
RR	0	0	0	0	:	R	12.0	R	11.0		12.0	R	12.0
					:		12.0		12.0		12.0		12.0
					:		12.0		12.0		12.0		12.0

	ADJUSTMENT FACTORS									
	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	4	0.91	50	Y	24.3	3
WB	0.00	2.00	N	0	4	0.95	50	Y	24.3	3
NB	0.00	2.00	N	0	4	0.91	50	Y	20.8	3
SB	0.00	2.00	Y	20	4	0.91	50	Y	20.8	3

SIGNAL SETTINGS								CYCLE LENGTH = 90.0			
		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH	X					TH	X			
	RT	X					RT	X			
	PD	X					PD	X			
WB	LT		X			SB	LT		X		
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
GREEN		22.0	14.0	0.0	0.0	GREEN		15.0	19.0	0.0	0.0
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	0.0	0.0

LEVEL OF SERVICE								
	LANE	GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L		0.118	0.267	19.0	C	23.1	C
	T		0.847	0.267	28.4	D		
	R		0.217	0.456	9.6	B		
WB	L		0.197	0.178	24.0	C	19.7	C
	LT		0.669	0.178	24.1	C		
	R		0.545	0.411	13.7	B		
NB	L		0.456	0.189	25.4	D	25.4	D
	LTR		0.759	0.189	25.4	D		
SB	L		0.564	0.233	23.9	C	23.0	C
	T		0.787	0.233	27.0	D		
	R		0.179	0.500	8.0	B		

INTERSECTION: Delay = 22.7 (sec/veh) V/C = 0.897 LOS = C

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

 INTERSECTION..ONEAWA STREET/ULUNIU ST/KIHAPAI ST
 AREA TYPE.....OTHER
 ANALYST.....RSO
 DATE.....1/30/91
 TIME.....EXISTING AM PEAK HR
 COMMENT.....FILENAME ONEULUXA

VOLUMES				GEOMETRY								
	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB
LT	20	71	127	20	LT	10.0	LT	11.0	LT	9.5	LT	10.0
TH	309	427	53	104	TR	15.0	TR	11.0	R	10.0	R	10.0
RT	31	186	54	67		12.0		12.0		12.0		12.0
RR	0	0	0	0		12.0		12.0		12.0		12.0
						12.0		12.0		12.0		12.0
						12.0		12.0		12.0		12.0

ADJUSTMENT FACTORS										
	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	Y	20	4	0.88	50	Y	17.6	3
WB	0.00	2.00	N	0	4	0.86	50	Y	17.6	3
NB	0.00	2.00	N	0	0	0.87	50	Y	19.5	3
SB	0.00	2.00	Y	20	0	0.77	50	Y	19.5	3

SIGNAL SETTINGS					CYCLE LENGTH = 61.0					
		PH-1	PH-2	PH-3	PH-4		PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X		
	TH	X					TH	X		
	RT	X					RT	X		
	PD	X					PD	X		
WB	LT	X				SB	LT		X	
	TH	X					TH		X	
	RT	X					RT		X	
	PD	X					PD		X	
GREEN		20.0	0.0	0.0	0.0	GREEN	14.0	12.0	0.0	0.0
YELLOW		5.0	0.0	0.0	0.0	YELLOW	5.0	5.0	0.0	0.0

LEVEL OF SERVICE							
	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	LTR	0.448	0.361	11.5	B	11.5	B
WB	LTR	0.755	0.361	15.1	C	15.1	C
NB	LT	0.501	0.262	15.3	C	14.9	B
	R	0.173	0.262	13.2	B		
SB	LT	0.427	0.230	15.7	C	15.6	C
	R	0.346	0.230	15.3	C		

INTERSECTION: Delay = 14.3 (sec/veh) V/C = 0.632 LOS = B

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..ONEAWA STREET/ULUNIU ST/KIHAPAI ST
AREA TYPE.....OTHER
ANALYST.....RSO
DATE.....1/30/91
TIME.....EXISTING PM PEAK HR
COMMENT.....FILENAME ONEULXP

VOLUMES				GEOMETRY								
	EB	WB	NB	SB	LT	EB	LT	WB	LT	NB	LT	SB
LT	30	57	266	59	LT	10.0	LT	11.0	LT	9.5	LT	10.0
TH	425	458	80	86	TR	15.0	TR	11.0	R	10.0	R	10.0
RT	38	182	87	120		12.0		12.0		12.0		12.0
RR	0	0	0	0		12.0		12.0		12.0		12.0
						12.0		12.0		12.0		12.0
						12.0		12.0		12.0		12.0

ADJUSTMENT FACTORS										
	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	Y	20	4	0.95	50	Y	15.1	3
WB	0.00	2.00	N	0	4	0.97	50	Y	15.1	3
NB	0.00	2.00	N	0	0	0.94	50	Y	17.0	3
SB	0.00	2.00	Y	20	0	0.82	50	Y	17.0	3

SIGNAL SETTINGS										CYCLE LENGTH = 61.0					
		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4				
EB	LT	X				NB	LT	X							
	TH	X					TH	X							
	RT	X					RT	X							
	PD	X					PD	X							
WB	LT	X				SB	LT			X					
	TH	X					TH			X					
	RT	X					RT			X					
	PD	X					PD			X					
GREEN		18.0	0.0	0.0	0.0	GREEN		16.0	12.0	0.0	0.0				
YELLOW		5.0	0.0	0.0	0.0	YELLOW		5.0	5.0	0.0	0.0				

LEVEL OF SERVICE							
	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	LTR	0.613	0.328	14.0	B	14.0	B
WB	LTR	0.767	0.328	16.6	C	16.6	C
NB	LT	0.794	0.295	21.4	C	19.6	C
	R	0.229	0.295	12.4	B		
SB	LT	0.474	0.230	16.2	C	17.2	C
	R	0.582	0.230	18.4	C		

INTERSECTION: Delay = 16.7 (sec/veh) V/C = 0.728 LOS = C

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .79
 AREA POPULATION..... 57000
 NAME OF THE EAST/WEST STREET..... AULIKE
 NAME OF THE NORTH/SOUTH STREET..... KUULEI ROAD
 NAME OF THE ANALYST..... RSO
 DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/90
 TIME PERIOD ANALYZED..... EXISTING AM PEAK HR
 OTHER INFORMATION.... FILENAME KUUAULXA

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE EASTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	35	--	123	0
THRU	0	--	401	660
RIGHT	74	--	0	69

NUMBER OF LANES

	EB	WB	NB	SB
LANES	2	--	2	2

ADJUSTMENT FACTORS

Page-2

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	0.00	90	20	N
WESTBOUND	----	---	---	-
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	0	0	0
WESTBOUND	---	---	---
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
EB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
NB	5.50	5.50	0.00	5.50
MINOR LEFTS				
EB	7.00	7.00	0.00	7.00

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE
NAME OF THE NORTH/SOUTH STREET.... KUULEI ROAD
DATE AND TIME OF THE ANALYSIS..... 1/30/90 ; EXISTING AM PEAK HR
OTHER INFORMATION.... FILENAME KUUAULXA

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET						
EB LEFT	49	84	51	51	3	E
RIGHT	103	655	655	655	552	A
MAJOR STREET						
NB LEFT	171	367	367	367	195	D

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE
 NAME OF THE NORTH/SOUTH STREET.... KULEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 1/30/90 ; EXISTING AM PEAK HR
 OTHER INFORMATION.... FILENAME KUUAULXA

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .92
 AREA POPULATION..... 57000
 NAME OF THE EAST/WEST STREET..... AULIKE
 NAME OF THE NORTH/SOUTH STREET..... KUULEI ROAD
 NAME OF THE ANALYST..... RSO
 DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/90
 TIME PERIOD ANALYZED..... EXISTING PM PEAK HR
 OTHER INFORMATION.... FILENAME KUUAULXP

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE EASTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	36	--	120	0
THRU	0	--	618	523
RIGHT	162	--	0	70

NUMBER OF LANES

	EB	WB	NB	SB
LANES	2	--	2	2

ADJUSTMENT FACTORS

Page-2

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	0.00	90	20	N
WESTBOUND	-----	---	---	-
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	0	0	0
WESTBOUND	---	---	---
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS EB	5.50	5.50	0.00	5.50
MAJOR LEFTS NB	5.50	5.50	0.00	5.50
MINOR LEFTS EB	7.00	7.00	0.00	7.00

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE
NAME OF THE NORTH/SOUTH STREET.... KUULEI ROAD
DATE AND TIME OF THE ANALYSIS..... 1/30/90 ; EXISTING PM PEAK HR
OTHER INFORMATION.... FILENAME KUUAULXP

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTEN-TIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET						
EB LEFT	43	104	83	83	40	E
RIGHT	194	770	770	770	576	A
MAJOR STREET						
NB LEFT	143	526	526	526	383	B

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE
 NAME OF THE NORTH/SOUTH STREET.... KULEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 1/30/90 ; EXISTING PM PEAK HR
 OTHER INFORMATION.... FILENAME KUUULXP

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .89
 AREA POPULATION..... 57000
 NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET..... PUBLIC PARKING/PROJECT ACCESS
 NAME OF THE ANALYST..... RSO
 DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/91
 TIME PERIOD ANALYZED..... EXISTING AM PEAK HR
 OTHER INFORMATION.... FILENAME AULACCXA

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: 4-LEG
 MAJOR STREET DIRECTION: EAST/WEST
 CONTROL TYPE NORTHBOUND: STOP SIGN
 CONTROL TYPE SOUTHBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	24	23	24	26
THRU	64	103	5	2
RIGHT	14	41	41	11

NUMBER OF LANES AND LANE USAGE

	EB	WB	NB	SB
LANES	1	1	1	1

ADJUSTMENT FACTORS

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	0.00	90	20	N
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	0	0	0
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
NB	5.50	5.50	0.00	5.50
SB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
EB	5.00	5.00	0.00	5.00
WB	5.00	5.00	0.00	5.00
MINOR THROUGHES				
NB	6.00	6.00	0.00	6.00
SB	6.00	6.00	0.00	6.00
MINOR LEFTS				
NB	6.50	6.50	0.00	6.50
SB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... PUBLIC PARKING/PROJECT ACCESS
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; EXISTING AM PEAK HR
 OTHER INFORMATION..... FILENAME AULACCXA

CAPACITY AND LEVEL-OF-SERVICE

Page-3

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M		SHARED CAPACITY c (pcph) SH		RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET								
NB LEFT	30	628	600	>	600	>	570	> A
THROUGH	6	715	690	>	792	>	705	684 >A A
RIGHT	51	996	996	>	996	>	945	> A
MINOR STREET								
SB LEFT	32	612	570	>	570	>	537	> A
THROUGH	2	728	702	>	650	>	602	700 >A A
RIGHT	14	954	954	>	954	>	941	> A
MAJOR STREET								
EB LEFT	30	991	991		991		961	A
WB LEFT	28	1000	1000		1000		972	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
NAME OF THE NORTH/SOUTH STREET.... PUBLIC PARKING/PROJECT ACCESS
DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; EXISTING AM PEAK HR
OTHER INFORMATION.... FILENAME AULACCXA

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .9
 AREA POPULATION..... 57000
 NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET..... PUBLIC PARKING/PROJECT ACCESS
 NAME OF THE ANALYST..... RSO
 DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/91
 TIME PERIOD ANALYZED..... EXISTING PM PEAK HR
 OTHER INFORMATION.... FILENAME AULACCP

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: 4-LEG
 MAJOR STREET DIRECTION: EAST/WEST
 CONTROL TYPE NORTHBOUND: STOP SIGN
 CONTROL TYPE SOUTHBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	51	23	50	68
THRU	59	90	11	9
RIGHT	25	59	77	46

NUMBER OF LANES AND LANE USAGE

	EB	WB	NB	SB
LANES	1	1	1	1

ADJUSTMENT FACTORS

Page-2

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	0.00	90	20	N
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	0	0	0
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
NB	5.50	5.50	0.00	5.50
SB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
EB	5.00	5.00	0.00	5.00
WB	5.00	5.00	0.00	5.00
MINOR THROUGHGS				
NB	6.00	6.00	0.00	6.00
SB	6.00	6.00	0.00	6.00
MINOR LEFTS				
NB	6.50	6.50	0.00	6.50
SB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
NAME OF THE NORTH/SOUTH STREET.... PUBLIC PARKING/PROJECT ACCESS
DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; EXISTING PM PEAK HR
OTHER INFORMATION.... FILENAME AULACXP

MOVEMENT	FLOW- RATE v(pcph)	POTEN- TIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M		SHARED CAPACITY c (pcph) SH		RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET								
NB LEFT	61	569	514	>	514	>	453	> A
THROUGH	13	686	648	>	721	>	552	635 >A A
RIGHT	94	996	996	>	996	>	902	> A
MINOR STREET								
SB LEFT	83	556	490	>	490	>	407	> A
THROUGH	11	703	665	>	615	>	464	654 >A A
RIGHT	56	961	961	>	961	>	904	> A
MAJOR STREET								
EB LEFT	62	990	990		990		928	A
WB LEFT	28	1000	1000		1000		972	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
NAME OF THE NORTH/SOUTH STREET..... PUBLIC PARKING/PROJECT ACCESS
DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; EXISTING PM PEAK HR
OTHER INFORMATION..... FILENAME AULACXP

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .826
 AREA POPULATION..... 57000
 NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET..... ULUNIU STREET
 NAME OF THE ANALYST..... RSO
 DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/91
 TIME PERIOD ANALYZED..... EXISTING AM PEAK HR
 OTHER INFORMATION.... FILENAME ULUAULXA

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	76	0	39
THRU	--	0	79	177
RIGHT	--	53	68	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	1	1	1

ADJUSTMENT FACTORS

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	----	---	---	-
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	---	---	---
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
WB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
SB	5.00	5.00	0.00	5.00
MINOR LEFTS				
WB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... ULUNIU STREET
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; EXISTING AM PEAK HR
 OTHER INFORMATION.... FILENAME ULUAULXA

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET						
WB LEFT	101	561	544 >	544 >	442 >	A
RIGHT	71	956	956 >	661 >	489 >	A
MAJOR STREET						
SB LEFT	52	988	988	988	936	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... ULUNIU STREET
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; EXISTING AM PEAK HR
 OTHER INFORMATION..... FILENAME ULUAULXA

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30

PEAK HOUR FACTOR..... .969

AREA POPULATION..... 57000

NAME OF THE EAST/WEST STREET..... AULIKE STREET

NAME OF THE NORTH/SOUTH STREET..... ULUNIU STREET

NAME OF THE ANALYST..... RSO

DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/91

TIME PERIOD ANALYZED..... EXISTING PM PEAK HR

OTHER INFORMATION.... FILENAME ULUAULXP

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION

MAJOR STREET DIRECTION: NORTH/SOUTH

CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	126	0	37
THRU	--	0	141	121
RIGHT	--	98	62	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	1	1	1

ADJUSTMENT FACTORS

Page-2

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	----	---	---	-
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	---	---	---
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
WB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
SB	5.00	5.00	0.00	5.00
MINOR LEFTS				
WB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
NAME OF THE NORTH/SOUTH STREET.... ULUNIU STREET
DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; EXISTING PM PEAK HR
OTHER INFORMATION.... FILENAME ULUAULXP

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS			
MINOR STREET									
WB LEFT	143	605	589	>	589	>	446	>	A
RIGHT	111	914	914	>	697	>	443	>	A
MAJOR STREET									
SB LEFT	42	976	976		976		934		A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... ULUNIU STREET
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; EXISTING PM PEAK HR
 OTHER INFORMATION.... FILENAME ULUAULXP

**1993 Peak Hour Conditions w/o Project
Capacity Analysis Calculations**

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..KAILUA ROAD/ONEAWA STREET/KUULEI ROAD/KAILUA ROAD
AREA TYPE.....OTHER
ANALYST.....RSO
DATE.....1/30/90
TIME.....1993 PM PEAK W/O PRO
COMMENT.....FILENAME KAIONPWO

	VOLUMES				:	GEOMETRY							
	EB	WB	NB	SB		EB	L	WB	L	NB	L	SB	
LT	46	132	163	351	:	L	10.5	L	10.0	L	11.0	L	10.0
TH	351	277	399	280	:	T	10.5	LT	10.0	LT	11.0	LT	10.0
RT	126	307	4	97	:	R	10.5	T	10.0	TR	12.0	T	10.0
RR	0	0	0	0	:		12.0	R	11.0		12.0	R	12.0
					:		12.0		12.0		12.0		12.0
					:		12.0		12.0		12.0		12.0

ADJUSTMENT FACTORS										
	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	4	0.91	50	Y	24.3	3
WB	0.00	2.00	N	0	4	0.95	50	Y	24.3	3
NB	0.00	2.00	N	0	4	0.91	50	Y	20.8	3
SB	0.00	2.00	Y	20	4	0.91	50	Y	20.8	3

SIGNAL SETTINGS										CYCLE LENGTH = 90.0			
		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4		
EB	LT	X				NB	LT	X					
	TH	X					TH	X					
	RT	X					RT	X					
	PD	X					PD	X					
WB	LT		X			SB	LT		X				
	TH		X				TH		X				
	RT		X				RT		X				
	PD		X				PD		X				
GREEN		22.0	14.0	0.0	0.0	GREEN		15.0	19.0	0.0	0.0		
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	0.0	0.0		

LEVEL OF SERVICE								
	LANE	GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L		0.118	0.267	19.0	C	23.4	C
	T		0.854	0.267	29.0	D		
	R		0.218	0.456	9.6	B		
WB	L		0.199	0.178	24.0	C	19.8	C
	LT		0.676	0.178	24.2	C		
	R		0.550	0.411	13.8	B		
NB	L		0.462	0.189	25.5	D	25.6	D
	LTR		0.767	0.189	25.6	D		
SB	L		0.569	0.233	24.0	C	23.2	C
	T		0.796	0.233	27.4	D		
	R		0.181	0.500	8.0	B		

INTERSECTION: Delay = 22.9 (sec/veh) V/C = 0.905 LOS = C

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..KAILUA ROAD/ONEAWA STREET/KUULEI ROAD/KAILUA ROAD

AREA TYPE.....OTHER

ANALYST.....RSO

DATE.....1/30/90

TIME.....1993 AM PEAK W/O PRO

COMMENT.....FILENAME KAIONAWO

	VOLUMES				:	GEOMETRY							
	EB	WB	NB	SB		EB	L	WB	L	NB	L	SB	
LT	84	191	91	161	:	L	10.5	L	10.0	L	11.0	L	10.0
TH	233	191	264	463	:	T	10.5	LT	10.0	LT	11.0	LT	10.0
RT	156	213	3	88	:	R	10.5	T	10.0	TR	12.0	T	10.0
RR	0	0	0	0	:		12.0	R	11.0		12.0	R	12.0
					:		12.0		12.0		12.0		12.0
					:		12.0		12.0		12.0		12.0

	ADJUSTMENT FACTORS									
	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	4	0.84	50	Y	26.8	3
WB	0.00	2.00	N	0	4	0.82	50	Y	26.8	3
NB	0.00	2.00	N	0	4	0.69	50	Y	25.9	3
SB	0.00	2.00	Y	20	4	0.84	50	Y	25.9	3

	SIGNAL SETTINGS								CYCLE LENGTH = 90.0			
	PH-1	PH-2	PH-3	PH-4	PH-1	PH-2	PH-3	PH-4	PH-1	PH-2	PH-3	PH-4
EB	LT	X			NB	LT	X					
	TH	X				TH	X					
	RT	X				RT	X					
	PD	X				PD	X					
WB	LT		X		SB	LT		X				
	TH		X			TH		X				
	RT		X			RT		X				
	PD		X			PD		X				
GREEN		19.0	17.0	0.0	0.0	GREEN		16.0	18.0	0.0	0.0	
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	0.0	0.0	

	LEVEL OF SERVICE							
	LANE	GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L		0.266	0.233	21.5	C	19.1	C
	T		0.702	0.233	23.7	C		
	R		0.307	0.433	10.9	B		
WB	L		0.380	0.211	23.3	C	19.4	C
	T		0.666	0.211	23.8	C		
	R		0.420	0.433	11.7	B		
NB	L		0.402	0.200	24.2	C	22.4	C
	LTR		0.584	0.200	21.9	C		
SB	L		0.548	0.222	25.0	C	22.9	C
	LT		0.786	0.222	24.6	C		
	R		0.196	0.456	9.5	B		

INTERSECTION: Delay = 21.1 (sec/veh) V/C = 0.736 LOS = C

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

 INTERSECTION..ONEAWA STREET/ULUNIU ST/KIHAPAI ST
 AREA TYPE.....OTHER
 ANALYST.....RSO
 DATE.....1/30/91
 TIME.....1993 AM PEAK W/O PRO
 COMMENT.....FILENAME ONEULAWO

VOLUMES				GEOMETRY								
	EB	WB	NB	SB	EB	LT	WB	LT	NB	LT	SB	
LT	20	72	128	20	LT	10.0	LT	11.0	LT	9.5	LT	10.0
TH	312	431	54	105	TR	15.0	TR	11.0	R	10.0	R	10.0
RT	31	188	55	68		12.0		12.0		12.0		12.0
RR	0	0	0	0		12.0		12.0		12.0		12.0
						12.0		12.0		12.0		12.0
						12.0		12.0		12.0		12.0
						12.0		12.0		12.0		12.0

ADJUSTMENT FACTORS										
	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	Y	20	4	0.88	50	Y	17.6	3
WB	0.00	2.00	N	0	4	0.86	50	Y	17.6	3
NB	0.00	2.00	N	0	0	0.87	50	Y	19.5	3
SB	0.00	2.00	Y	20	0	0.77	50	Y	19.5	3

SIGNAL SETTINGS					CYCLE LENGTH = 61.0					
		PH-1	PH-2	PH-3	PH-4		PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X		
	TH	X					TH	X		
	RT	X					RT	X		
	PD	X					PD	X		
WB	LT	X				SB	LT		X	
	TH	X					TH		X	
	RT	X					RT		X	
	PD	X					PD		X	
GREEN		20.0	0.0	0.0	0.0	GREEN	14.0	12.0	0.0	0.0
YELLOW		5.0	0.0	0.0	0.0	YELLOW	5.0	5.0	0.0	0.0

LEVEL OF SERVICE							
	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	LTR	0.454	0.361	11.6	B	11.6	B
WB	LTR	0.764	0.361	15.4	C	15.4	C
NB	LT	0.506	0.262	15.4	C	14.9	B
	R	0.176	0.262	13.3	B		
SB	LT	0.430	0.230	15.8	C	15.6	C
	R	0.351	0.230	15.3	C		

INTERSECTION: Delay = 14.4 (sec/veh) V/C = 0.638 LOS = B

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

 INTERSECTION..ONEAWA STREET/ULUNIU ST/KIHAPAI ST
 AREA TYPE.....OTHER
 ANALYST.....RSO
 DATE.....1/30/91
 TIME.....1993 PM PEAK W/O PRO
 COMMENT.....FILENAME ONEULUPWO

VOLUMES				GEOMETRY							
	EB	WB	NB	SB	EB	LT	WB	LT	NB	LT	SB
LT	30	58	269	60	10.0	LT	11.0	LT	9.5	LT	10.0
TH	429	463	81	87	15.0	TR	11.0	R	10.0	R	10.0
RT	38	184	88	121	12.0		12.0		12.0		12.0
RR	0	0	0	0	12.0		12.0		12.0		12.0
					12.0		12.0		12.0		12.0
					12.0		12.0		12.0		12.0
					12.0		12.0		12.0		12.0

ADJUSTMENT FACTORS										
	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	Y	20	4	0.95	50	Y	15.1	3
WB	0.00	2.00	N	0	4	0.97	50	Y	15.1	3
NB	0.00	2.00	N	0	0	0.94	50	Y	17.0	3
SB	0.00	2.00	Y	20	0	0.82	50	Y	17.0	3

SIGNAL SETTINGS					CYCLE LENGTH = 61.0					
		PH-1	PH-2	PH-3	PH-4		PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X		
	TH	X					TH	X		
	RT	X					RT	X		
	PD	X					PD	X		
WB	LT	X				SB	LT		X	
	TH	X					TH		X	
	RT	X					RT		X	
	PD	X					PD		X	
GREEN		18.0	0.0	0.0	0.0	GREEN	16.0	12.0	0.0	0.0
YELLOW		5.0	0.0	0.0	0.0	YELLOW	5.0	5.0	0.0	0.0

LEVEL OF SERVICE							
	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	LTR	0.620	0.328	14.1	B	14.1	B
WB	LTR	0.778	0.328	16.9	C	16.9	C
NB	LT	0.804	0.295	21.9	C	20.0	C
	R	0.232	0.295	12.4	B		
SB	LT	0.481	0.230	16.2	C	17.2	C
	R	0.587	0.230	18.5	C		

INTERSECTION: Delay = 16.9 (sec/veh) V/C = 0.736 LOS = C

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .79
 AREA POPULATION..... 57000
 NAME OF THE EAST/WEST STREET..... AULIKE
 NAME OF THE NORTH/SOUTH STREET..... KUULEI ROAD
 NAME OF THE ANALYST..... RSO
 DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/90
 TIME PERIOD ANALYZED..... 1993 AM PEAK W/O PRO
 OTHER INFORMATION.... FILENAME KUUAUAWO

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE EASTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	35	--	124	0
THRU	0	--	405	667
RIGHT	75	--	0	70

NUMBER OF LANES

	EB	WB	NB	SB
LANES	2	--	2	2

ADJUSTMENT FACTORS

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	0.00	90	20	N
WESTBOUND	-----	---	---	-
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	0	0	0
WESTBOUND	---	---	---
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
EB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
NB	5.50	5.50	0.00	5.50
MINOR LEFTS				
EB	7.00	7.00	0.00	7.00

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE
 NAME OF THE NORTH/SOUTH STREET.... KUULEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 1/30/90 ; 1993 AM PEAK W/O PRO
 OTHER INFORMATION.... FILENAME KUUAUAWO

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTEN-	ACTUAL	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY		LOS
		TIAL CAPACITY c (pcph) P	MOVEMENT CAPACITY c (pcph) M		c = c	- v	

MINOR STREET							
EB LEFT	49	81	49	49	0		E
RIGHT	104	652	652	652	547		A
MAJOR STREET							
NB LEFT	173	362	362	362	189		D

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE
 NAME OF THE NORTH/SOUTH STREET.... KUULEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 1/30/90 ; 1993 AM PEAK W/O PRO
 OTHER INFORMATION..... FILENAME KUUAUAWO

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30

PEAK HOUR FACTOR..... .92

AREA POPULATION..... 57000

NAME OF THE EAST/WEST STREET..... AULIKE

NAME OF THE NORTH/SOUTH STREET..... KUULEI ROAD

NAME OF THE ANALYST..... RSO

DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/90

TIME PERIOD ANALYZED..... 1993 PM PEAK W/O PRO

OTHER INFORMATION.... FILENAME KUUAUPWO

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION

MAJOR STREET DIRECTION: NORTH/SOUTH

CONTROL TYPE EASTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	36	--	121	0
THRU	0	--	624	528
RIGHT	164	--	0	71

NUMBER OF LANES

	EB	WB	NB	SB
LANES	2	--	2	2

ADJUSTMENT FACTORS

Page-2

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	0.00	90	20	N
WESTBOUND	-----	---	---	-
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	0	0	0
WESTBOUND	---	---	---
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
EB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
NB	5.50	5.50	0.00	5.50
MINOR LEFTS				
EB	7.00	7.00	0.00	7.00

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE
NAME OF THE NORTH/SOUTH STREET.... KUULEI ROAD
DATE AND TIME OF THE ANALYSIS..... 1/30/90 ; 1993 PM PEAK W/O PRO
OTHER INFORMATION.... FILENAME KUUAUPWO

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET						
EB LEFT	43	102	81	81	38	E
RIGHT	196	767	767	767	571	A
MAJOR STREET						
NB LEFT	145	522	522	522	377	B

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE
 NAME OF THE NORTH/SOUTH STREET.... KULEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 1/30/90 ; 1993 PM PEAK W/O PRO
 OTHER INFORMATION.... FILENAME KUUAUPWO

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30

PEAK HOUR FACTOR..... .89

AREA POPULATION..... 57000

NAME OF THE EAST/WEST STREET..... AULIKE STREET

NAME OF THE NORTH/SOUTH STREET..... PUBLIC PARKING/PROJECT ACCESS

NAME OF THE ANALYST..... RSO

DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/91

TIME PERIOD ANALYZED..... 1993 AM PEAK W/O PRO

OTHER INFORMATION.... FILENAME AULACAWO

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: 4-LEG

MAJOR STREET DIRECTION: EAST/WEST

CONTROL TYPE NORTHBOUND: STOP SIGN

CONTROL TYPE SOUTHBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	24	23	24	26
THRU	65	104	5	2
RIGHT	14	41	41	11

NUMBER OF LANES AND LANE USAGE

	EB	WB	NB	SB
LANES	1	1	1	1

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

ADJUSTMENT FACTORS

Page-2

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	0.00	90	20	N
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	0	0	0
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
NB	5.50	5.50	0.00	5.50
SB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
EB	5.00	5.00	0.00	5.00
WB	5.00	5.00	0.00	5.00
MINOR THROUGHS				
NB	6.00	6.00	0.00	6.00
SB	6.00	6.00	0.00	6.00
MINOR LEFTS				
NB	6.50	6.50	0.00	6.50
SB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
NAME OF THE NORTH/SOUTH STREET..... PUBLIC PARKING/PROJECT ACCESS
DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 AM PEAK W/O PRO
OTHER INFORMATION.... FILENAME AULACAWO

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M		SHARED CAPACITY c (pcph) SH		RESERVE CAPACITY c = c - v R SH		LOS
MINOR STREET									
NB LEFT	30	627	598	>	598	>	569	>	A
THROUGH	6	713	688	>	791	>	704	>	A A
RIGHT	51	996	996	>	996	>	945	>	A
MINOR STREET									
SB LEFT	32	610	568	>	568	>	536	>	A
THROUGH	2	726	701	>	648	>	600	>	A A
RIGHT	14	953	953	>	953	>	940	>	A
MAJOR STREET									
EB LEFT	30	991	991		991		961		A
WB LEFT	28	1000	1000		1000		972		A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... PUBLIC PARKING/PROJECT ACCESS
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 AM PEAK W/O PRO
 OTHER INFORMATION.... FILENAME AULACAWO

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30

PEAK HOUR FACTOR..... .9

AREA POPULATION..... 57000

NAME OF THE EAST/WEST STREET..... AULIKE STREET

NAME OF THE NORTH/SOUTH STREET..... PUBLIC PARKING/PROJECT ACCESS

NAME OF THE ANALYST..... RSO

DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/91

TIME PERIOD ANALYZED..... 1993 PM PEAK W/O PRO

OTHER INFORMATION.... FILENAME AULACPWO

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: 4-LEG

MAJOR STREET DIRECTION: EAST/WEST

CONTROL TYPE NORTHBOUND: STOP SIGN

CONTROL TYPE SOUTHBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	52	23	51	69
THRU	60	91	11	9
RIGHT	25	60	78	46

NUMBER OF LANES AND LANE USAGE

	EB	WB	NB	SB
LANES	1	1	1	1

ADJUSTMENT FACTORS

Page-2

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	0.00	90	20	N
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	0	0	0
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
NB	5.50	5.50	0.00	5.50
SB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
EB	5.00	5.00	0.00	5.00
WB	5.00	5.00	0.00	5.00
MINOR THROUGHGS				
NB	6.00	6.00	0.00	6.00
SB	6.00	6.00	0.00	6.00
MINOR LEFTS				
NB	6.50	6.50	0.00	6.50
SB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... PUBLIC PARKING/PROJECT ACCESS
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 PM PEAK W/O PRO
 OTHER INFORMATION.... FILENAME AULACPWO

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v(pcph)	POTEN-	ACTUAL	SHARED		RESERVE		LOS
		TIAL CAPACITY c (pcph) p	MOVEMENT CAPACITY c (pcph) M	CAPACITY c (pcph) SH		CAPACITY c = c - v R SH		
MINOR STREET								
NB LEFT	62	565	511	>	511	>	448	> A
THROUGH	13	682	644	>	717	>	546	631 >A A
RIGHT	95	996	996	>	996	>	901	> A
MINOR STREET								
SB LEFT	84	553	486	>	486	>	402	> A
THROUGH	11	699	661	>	610	>	458	650 >A A
RIGHT	56	959	959	>	959	>	903	> A
MAJOR STREET								
EB LEFT	64	990	990		990		926	A
WB LEFT	28	1000	1000		1000		972	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... PUBLIC PARKING/PROJECT ACCESS
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 PM PEAK W/O PRO
 OTHER INFORMATION.... FILENAME AULACPWO

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30

PEAK HOUR FACTOR..... .826

AREA POPULATION..... 57000

NAME OF THE EAST/WEST STREET..... AULIKE STREET

NAME OF THE NORTH/SOUTH STREET..... ULUNIU STREET

NAME OF THE ANALYST..... RSO

DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/91

TIME PERIOD ANALYZED..... 1993 AM PEAK W/O PRO

OTHER INFORMATION.... FILENAME ULUAUAWO

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION

MAJOR STREET DIRECTION: NORTH/SOUTH

CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	77	0	39
THRU	--	0	80	179
RIGHT	--	54	69	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	1	1	1

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

ADJUSTMENT FACTORS

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	----	---	---	-
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	---	---	---
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
WB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
SB	5.00	5.00	0.00	5.00
MINOR LEFTS				
WB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... ULUNIU STREET
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 AM PEAK W/O PRO
 OTHER INFORMATION.... FILENAME ULUAUAWO

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) P	ACTUAL MOVEMENT CAPACITY c (pcph) M		SHARED CAPACITY c (pcph) SH		RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET								
WB LEFT	103	558	541	>	541	>	438	> A
				>	658	>	484	>A
RIGHT	72	954	954	>	954	>	883	> A
MAJOR STREET								
SB LEFT	52	988	988		988		936	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... ULUNIU STREET
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 AM PEAK W/O PRO
 OTHER INFORMATION.... FILENAME ULUAUAWO

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .969
 AREA POPULATION..... 57000
 NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET..... ULUNIU STREET
 NAME OF THE ANALYST..... RSO
 DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/91
 TIME PERIOD ANALYZED..... 1993 PM PEAK W/O PRO
 OTHER INFORMATION.... FILENAME ULUAUPWO

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	127	0	37
THRU	--	0	142	122
RIGHT	--	99	63	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	1	1	1

ADJUSTMENT FACTORS

Page-2

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	----	---	---	-
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	---	---	---
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
WB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
SB	5.00	5.00	0.00	5.00
MINOR LEFTS				
WB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
NAME OF THE NORTH/SOUTH STREET.... ULUNIU STREET
DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 PM PEAK W/O PRO
OTHER INFORMATION.... FILENAME ULUAUPWO

CORRECTION

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

1985 HCM: UNSIGNALIZED INTERSECTIONS

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30

PEAK HOUR FACTOR..... .969

AREA POPULATION..... 57000

NAME OF THE EAST/WEST STREET..... AULIKE STREET

NAME OF THE NORTH/SOUTH STREET..... ULUNIU STREET

NAME OF THE ANALYST..... RSO

DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/91

TIME PERIOD ANALYZED..... 1993 PM PEAK W/O PRO

OTHER INFORMATION.... FILENAME ULUAUPWO

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION

MAJOR STREET DIRECTION: NORTH/SOUTH

CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	127	0	37
THRU	--	0	142	122
RIGHT	--	99	63	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	1	1	1

ADJUSTMENT FACTORS

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	----	---	---	-
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	---	---	---
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
WB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
SB	5.00	5.00	0.00	5.00
MINOR LEFTS				
WB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... ULUNI STREET
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 PM PEAK W/O PRO
 OTHER INFORMATION.... FILENAME ULUAUPWO

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M		SHARED CAPACITY c (pcph) SH		RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET								
WB LEFT	144	603	587	>	587	>	443	> A
RIGHT	112	912	912	>	696	>	439	>A
				>	912	>	800	> A
MAJOR STREET								
SB LEFT	42	974	974		974		932	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... ULUNIU STREET
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 PM PEAK W/O PRO
 OTHER INFORMATION.... FILENAME ULUAUPWO

**Cumulative Peak Hour Conditions w/Project
Capacity Analysis Calculations**

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

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..KAILUA ROAD/ONEAWA STREET/KUULEI ROAD/KAILUA ROAD
AREA TYPE.....OTHER
ANALYST.....RSO
DATE.....1/30/90
TIME.....1993 AM PEAK W/PROJ
COMMENT.....FILENAME KAIONEAW

	VOLUMES				:	GEOMETRY							
	EB	WB	NB	SB		EB	WB	NB	SB	EB	WB	NB	SB
LT	84	191	87	162	:	L	10.5	L	10.0	L	11.0	L	10.0
TH	233	183	270	467	:	T	10.5	LT	10.0	LT	11.0	LT	10.0
RT	156	222	3	88	:	R	10.5	T	10.0	TR	12.0	T	10.0
RR	0	0	0	0	:	R	12.0	R	11.0		12.0	R	12.0
					:		12.0		12.0		12.0		12.0
					:		12.0		12.0		12.0		12.0

	ADJUSTMENT FACTORS									
	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	4	0.84	50	Y	26.8	3
WB	0.00	2.00	N	0	4	0.82	50	Y	26.8	3
NB	0.00	2.00	N	0	4	0.69	50	Y	25.9	3
SB	0.00	2.00	Y	20	4	0.84	50	Y	25.9	3

SIGNAL SETTINGS										CYCLE LENGTH = 90.0			
		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4		
EB	LT	X				NB	LT	X					
	TH	X					TH	X					
	RT	X					RT	X					
	PD	X					PD	X					
WB	LT		X			SB	LT		X				
	TH		X				TH		X				
	RT		X				RT		X				
	PD		X				PD		X				
GREEN		19.0	17.0	0.0	0.0	GREEN		16.0	18.0	0.0	0.0		
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	0.0	0.0		

LEVEL OF SERVICE								
	LANE	GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L		0.266	0.233	21.5	C	19.1	C
	T		0.702	0.233	23.7	C		
	R		0.307	0.433	10.9	B		
WB	L		0.380	0.211	23.3	C	19.1	C
	T		0.638	0.211	23.2	C		
	R		0.438	0.433	11.8	B		
NB	L		0.384	0.200	24.1	C	22.5	C
	LTR		0.598	0.200	22.0	C		
SB	L		0.551	0.222	25.0	D	23.1	C
	LT		0.793	0.222	24.9	C		
	R		0.196	0.456	9.5	B		

INTERSECTION: Delay = 21.0 (sec/veh) V/C = 0.749 LOS = C

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..KAILUA ROAD/ONEAWA STREET/KUULEI ROAD/KAILUA ROAD
AREA TYPE.....OTHER
ANALYST.....RSO
DATE.....1/30/90
TIME.....1993 PM PEAK W/PROJ
COMMENT.....FILENAME KAIONE PW

	VOLUMES				:	GEOMETRY							
	EB	WB	NB	SB		EB	WB	NB	SB	EB	WB	NB	SB
LT	46	132	155	357	:	L	10.5	L	10.0	L	11.0	L	10.0
TH	351	264	410	284	:	T	10.5	LT	10.0	LT	11.0	LT	10.0
RT	126	323	4	97	:	R	10.5	T	10.0	TR	12.0	T	10.0
RR	0	0	0	0	:	R	12.0	R	11.0		12.0	R	12.0
					:		12.0		12.0		12.0		12.0
					:		12.0		12.0		12.0		12.0

	ADJUSTMENT FACTORS									
	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	4	0.91	50	Y	24.3	3
WB	0.00	2.00	N	0	4	0.95	50	Y	24.3	3
NB	0.00	2.00	N	0	4	0.91	50	Y	20.8	3
SB	0.00	2.00	Y	20	4	0.91	50	Y	20.8	3

SIGNAL SETTINGS										CYCLE LENGTH = 90.0			
	PH-1	PH-2	PH-3	PH-4		PH-1	PH-2	PH-3	PH-4				
EB	LT	X			NB	LT	X						
	TH	X				TH	X						
	RT	X				RT	X						
	PD	X				PD	X						
WB	LT		X		SB	LT		X					
	TH		X			TH		X					
	RT		X			RT		X					
	PD		X			PD		X					
GREEN	22.0	14.0	0.0	0.0	GREEN	15.0	19.0	0.0	0.0				
YELLOW	5.0	5.0	0.0	0.0	YELLOW	5.0	5.0	0.0	0.0				

LEVEL OF SERVICE							
	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.118	0.267	19.0	C	23.4	C
	T	0.854	0.267	29.0	D		
	R	0.218	0.456	9.6	B		
WB	L	0.496	0.178	26.5	D	19.4	C
	LT	0.495	0.178	22.0	C		
	R	0.579	0.411	14.1	B		
NB	L	0.549	0.189	26.7	D	25.1	D
	LTR	0.726	0.189	24.5	C		
SB	L	0.579	0.233	24.1	C	23.5	C
	T	0.807	0.233	28.0	D		
	R	0.181	0.500	8.0	B		

INTERSECTION: Delay = 22.7 (sec/veh) V/C = 0.913 LOS = C

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

 INTERSECTION..ONEAWA STREET/ULUNIU ST/KIHAPAI ST
 AREA TYPE.....OTHER
 ANALYST.....RSO
 DATE.....1/30/91
 TIME.....1993 AM PEAK W/PROJ
 COMMENT.....FILENAME ONEULUAW

	VOLUMES					GEOMETRY						
	EB	WB	NB	SB		EB	WB	NB	SB			
LT	34	72	128	20	LT	10.0	LT	11.0	LT	9.5	LT	10.0
TH	298	431	57	105	TR	15.0	TR	11.0	R	10.0	R	10.0
RT	31	188	52	68		12.0		12.0		12.0		12.0
RR	0	0	0	0		12.0		12.0		12.0		12.0
						12.0		12.0		12.0		12.0
						12.0		12.0		12.0		12.0

ADJUSTMENT FACTORS										
	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	Y	20	4	0.88	50	Y	17.6	3
WB	0.00	2.00	N	0	4	0.86	50	Y	17.6	3
NB	0.00	2.00	N	0	0	0.87	50	Y	19.5	3
SB	0.00	2.00	Y	20	0	0.77	50	Y	19.5	3

SIGNAL SETTINGS								CYCLE LENGTH = 61.0			
		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH	X					TH	X			
	RT	X					RT	X			
	PD	X					PD	X			
WB	LT	X				SB	LT		X		
	TH	X					TH		X		
	RT	X					RT		X		
	PD	X					PD		X		
GREEN		20.0	0.0	0.0	0.0	GREEN		14.0	12.0	0.0	0.0
YELLOW		5.0	0.0	0.0	0.0	YELLOW		5.0	5.0	0.0	0.0

LEVEL OF SERVICE							
	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	LTR	0.498	0.361	11.9	B	11.9	B
WB	LTR	0.769	0.361	15.5	C	15.5	C
NB	LT	0.514	0.262	15.5	C	15.0	B
	R	0.166	0.262	13.2	B		
SB	LT	0.430	0.230	15.8	C	15.6	C
	R	0.351	0.230	15.3	C		

INTERSECTION: Delay = 14.6 (sec/veh) V/C = 0.642 LOS = B

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..ONEAWA STREET/ULUNIU ST/KIHAPAI ST
AREA TYPE.....OTHER
ANALYST.....RSO
DATE.....1/30/91
TIME.....1993 PM PEAK W/PROJ
COMMENT.....FILENAME ONEULUPW

VOLUMES				GEOMETRY									
	EB	WB	NB	SB		EB	LT	WB	LT	NB	LT	SB	
LT	48	58	269	60	:	LT	10.0	LT	11.0	LT	9.5	LT	10.0
TH	411	463	85	87	:	TR	15.0	TR	11.0	R	10.0	R	10.0
RT	38	184	84	121	:		12.0		12.0		12.0		12.0
RR	0	0	0	0	:		12.0		12.0		12.0		12.0
					:		12.0		12.0		12.0		12.0
					:		12.0		12.0		12.0		12.0

ADJUSTMENT FACTORS										
	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	Y	20	4	0.95	50	Y	15.1	3
WB	0.00	2.00	N	0	4	0.97	50	Y	15.1	3
NB	0.00	2.00	N	0	0	0.94	50	Y	17.0	3
SB	0.00	2.00	Y	20	0	0.82	50	Y	17.0	3

SIGNAL SETTINGS					CYCLE LENGTH = 61.0					
		PH-1	PH-2	PH-3	PH-4		PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X		
	TH	X					TH	X		
	RT	X					RT	X		
	PD	X					PD	X		
WB	LT	X				SB	LT		X	
	TH	X					TH		X	
	RT	X					RT		X	
	PD	X					PD		X	
GREEN		18.0	0.0	0.0	0.0	GREEN	16.0	12.0	0.0	0.0
YELLOW		5.0	0.0	0.0	0.0	YELLOW	5.0	5.0	0.0	0.0

LEVEL OF SERVICE							
	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	LTR	0.671	0.328	14.9	B	14.9	B
WB	LTR	0.785	0.328	17.1	C	17.1	C
NB	LT	0.812	0.295	22.4	C	20.5	C
	R	0.221	0.295	12.4	B		
SB	LT	0.481	0.230	16.2	C	17.2	C
	R	0.587	0.230	18.5	C		

INTERSECTION: Delay = 17.3 (sec/veh) V/C = 0.742 LOS = C

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .79
 AREA POPULATION..... 57000
 NAME OF THE EAST/WEST STREET..... AULIKE
 NAME OF THE NORTH/SOUTH STREET..... KUULEI ROAD
 NAME OF THE ANALYST..... RSO
 DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/90
 TIME PERIOD ANALYZED..... 1993 AM PEAK W/PROJ
 OTHER INFORMATION.... FILENAME KUUAULAW

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE EASTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	37	--	139	0
THRU	0	--	405	667
RIGHT	81	--	0	76

NUMBER OF LANES

	EB	WB	NB	SB
LANES	2	--	2	2

ADJUSTMENT FACTORS

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	0.00	90	20	N
WESTBOUND	----	---	---	-
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	0	0	0
WESTBOUND	---	---	---
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
EB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
NB	5.50	5.50	0.00	5.50
MINOR LEFTS				
EB	7.00	7.00	0.00	7.00

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE
 NAME OF THE NORTH/SOUTH STREET.... KUULEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 1/30/90 ; 1993 AM PEAK W/PROJ
 OTHER INFORMATION.... FILENAME KUUAULAW

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v(pcph)	POTENTIAL CAPACITY c (pcph) P	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET						
EB LEFT	52	78	42	42	-9	F
RIGHT	113	649	649	649	536	A
MAJOR STREET						
NB LEFT	194	358	358	358	165	D

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE
 NAME OF THE NORTH/SOUTH STREET.... KULEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 1/30/90 ; 1993 AM PEAK W/PROJ
 OTHER INFORMATION.... FILENAME KUUAULAW

ADJUSTMENT FACTORS

Page-2

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	0.00	90	20	N
WESTBOUND	----	---	---	-
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	0	0	0
WESTBOUND	---	---	---
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
EB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
NB	5.50	5.50	0.00	5.50
MINOR LEFTS				
EB	7.00	7.00	0.00	7.00

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE
NAME OF THE NORTH/SOUTH STREET.... KUULEI ROAD
DATE AND TIME OF THE ANALYSIS..... 1/30/90 ; 1993 PM PEAK W/PROJ
OTHER INFORMATION..... FILENAME KUUAULPW

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) P	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET						
EB LEFT	45	97	71	71	25	E
RIGHT	208	765	765	765	557	A
MAJOR STREET						
NB LEFT	177	519	519	519	342	B

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE
 NAME OF THE NORTH/SOUTH STREET.... KULEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 1/30/90 ; 1993 PM PEAK W/PROJ
 OTHER INFORMATION.... FILENAME KUUAULPW

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .89
 AREA POPULATION..... 57000
 NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET..... PUBLIC PARKING/PROJECT ACCESS
 NAME OF THE ANALYST..... RSO
 DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/91
 TIME PERIOD ANALYZED..... 1993 AM PEAK W/PROJ
 OTHER INFORMATION.... FILENAME AULACCAW

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: 4-LEG
 MAJOR STREET DIRECTION: EAST/WEST
 CONTROL TYPE NORTHBOUND: STOP SIGN
 CONTROL TYPE SOUTHBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	24	44	24	26
THRU	65	104	5	2
RIGHT	31	41	47	11

NUMBER OF LANES AND LANE USAGE

	EB	WB	NB	SB
LANES	1	1	1	1

ADJUSTMENT FACTORS

Page-2

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	0.00	90	20	N
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	0	0	0
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
NB	5.50	5.50	0.00	5.50
SB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
EB	5.00	5.00	0.00	5.00
WB	5.00	5.00	0.00	5.00
MINOR THROUGHS				
NB	6.00	6.00	0.00	6.00
SB	6.00	6.00	0.00	6.00
MINOR LEFTS				
NB	6.50	6.50	0.00	6.50
SB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
NAME OF THE NORTH/SOUTH STREET.... PUBLIC PARKING/PROJECT ACCESS
DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 AM PEAK W/PROJ
OTHER INFORMATION.... FILENAME AULACCAW

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET						
NB LEFT	30	602	565 >	565 >	536 >	A
THROUGH	6	683	649 >	781 649 >	687 643 >	A A
RIGHT	58	995	995 >	995 >	937 >	A
MINOR STREET						
SB LEFT	32	573	522 >	522 >	490 >	A
THROUGH	2	688	654 >	606 654 >	558 651 >	A A
RIGHT	14	953	953 >	953 >	940 >	A
MAJOR STREET						
EB LEFT	30	991	991	991	961	A
WB LEFT	54	999	999	999	944	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... PUBLIC PARKING/PROJECT ACCESS
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 AM PEAK W/PROJ
 OTHER INFORMATION.... FILENAME AULACCAW

ADJUSTMENT FACTORS

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	0.00	90	20	N
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	0	0	0
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
NB	5.50	5.50	0.00	5.50
SB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
EB	5.00	5.00	0.00	5.00
WB	5.00	5.00	0.00	5.00
MINOR THROUGHS				
NB	6.00	6.00	0.00	6.00
SB	6.00	6.00	0.00	6.00
MINOR LEFTS				
NB	6.50	6.50	0.00	6.50
SB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... PUBLIC PARKING/PROJECT ACCESS
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 PM PEAK W/PROJ
 OTHER INFORMATION.... FILENAME AULACCPW

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M		SHARED CAPACITY c (pcph) SH		RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET								
NB LEFT	62	533	470	>	470	>	408	> A
THROUGH	13	639	590	>	699	>	513	577 >A A
RIGHT	110	995	995	>	995	>	885	> A
MINOR STREET								
SB LEFT	84	504	428	>	428	>	343	> B
THROUGH	11	646	596	>	553	>	401	585 >A A
RIGHT	56	959	959	>	959	>	903	> A
MAJOR STREET								
EB LEFT	64	990	990		990		926	A
WB LEFT	66	997	997		997		931	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... PUBLIC PARKING/PROJECT ACCESS
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 PM PEAK W/PROJ
 OTHER INFORMATION.... FILENAME AULACCPW

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .826
 AREA POPULATION..... 57000
 NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET..... ULUNIU STREET
 NAME OF THE ANALYST..... RSO
 DATE OF THE ANALYSIS (mm/dd/yy)..... 1/30/91
 TIME PERIOD ANALYZED..... 1993 AM PEAK W/PROJ
 OTHER INFORMATION.... FILENAME ULUAULAW

INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	77	0	39
THRU	--	0	80	179
RIGHT	--	54	86	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	1	1	1

ADJUSTMENT FACTORS

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	----	---	---	-
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	---	---	---
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
WB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
SB	5.00	5.00	0.00	5.00
MINOR LEFTS				
WB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... ULUNIU STREET
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 AM PEAK W/PROJ
 OTHER INFORMATION.... FILENAME ULUAULAW

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET						
WB LEFT	103	551	534	> 534	> 431	> A
RIGHT	72	944	944	> 650	> 476	> A
MAJOR STREET						
SB LEFT	52	984	984	984	932	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... ULUNI STREET
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 AM PEAK W/PROJ
 OTHER INFORMATION.... FILENAME ULUAULAW

ADJUSTMENT FACTORS

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	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND	----	---	---	-
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND	---	---	---
WESTBOUND	0	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
WB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
SB	5.00	5.00	0.00	5.00
MINOR LEFTS				
WB	6.50	6.50	0.00	6.50

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
NAME OF THE NORTH/SOUTH STREET.... ULUNIU STREET
DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 PM PEAK W/PROJ
OTHER INFORMATION.... FILENAME ULUAULPW

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v(pcph)	POTENTIAL CAPACITY c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET						
WB LEFT	144	594	578 >	578 >	434 >	A
RIGHT	112	900	900 >	686 >	429 >	A
MAJOR STREET						
SB LEFT	42	952	952	952	910	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... AULIKE STREET
 NAME OF THE NORTH/SOUTH STREET.... ULUNIU STREET
 DATE AND TIME OF THE ANALYSIS..... 1/30/91 ; 1993 PM PEAK W/PROJ
 OTHER INFORMATION..... FILENAME ULUAULPW

**APPENDIX C
AIR QUALITY STUDY**



B. D. NEAL & ASSOCIATES
Applied Meteorology • Air Quality • Computer Science

February 5, 1991

Mr. Taeyong M. Kim
AM Partners Inc.
1164 Bishop Center, Suite 1000
Honolulu, Hawaii 96813

Subject: Kailua Elderly Housing Project
Potential Impacts on Air Quality

Dear Taeyong:

In accordance with your request, we have examined the potential impacts on air quality from the construction and use of the proposed facilities, and the results of our examination are summarized below.

Short-Term Impacts

Short-term direct and indirect impacts on air quality could potentially occur due to project construction. For a project of this nature, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during project construction: (1) fugitive dust from demolition work and from vehicle movement and soil excavation; and (2) exhaust emissions from on-site construction equipment. Indirectly, there also could be short-term impacts from slow-moving construction equipment traveling to and from the project site and from a temporary increase in local traffic caused by commuting construction workers.

Fugitive dust emissions may arise from the demolition and removal of existing structures on the site and from the grading and dirt-moving activities associated with site preparation once the area is cleared. The emission rate for fugitive dust emissions from construction activities is difficult to estimate accurately because of its elusive nature of emission and because the potential for its generation varies greatly depending upon the type of soil at the construction site, the amount and type of dirt-disturbing activity taking place, the moisture content of exposed soil in work areas, and the wind speed. The U.S. EPA has provided a rough estimate for uncontrolled fugitive dust emissions from construction activity of 1.2 tons per acre per month under conditions of "medium" activity, moderate soil silt content

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Job No.:	11111111
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<input type="checkbox"/> LIB	

Mr. T.M. Kim
Kailua Elderly Housing Project

February 5, 1991
Page 2

(30%), and precipitation/evaporation (P/E) index of 50. Uncontrolled fugitive dust emissions in the project area would likely be somewhat lower because the PE index for the Kailua area is probably greater than 50 due to the relatively wet climate. In any case, State of Hawaii Air Pollution Control Regulations prohibit visible emissions of fugitive dust from construction activities at the property line. Thus, an effective dust control plan for the project construction phase is essential.

Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep demolition areas and bare-dirt surfaces in construction areas from becoming significant dust generators. Using wind screens may also be required. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials likely to give rise to airborne dust. Haul trucks tracking dirt onto paved streets from unpaved areas is oftentimes a significant source of dust in construction areas. Some means to alleviate this problem, such as tire washing, may be appropriate. Paving of parking areas and/or establishment of landscaping as early in the construction process as possible can also lower the potential for fugitive dust emissions.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxides emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

Indirectly, slow-moving construction vehicles on roadways leading to and from the project site could obstruct the normal flow of traffic to such an extent that overall vehicular emissions are increased, but this impact can be mitigated by moving heavy construction equipment during periods of low traffic volume. Likewise, the schedules of commuting construction workers can be adjusted to avoid peak hours in the project vicinity. Thus, most potential short-term air quality impacts from project construction can be mitigated.

Mr. T.M. Kim
Kailua Elderly Housing Project

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Long-Term Impacts

After construction, long-term impacts on air quality from automotive exhausts can potentially occur at or near any facility that attracts large volumes of vehicular traffic as a result of day-to-day operations and use. Traffic projections indicate that this project will generate at most a net increase of only 1 to 4 percent in intersection approach volumes in the vicinity of the project. Although a detailed computer modeling study could be undertaken to assess the potential impacts on air quality from project traffic, based on our experience in assessing traffic-related air quality impacts, the projected increases in traffic do not warrant such a study. Given the small traffic impacts that are expected, we can say without reservation that the proposed project will have no measurable long-term impact on air quality in the area.

Please call me if you have any questions.

Very truly yours,

Barry D. Neal

Barry D. Neal, CCM
(Certified Consulting
Meteorologist)

**APPENDIX D
NOISE STUDY**

**NOISE STUDY
FOR THE PROPOSED
KAILUA ELDERLY HOUSING PROJECT
KAILUA, OAHU**

**Prepared for:
AM PARTNERS**

**Prepared by:
Y. EBISU & ASSOCIATES
1126 12TH Avenue, Room 305
Honolulu, Hawaii 96816**

FEBRUARY 1991

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CHAPTER I. SUMMARY

The existing and future traffic noise levels in the vicinity of the proposed Kailua Elderly Housing Project in Downtown Kailua were evaluated for their potential impacts and their relationship to current FHA/HUD noise standards. The traffic noise level increases along the roadway sections in the immediate vicinity of the project site were calculated. Following project build-out by CY 1993, increases in traffic noise of less than 0.2 Ldn units are predicted to occur as a result of project plus non-project traffic. This amount of increase is considered to be insignificant.

Along Kuulei Road and Kailua Road, traffic noise levels are expected to increase by less than 0.1 Ldn as a result of project and non-project traffic. Similar conclusions apply along Oneawa and Uluniu Streets, where traffic noise levels are expected to increase by less than 0.1 Ldn, primarily as a result of non-project traffic. Traffic on Kuulei Road, Kailua Road, and Oneawa Street are, and will continue to be, the dominant sources of noise in the project area. Along Aulike Street, where traffic noise levels are lower, traffic noise levels are expected to increase by less than 0.2 Ldn primarily as a result of project traffic. The increases in traffic noise levels resulting from project generated traffic are not considered to be significant.

There will be adequate setback of the project's residential units from the centerlines of the nearby roadways such that FHA/HUD noise standards can be met. Because of this, impacts from traffic noise are not anticipated at the project's dwelling units.

Unavoidable, but temporary, noise impacts will occur during the construction of the proposed project, particularly during the excavation and possible pile driving activities on the project site. Because construction activities are predicted to be audible at adjoining properties, the quality of the acoustic environment may be degraded to unacceptable levels during periods of construction. Mitigation measures to reduce construction noise to inaudi-

ble levels will not be practical in all cases, but the use of quiet equipment and State Department of Health construction noise permit procedures are recommended as standard mitigation measures.

Risks of adverse noise impacts from the 2-story parking garage are possible if tire squeal noise is not controlled. The recommended use of asphalt, or brush concrete finish on the circulation driveways within the parking garage should minimize the occurrences of tire squeal noise. On-site mechanical equipment, such as air conditioners or garage exhaust fans may require sound attenuation treatment. Compliance with existing State Department of Health noise limits at the project's property boundaries should minimize risks of adverse noise impacts from on-site mechanical equipment.

CHAPTER II. PURPOSE

The primary objective of this study was to describe the existing and future traffic noise environment in the environs of the proposed Kailua Elderly Housing Project in Downtown Kailua on the island of Oahu. Traffic noise level increases and impacts associated with the proposed development were to be determined within the project site as well as along the public roadways expected to service the project traffic. A specific objective was to determine future traffic noise level increases associated with both project and non-project traffic, and the potential noise impacts associated with these increases. Assessments of possible future impacts from short term construction noise and from other on-site sources were also included as noise study objectives. Recommendations for minimizing potential noise impacts were also to be provided as required.

CHAPTER III. NOISE DESCRIPTORS AND THEIR RELATIONSHIP TO
LAND USE COMPATIBILITY

The noise descriptor currently used by federal agencies (such as FHA/HUD) to assess environmental noise is the Day-Night Average Sound Level (Ldn). This descriptor incorporates a 24-hour average of instantaneous A-Weighted Sound Levels as read on a standard Sound Level Meter. By definition, the minimum averaging period for the Ldn descriptor is 24 hours. Additionally, sound levels which occur during the nighttime hours of 10:00 PM to 7:00 AM are increased by 10 decibels (dB) prior to computing the 24-hour average by the Ldn descriptor. A more complete list of noise descriptors is provided in APPENDIX B to this report.

TABLE 1, derived from Reference 1, presents current federal noise standards and acceptability criteria for residential land uses. Land use compatibility guidelines for various levels of environmental noise as measured by the Ldn descriptor system are shown in FIGURE 1. As a general rule, noise levels of 55 Ldn or less occur in rural areas, or in areas which are removed from high volume roadways. In urbanized areas which are shielded from high volume streets, Ldn levels generally range from 55 to 65 Ldn, and are usually controlled by motor vehicle traffic noise. Residences which front major roadways are generally exposed to levels of 65 Ldn, and as high as 75 Ldn when the roadway is a high speed freeway. The range of background ambient noise levels at other urbanized areas on Oahu are shown in FIGURE 2. In the project area, traffic noise levels associated with Kuulei Road and Oneawa Street are typically greater than 65 Ldn along the Rights-of-Way, and these two streets carry the dominant traffic noise sources in the project area.

For the purposes of determining noise acceptability for funding assistance from federal agencies (FHA/HUD and VA), an exterior noise level of 65 Ldn or lower is considered acceptable. This standard is applied nationally (Reference 2), including Hawaii.

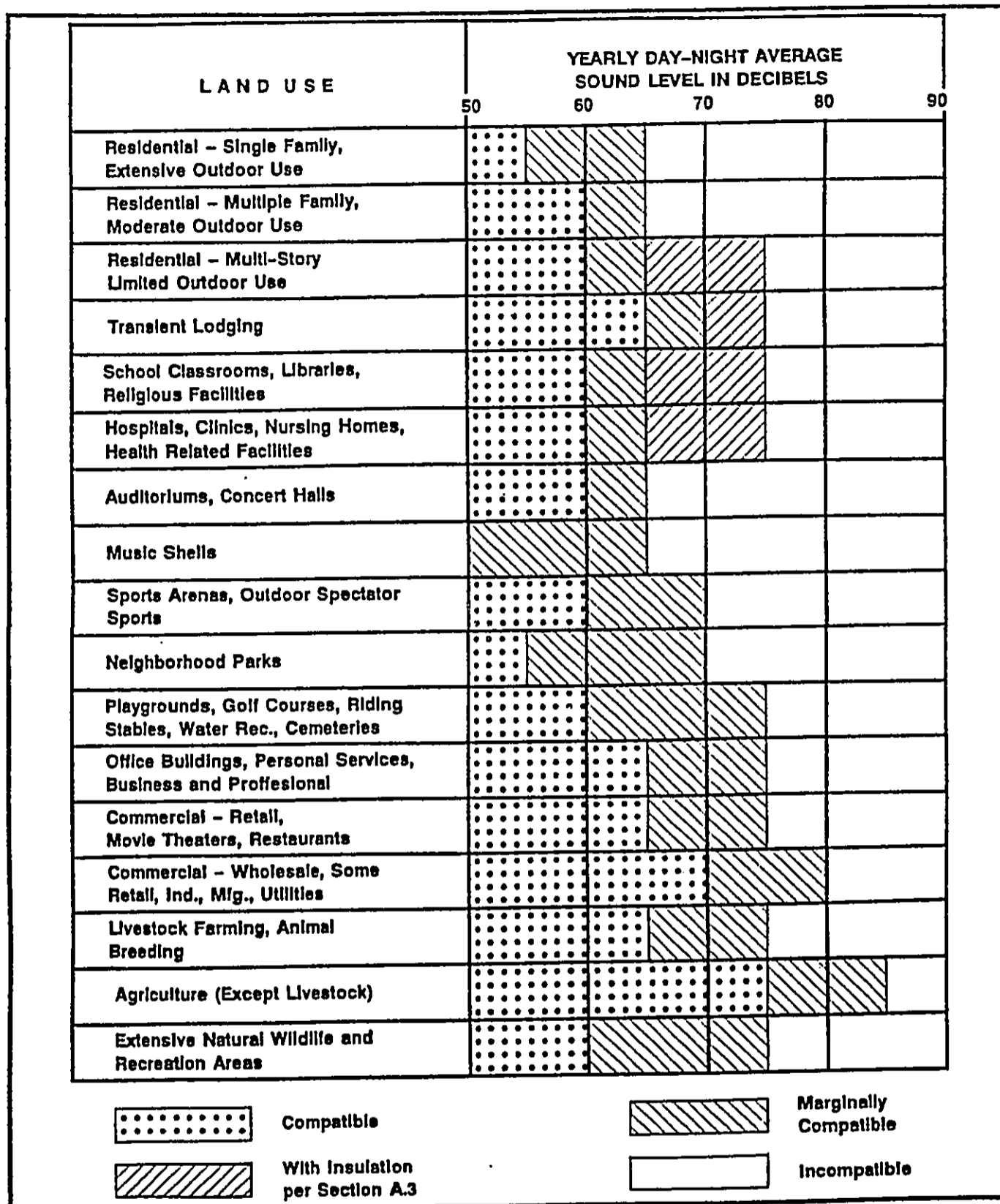
TABLE 1

EXTERIOR NOISE EXPOSURE CLASSIFICATION
(RESIDENTIAL LAND USE)

NOISE EXPOSURE CLASS	DAY-NIGHT SOUND LEVEL	EQUIVALENT SOUND LEVEL	FEDERAL ⁽¹⁾ STANDARD
Minimal Exposure	Not Exceeding 55 L _{dn}	Not Exceeding 55 L _{eq}	Unconditionally Acceptable
Moderate Exposure	Above 55 L _{dn} But Not Above 65 L _{dn}	Above 55 L _{eq} But Not Above 65 L _{eq}	Acceptable ⁽²⁾
Significant Exposure	Above 65 L _{dn} But Not Above 75 L _{dn}	Above 65 L _{eq} But Not Above 75 L _{eq}	Normally Unacceptable
Severe Exposure	Above 75 L _{dn}	Above 75 L _{eq}	Unacceptable

Notes: (1) Federal Housing Administration, Veterans Administration, Department of Defense, and Department of Transportation.

(2) FHWA uses the L_{eq} instead of the L_{dn} descriptor. For planning purposes, both are equivalent if: (a) heavy trucks do not exceed 10 percent of total traffic flow in vehicles per 24 hours, and (b) traffic between 10:00 PM and 7:00 AM does not exceed 15 percent of average daily traffic flow in vehicles per 24 hours. The noise mitigation threshold used by FHWA for residences is 67 L_{eq}.

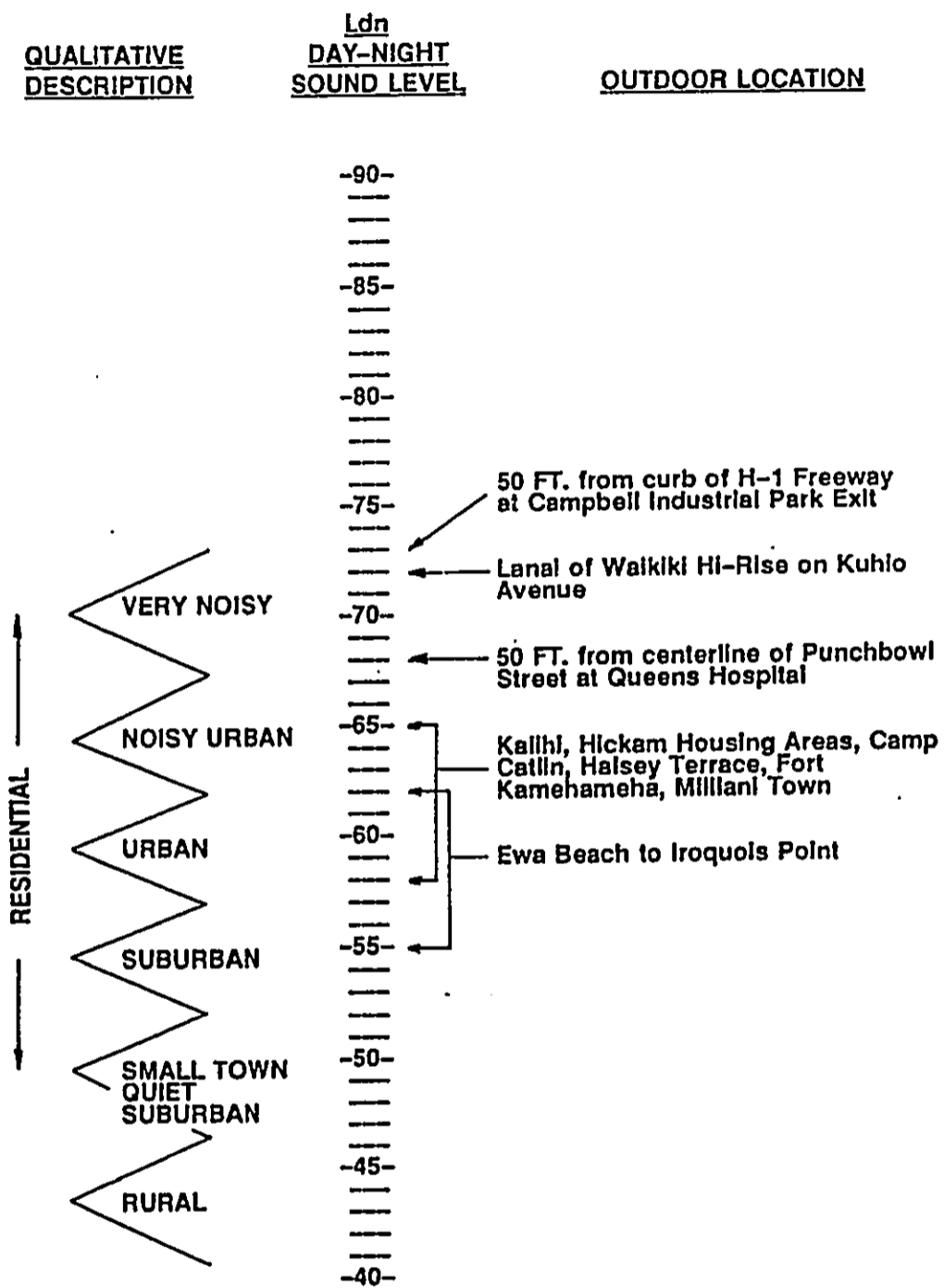


LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVEL AT A SITE FOR BUILDINGS AS COMMONLY CONSTRUCTED
 (Source: American National Standards Institute S3.23-1980)

FIGURE 1

FIGURE 2

RANGE OF EXTERIOR BACKGROUND AMBIENT NOISE LEVELS



Because of our open-living conditions, the predominant use of naturally ventilated dwellings, and the relatively low exterior-to-interior sound attenuation afforded by these naturally ventilated structures, an exterior noise level of 65 Ldn does not eliminate all risks of noise impacts. Because of these factors, and as recommended in Reference 3, a lower level of 55 Ldn is considered as the "Unconditionally Acceptable" (or "Near-Zero Risk") level of exterior noise. However, after considering the cost and feasibility of applying the lower level of 55 Ldn, government agencies such as FHA/HUD and VA have selected 65 Ldn as a more appropriate regulatory standard.

For commercial, industrial, and other non-noise sensitive land uses, exterior noise levels as high as 75 Ldn are generally considered acceptable. Exceptions to this occur when naturally ventilated office and other commercial establishments are exposed to exterior levels which exceed 65 Ldn.

On the island of Oahu, the State Department of Health (DOH) regulates noise from fixed mechanical equipment, motor vehicles, and construction activities. Noise resulting from construction activities are regulated by the DOH through the issuance of permits for allowing excessive noise during limited time periods. Noise from other on-site sources, such as mechanical equipment, are also regulated by the State DOH. The State DOH noise regulations are expressed in maximum allowable property line noise limits rather than Ldn (see Reference 4). Although they are not directly comparable to noise criteria expressed in Ldn, State DOH noise limits for residential, commercial, and industrial lands equate to approximately 55, 60, and 76 Ldn, respectively.

It should be noted that the noise compatibility guidelines and relationships to the Ldn noise descriptor may not be applicable to impulsive noise sources such as pile drivers. The use of penalty factors (such as adding 10 dB to measured sound levels or the use of C-Weighting filters) have been proposed. However, the relationships between levels of impulsive noise sources and land

use compatibility have not been as firmly established as have the relationships for non-impulsive sources. The State DOH limits for impulsive sounds which exceed 120 impulses in any 20 minute period are 10 dB above the limits for non-impulsive sounds. If impulsive sounds do not exceed 120 impulses in any 20 minute time period, there are no regulatory limits on their sound levels under the State DOH regulations.

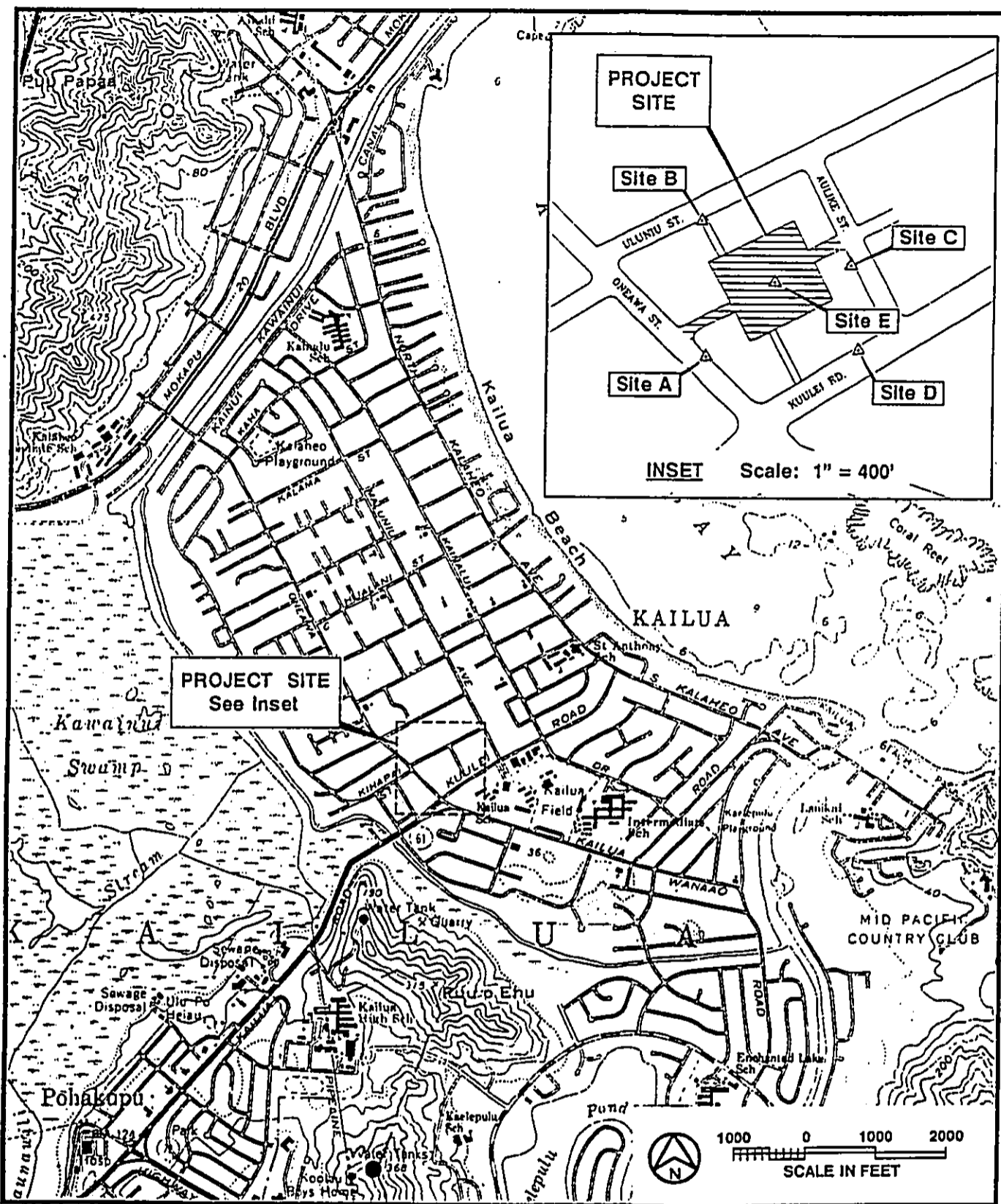
CHAPTER IV. GENERAL STUDY METHODOLOGY

Existing traffic noise levels were measured at four locations in the project environs to provide a basis for developing the project's traffic noise contributions along the roadways which will service the proposed development. Daytime and nighttime background ambient noise levels at a fifth location in the center of the project area (existing parking lot) were also obtained. The locations of the measurement sites are shown in FIGURE 3. Noise measurements were performed during the months of December 1990 and January 1991. The results of the background ambient noise levels on the project site are shown in FIGURES 4 and 5.

The results of the traffic noise measurements were compared with calculations of existing traffic noise levels to validate the computer model used. The traffic noise measurement results, and their comparisons with computer model predictions of existing traffic noise levels are summarized in TABLE 2.

Traffic noise calculations for the existing conditions as well as noise predictions for the Year 1993 were performed using the Federal Highway Administration (FHWA) Noise Prediction Model (Reference 5). Traffic data entered into the noise prediction model were: hourly traffic volumes, average vehicle speeds, estimates of traffic mix, and hard ground propagation loss factor. The traffic study for the project (Reference 6) and State Department of Transportation traffic counts on Kailua Road at Kawainui Bridge (Reference 7) were also used as additional sources of data inputs to the model. For existing and future traffic on all roadways in the project area, it was assumed that the average noise levels, or $Leq(h)$, during the AM peak hour were 1.5 dB less than the 24-hour Ldn . This assumption was based on computations of both the hourly Leq and the 24-hour Ldn of traffic noise on Kailua Road at Kawainui Bridge (see FIGURE 6).

Traffic noise calculations for both the existing and future conditions in the project environs were developed for ground level



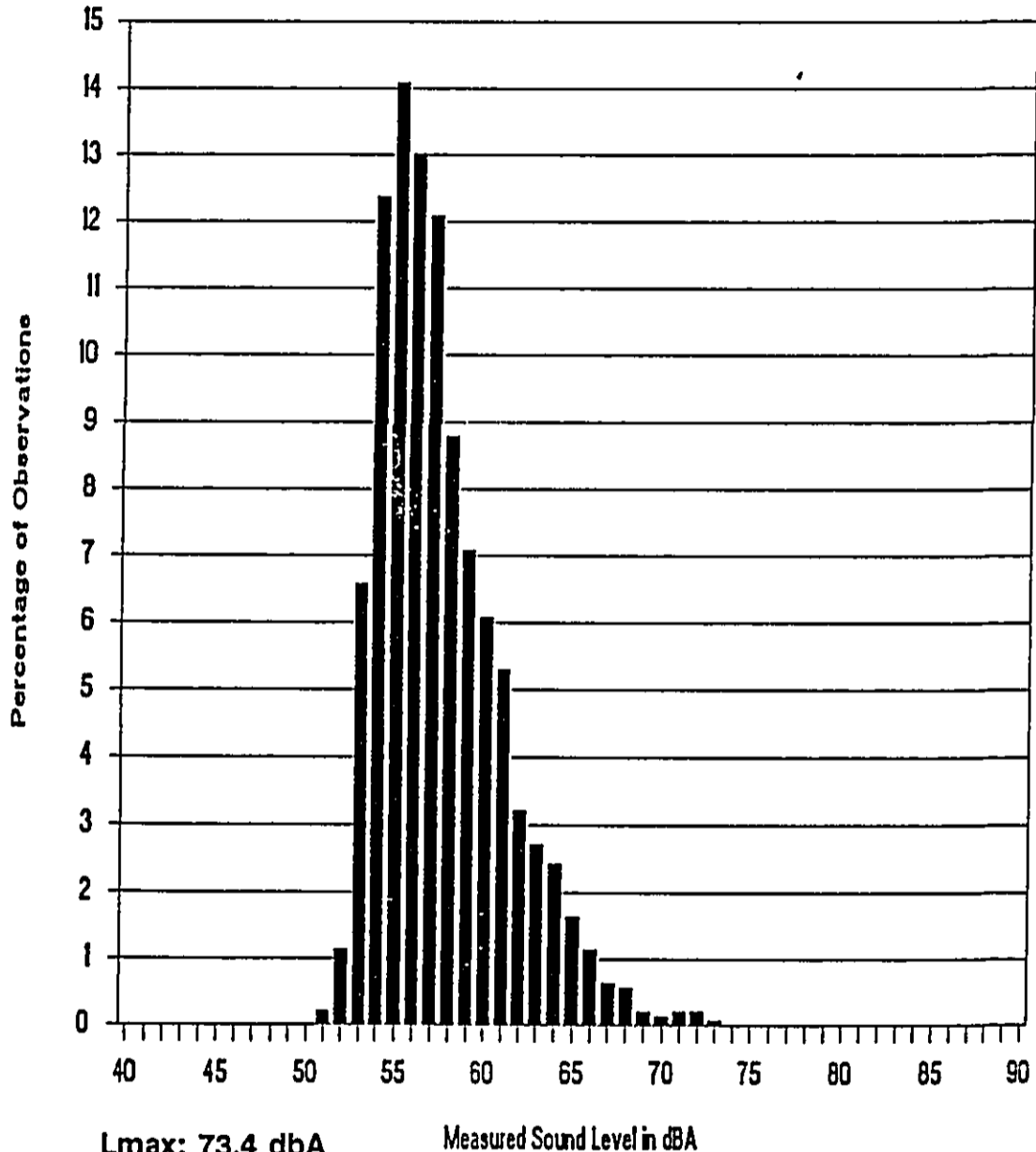
LOCATIONS OF NOISE MEASUREMENT SITES

FIGURE 3

FIGURE 4
BACKGROUND NOISE LEVELS
AT MONITORING SITE 'E'
(1045 HRS TO 1145 HRS)

DATE: January 16, 1991

METER RESPONSE: Slow



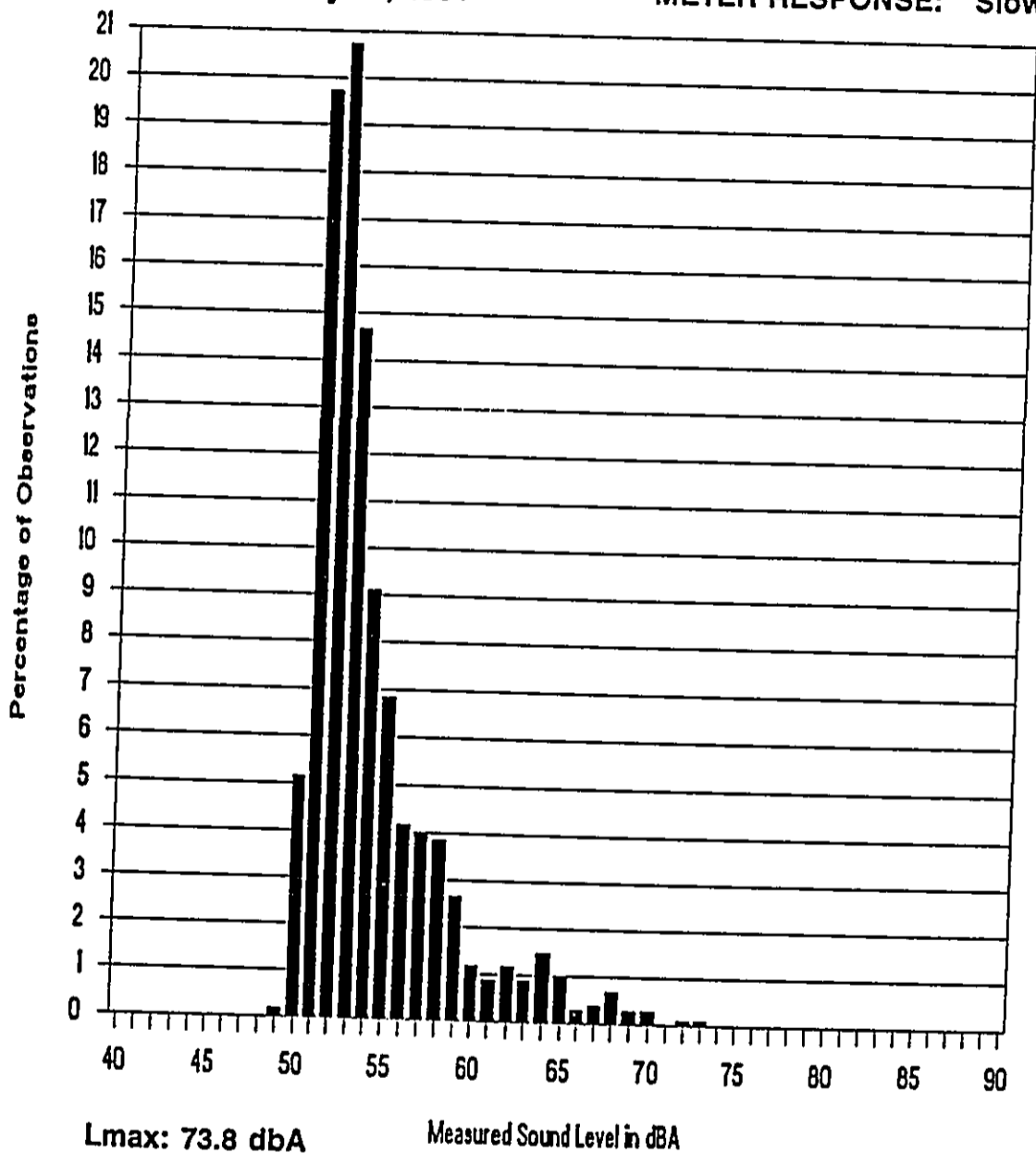
Lmax: 73.4 dBA
 L10: 62.0 dBA
 Leq: 58.9 dBA
 Lmin: 51.2 dBA

1045 HRS TO 1145 HRS
 MONITORING SITE 'E'
 BACKGROUND NOISE LEVELS
 JANUARY 16, 1991

FIGURE 5
BACKGROUND NOISE LEVELS
AT MONITORING SITE 'E'
(2100 HRS TO 2145 HRS)

DATE: January 16, 1991

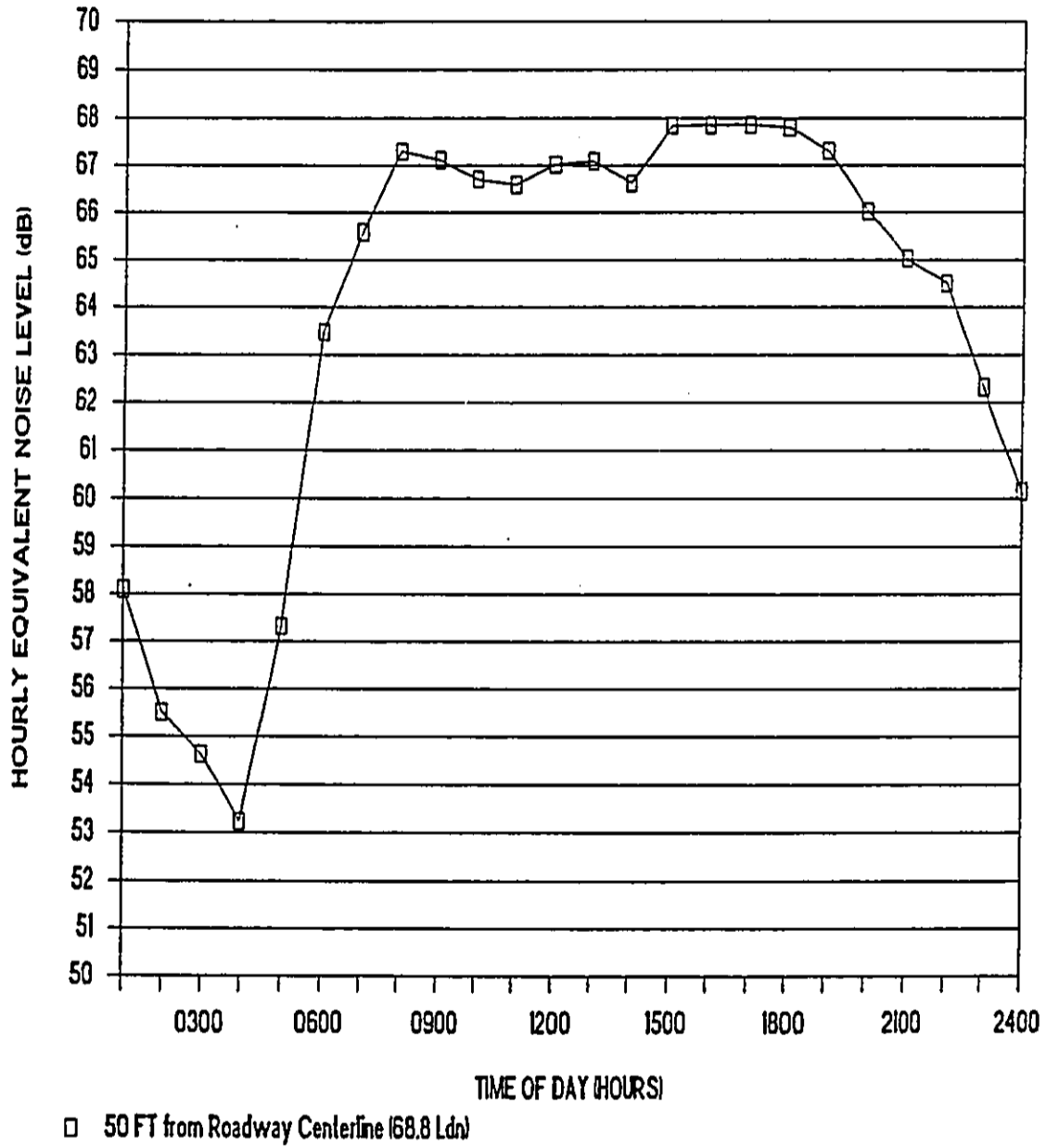
METER RESPONSE: Slow



Lmax: 73.8 dbA
 L10: 59.0 dbA
 Leq: 57.2 dbA
 Lmin: 49.9 dbA

FIGURE 6

HOURLY VARIATIONS OF TRAFFIC NOISE AT 50 FT
SETBACK DISTANCE FROM THE CENTERLINE OF
KAILUA ROAD AT KAWAINUI BRIDGE
(2/22-23/90)



and elevated receptors without the benefit of shielding effects. Traffic noise levels were calculated for future conditions with and without the proposed housing project. The forecasted changes in traffic noise levels over existing levels were calculated for both future scenarios, and noise impact risks evaluated. The relative contributions of non-project and project traffic to the total noise levels were also calculated, and an evaluation of possible traffic noise impacts was made.

Calculations of average exterior and interior noise levels from construction activities were performed for typical naturally ventilated and air conditioned dwellings. Predicted noise levels were compared with existing background ambient noise levels, and the potential for noise impacts was assessed. Potential noise impacts from the on-site parking garage and mechanical equipment were also discussed, and mitigation measures recommended.

CHAPTER V. EXISTING NOISE ENVIRONMENT

The existing traffic noise levels in the project environs along Kuulei Road, Kailua Road, and Oneawa Street are in the "Significant Exposure, Normally Unacceptable" category along their Rights-of-Way. Along Uluniu and Aulike Streets, existing traffic noise levels are lower and in the "Moderate Exposure, Acceptable" category due to the lower volume of traffic on these two roadways. The project site is setback at least 100 FT from the four roadways, and is also partially shielded from roadway traffic noise by existing single and multistory buildings. Because of this, existing roadway traffic noise on the project site is less than 65 Ldn, and in the "Moderate Exposure, Acceptable" category.

The results of the December 1990 traffic noise measurements are summarized in TABLE 2, with measurement locations identified in FIGURE 3. The results of the background ambient noise level measurements at the center of the project site and in the existing parking lot are shown in FIGURES 4 and 5. All measurement points were located approximately 5 FT above ground level. As shown in TABLE 2, correlation between measured and predicted traffic noise levels were good at all measurement sites. Dominant noise sources within the existing parking lot at Site "E" were vehicles within the parking lot. From the measurements at Site "E", the existing background ambient noise level at the center of the project site was estimated to be approximately 62 Ldn.

Results of calculations of existing (CY 1991) traffic noise levels during the AM peak hour period are shown in TABLE 3. The results of the calculations apply at 50 FT distances from the centerlines of the roadway sections in the project environs. Calculated setback distances from these roadways to the existing 60, 65, and 70 Ldn contours are shown in TABLE 4. Near the intersections of Uluniu and Aulike Streets with Oneawa Street and Kuulei Road, respectively, existing traffic noise levels and noise contour setback distances are generally greater than those indicated

TABLE 3

COMPARISONS OF EXISTING AND CY 1993 TRAFFIC NOISE LEVELS
ALONG ACCESS ROADS TO PROJECT SITE
(AM PEAK HOUR AND 50 FT FROM ROADWAY CENTERLINES)

LOCATION	SPEED (MPH)	VPH	***** HOURLY LEQ IN dB *****			
			AUTO	MT	HT	ALL VEH
EXISTING (CY 1991) AM PEAK HR. TRAFFIC:						
Kuulei Rd. NE of Project	32	1,165	61.6	55.3	59.7	64.4
Kuulei Rd. Fronting Project	32	1,259	62.0	55.6	60.0	64.7
Kailua Rd. SW of Project	32	1,155	61.6	55.3	59.7	64.3
Oneawa St. Fronting Project	32	951	61.7	57.6	62.8	66.0
Uluniu St. Fronting Project	26	425	54.8	48.9	54.1	58.1
Aulike St. Fronting Project	28	269	54.1	49.2	42.9	55.6
CY 1993 AM PEAK HR. TRAFFIC WITH THE PROJECT:						
Kuulei Rd. NE of Project	32	1,185	61.7	55.4	59.8	64.4
Kuulei Rd. Fronting Project	32	1,281	62.1	55.7	60.1	64.8
Kailua Rd. SW of Project	32	1,174	61.7	55.3	59.7	64.4
Oneawa St. Fronting Project	32	961	61.7	57.7	62.9	66.0
Uluniu St. Fronting Project	26	430	54.9	48.9	54.2	58.1
Aulike St. Fronting Project	28	279	54.3	49.4	43.1	55.7

Note:

The following assumed traffic mixes of autos, medium trucks, and heavy vehicles were used for existing and future conditions:

- a. Along Kuulei Road: 97.5% autos, 1.5% medium trucks, and 1.0% heavy trucks and buses.
- b. Along Oneawa Street: 95.5% autos, 2.5% medium trucks, and 2.0% heavy trucks and buses.
- c. Along Uluniu Street: 97.5% autos, 1.5% medium trucks, and 1.0% heavy trucks and buses.
- d. Along Aulike Street: 97.9% autos, 2.0% medium trucks, and 0.1% heavy trucks and buses.

TABLE 4

EXISTING AND CY 1993 DISTANCES TO 60, 65, AND 70 Ldn CONTOURS

STREET SECTION	60 Ldn SETBACK (FT) EXISTING	65 Ldn SETBACK (FT) EXISTING	70 Ldn SETBACK (FT) EXISTING	60 Ldn SETBACK (FT) CY 1993	65 Ldn SETBACK (FT) CY 1993	70 Ldn SETBACK (FT) CY 1993
Kuulei Rd. NE of Project	193	196	61	62	19	20
Kuulei Rd. Fronting Project	209	212	66	67	21	21
Kailua Rd. SW of Project	191	195	61	62	19	19
Oneawa St. Fronting Project	280	283	89	90	28	28
Uluniu St. Fronting Project	45	46	14	14	5	5
Aulike St. Fronting Project	25	26	8	8	3	3

Notes:

- (1) All setback distances are from the roadways' centerlines.
- (2) See TABLE 3 for traffic volume, speed, and mix assumptions.
- (3) Setback distances are for unobstructed line-of-sight conditions.
- (4) Hard ground conditions assumed along all roadways.
- (5) Ldn assumed to be 1.5 dB greater than AM Peak Hour Leq along all roadways.

in TABLES 3 and 4 due to the added noise contributions from Oneawa Street and Kuulei Road when direct line-of-sight conditions exist to these noisier streets. As indicated in the tables, the existing noise levels associated with traffic on Oneawa Street and Kuulei Road are higher and are the dominant traffic noise sources at these intersections.

The traffic noise levels shown in the tables only apply when unobstructed line-of-sight conditions exist to the roadways. These conditions would generally occur at short (25 to 100 FT) distances to a roadway, within any flat, open space along the roadway, and at distant, but elevated locations above the roadway. The existing traffic noise levels shown in the tables should be reduced by 3 to 5 dB (or Ldn) if partial shielding (line-of-sight obstruction) exists between the roadway and the receptor location. If the receptor is located behind a major obstruction (large building), the noise levels in the tables and figures should be reduced by 5 to 10 dB.

CHAPTER VI. FUTURE TRAFFIC NOISE ENVIRONMENT

Predictions of future traffic noise levels were made using the traffic volume assignments of Reference 6 for CY 1993 with and without the proposed project. The future projections of project plus non-project traffic noise levels on the roadways which would service the project are shown in TABLE 3 for the AM peak hour of traffic. As indicated in TABLE 3, traffic noise levels are predicted to increase by less than 0.2 dB during the AM peak hour along all streets in the project environs. These predictions assume that average vehicle speeds and traffic mix will not change significantly from current conditions. The dominant traffic noise sources in the project area will continue to be general traffic noise along Oneawa Street, Kuulei Road, and Kailua Road, but the predicted increases in the levels of these noise sources following project build-out are not expected to be significant.

TABLE 4 summarizes the predicted setback distances to the 60, 65, and 70 Ldn traffic noise contour lines along the roadways servicing the project and attributable to both project plus non-project traffic by CY 1993. The setback distances in TABLE 4 do not include the beneficial effects of noise shielding from buildings, or the detrimental effects of additive contributions of noise from intersecting streets or reflections from building walls. As indicated in TABLE 4, moderately large setback distances to the 65 Ldn contours from the centerlines of Oneawa Street, Kuulei Road, and Kailua Road are predicted to continue to exist in CY 1993. Setback distances to the 65 Ldn contours from the centerlines of Uluniu and Aulike Streets are predicted to remain relatively small.

TABLE 5 presents the predicted increases in traffic noise levels associated with non-project and project traffic by CY 1993, and as measured by the Ldn descriptor system. As indicated in TABLE 5, the increases in traffic noise along Oneawa Street, Uluniu Street, Kuulei Road, and Kailua Road, and attributable to

TABLE 5
 CALCULATIONS OF PROJECT AND NON-PROJECT
 TRAFFIC NOISE CONTRIBUTIONS (CY 1993)

STREET SECTION	NOISE LEVEL INCREASES NON-PROJECT TRAFFIC	(Ldn) DUE TO PROJECT TRAFFIC
Kuulei Rd. NE of Project	0.04	0.03
Kuulei Rd. Fronting Project	0.05	0.03
Kailua Rd. SW of Project	0.05	0.02
Oneawa St. Fronting Project	0.05	0.00
Uluniu St. Fronting Project	0.05	0.00
Aulike St. Fronting Project	0.04	0.13

project traffic, are predicted to be less than 0.1 Ldn and insignificant. An increase of 0.12 Ldn is expected from project traffic on Aulike Street, and this level of increase is also considered to be insignificant. Total traffic noise levels along Aulike Street are expected to be similar to existing levels, and traffic noise increases attributable to project traffic will be difficult to measure.

Calculations of future traffic noise levels at potential residential units of the project were performed based on available plans. The project site is set back at least 100 FT from the four roadway segments which border the general project area, and the project site is also partially shielded from roadway traffic noise by existing single and multistory buildings. Because of this, existing roadway traffic noise on the project site is less than 65 Ldn, and in the "Moderate Exposure, Acceptable" category. Additionally, CY 1993 traffic noise levels are expected to be essentially the same as existing levels. There will continue to be adequate setback of the project's residential units from the centerlines of the nearby roadways such that FHA/HUD noise standards can be met. Because of this, impacts from traffic noise are not anticipated at the project's dwelling units.

CHAPTER VII. DISCUSSION OF PROJECT RELATED NOISE IMPACTS
AND POSSIBLE MITIGATION MEASURES

Traffic Noise. Impacts from traffic noise are not expected due to the relatively small volume of project traffic associated with the proposed development. Additionally, proposed project dwelling units are not expected to be exposed to traffic noise levels which exceed FHA/HUD standards. For these reasons, adverse noise impacts from roadway traffic are not expected to result from the proposed project.

Parking Garage and On-Site Sources. The parking garage is expected to be separated vertically from the residential units. The parking garage will occupy the first two levels, while the residential units will occupy the upper levels. This vertical separation should be adequate to minimize potential noise conflicts between the parking garage and the project residential units. Audible tire squeal noise from the circulation and parking areas of the project are possible at the neighboring properties. Tire squeal noise can usually be controlled through the use of a brushed or other coarse finish on the circulation driveways, and this type of treatment is recommended as a tire squeal mitigation measure.

Mechanical equipment, such as air conditioning equipment, bathroom and kitchen exhaust fans, and garage ventilation fans are the primary on-site noise sources which may be located on the project site. This equipment, singly or together, has the potential of exceeding the allowable property line noise limits of the State DOH noise regulations (Reference 4). The State DOH noise limits which apply along the property boundaries of apartment or business districts are 60 dB and 50 dB during the daytime and nighttime periods, respectively. Noise levels of untreated mechanical equipment may be higher than the allowable DOH noise limits, such that sound attenuation treatment of the mechanical equipment may be required for compliance with DOH regulations. In addition,

compliance with the Octave Band limits as contained within Honolulu's Land Use Ordinance (Section 3.100) will be required. Because the residual background ambient noise levels in the project area are similar to the State DOH noise limits, compliance with the DOH noise limits should minimize risks of adverse noise impacts on neighboring properties and within the project area.

General Construction Noise. Audible construction noise will probably be unavoidable during the entire project construction period. The total time period for construction is unknown, but it is anticipated that the actual work will be moving from one location on the project site to another during that period. Actual length of exposure to construction noise at any receptor location will probably be less than the total construction period for the entire project. Typical levels of exterior noise from construction activity (excluding pile driving activity) are shown in FIGURE 7. The impulsive noise levels of impact pile drivers are approximately 15 dB higher than the levels shown in FIGURE 7, while the intermittent noise levels of vibratory pile drivers are at the upper end of the noise level ranges depicted in the figure. Typical levels of construction noise inside naturally ventilated and air conditioned structures are approximately 10 and 20 dB less, respectively, than the levels shown in FIGURE 7. The business establishments and apartment units within the neighboring buildings are predicted to experience the highest noise levels during construction activities due to their close proximity (within 100 FT) to the construction site. Adverse impacts from construction noise are not expected to be in the "public health and welfare" category due to the temporary nature of the work and due to the administrative controls available for regulation of construction noise.

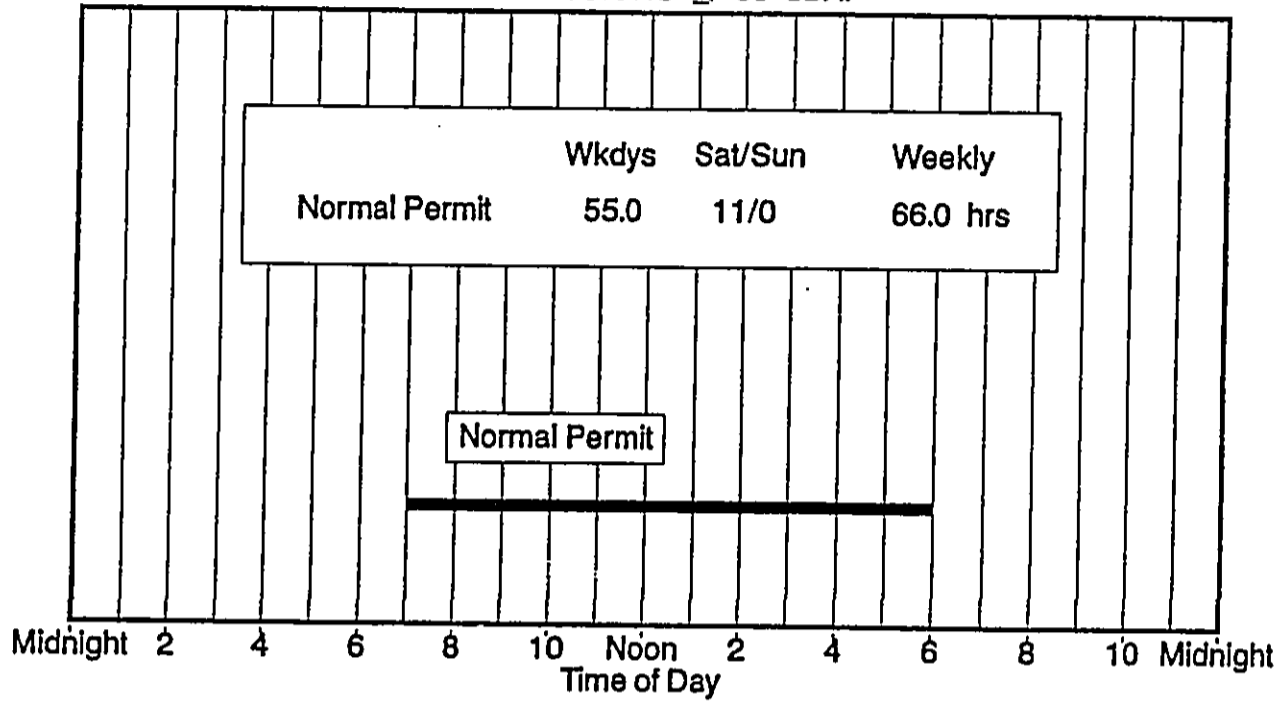
Mitigation of construction noise to inaudible levels will not be practical in all cases due to the intensity of construction noise sources (80 to 90+ dB at 50 FT distance), and due to the exterior nature of the work (pile driving, grading and earth moving,

trenching, concrete pouring, hammering, etc.). The use of properly muffled construction equipment should be required on the job site.

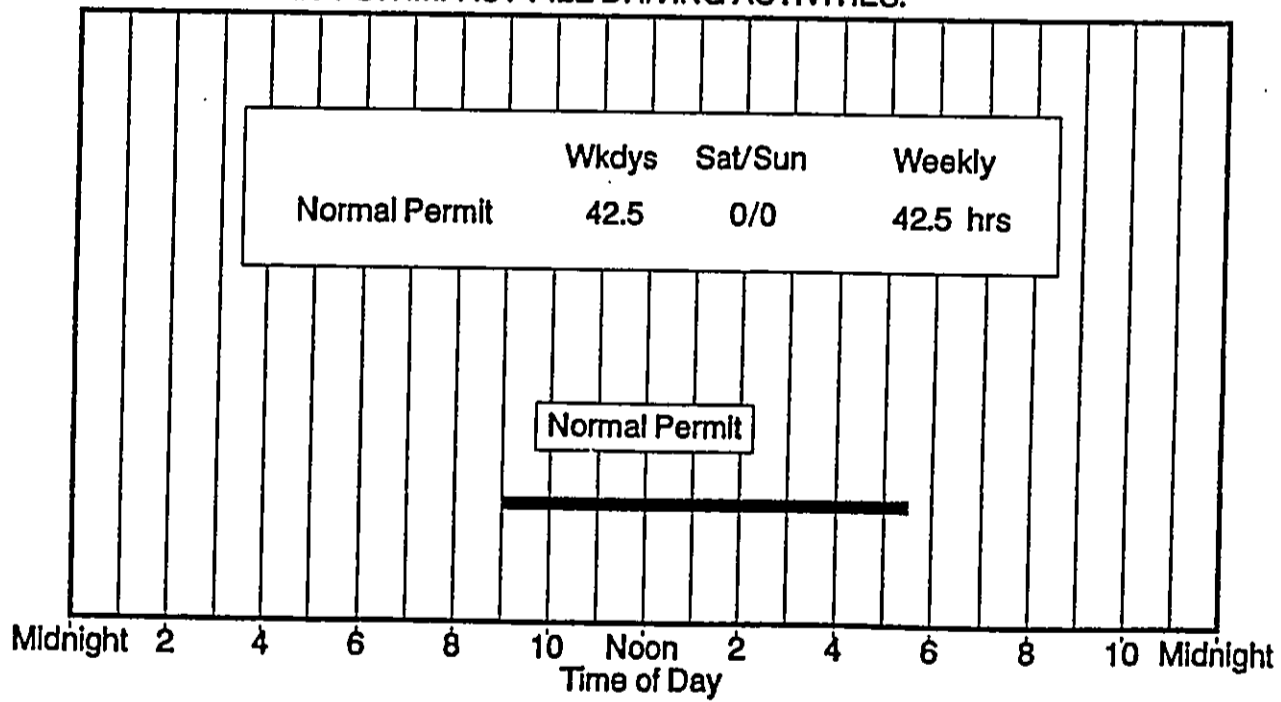
The incorporation of State Department of Health construction noise limits and curfew times, which are applicable on the island of Oahu (Reference 4), are other noise mitigation measures which are normally applied to construction activities. TABLE 6 depicts the allowed hours of construction for normal construction noise (levels which do not exceed 95 dB at the project's property line) and for construction noise which exceeds 95 dB at the project's property line. Noisy construction activities are not allowed on holidays, Saturdays, Sundays, during the early morning, and during the late evening periods under the DOH permit procedures.

TABLE 6
AVAILABLE WORK HOURS UNDER DOH
PERMIT PROCEDURES FOR CONSTRUCTION NOISE

a. DOH PERMIT FOR NOISE EMISSIONS \leq 95 dBA.



b. DOH PERMIT FOR IMPACT PILE DRIVING ACTIVITIES.



APPENDIX A. REFERENCES

- (1) "Guidelines for Considering Noise in Land Use Planning and Control;" Federal Interagency Committee on Urban Noise; June 1980.
- (2) "Environmental Criteria and Standards, Noise Abatement and Control, 24 CFR, Part 51, Subpart B;" U.S. Department of Housing and Urban Development; July 12, 1979.
- (3) "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety;" Environmental Protection Agency (EPA 550/9-74-004); March 1974.
- (4) "Title 11, Administrative Rules, Chapter 43, Community Noise Control for Oahu;" Hawaii State Department of Health; November 6, 1981.
- (5) Barry, T. and J. Reagan, "FHWA Highway Traffic Noise Prediction Model;" FHWA-RD-77-108, Federal Highway Administration; Washington, D.C.; December 1978.
- (6) Traffic Data and Assignments for Kailua Elderly Housing Project; The Traffic Management Consultant; January 30, 1991.
- (7) February 22 to 23, 1990; 24-Hour Traffic Counts; Station C-40-C; Kailua Road at Kawainui Bridge; State Department of Transportation.

APPENDIX B

EXCERPTS FROM EPA'S ACOUSTIC TERMINOLOGY GUIDE

Descriptor Symbol Usage

The recommended symbols for the commonly used acoustic descriptors based on A-weighting are contained in Table I. As most acoustic criteria and standards used by EPA are derived from the A-weighted sound level, almost all descriptor symbol usage guidance is contained in Table I.

Since acoustic nomenclature includes weighting networks other than "A" and measurements other than pressure, an expansion of Table I was developed (Table II). The group adopted the ANSI descriptor-symbol scheme which is structured into three stages. The first stage indicates that the descriptor is a level (i.e., based upon the logarithm of a ratio), the second stage indicates the type of quantity (power, pressure, or sound exposure), and the third stage indicates the weighting network (A, B, C, D, E.....). If no weighting network is specified, "A" weighting is understood. Exceptions are the A-weighted sound level and the A-weighted peak sound level which require that the "A" be specified. For convenience in those situations in which an A-weighted descriptor is being compared to that of another weighting, the alternative column in Table II permits the inclusion of the "A". For example, a report on blast noise might wish to contrast the LCdn with the LAdn.

Although not included in the tables, it is also recommended that "Lpn" and "LepH" be used as symbols for perceived noise levels and effective perceived noise levels, respectively.

It is recommended that in their initial use within a report, such terms be written in full, rather than abbreviated. An example of preferred usage is as follows:

The A-weighted sound level (LA) was measured before and after the installation of acoustical treatment. The measured LA values were 85 and 75 dB respectively.

Descriptor Nomenclature

With regard to energy averaging over time, the term "average" should be discouraged in favor of the term "equivalent". Hence, Leq, is designated the "equivalent sound level". For Ld, Ln, and Ldn, "equivalent" need not be stated since the concept of day, night, or day-night averaging is by definition understood. Therefore, the designations are "day sound level", "night sound level", and "day-night sound level", respectively.

The peak sound level is the logarithmic ratio of peak sound pressure to a reference pressure and not the maximum root mean square pressure. While the latter is the maximum sound pressure level, it is often incorrectly labelled peak. In that sound level meters have "peak" settings, this distinction is most important.

"Background ambient" should be used in lieu of "background", "ambient", "residual", or "indigenous" to describe the level characteristics of the general background noise due to the contribution of many unidentifiable noise sources near and far.

With regard to units, it is recommended that the unit decibel (abbreviated dB) be used without modification. Hence, DBA, PNdB, and EPNdB are not to be used. Examples of this preferred usage are: the Perceived Noise Level (Lpn was found to be 75 dB. Lpn = 75 dB). This decision was based upon the recommendation of the National Bureau of Standards, and the policies of ANSI and the Acoustical Society of America, all of which disallow any modification of bel except for prefixes indicating its multiples or submultiples (e.g., deci).

Noise Impact

In discussing noise impact, it is recommended that "Level Weighted Population" (LWP) replace "Equivalent Noise Impact" (ENI). The term "Relative Change of Impact" (RCI) shall be used for comparing the relative differences in LWP between two alternatives.

Further, when appropriate, "Noise Impact Index" (NII) and "Population Weighed Loss of Hearing" (PHL) shall be used consistent with CHABA Working Group 69 Report Guidelines for Preparing Environmental Impact Statements (1977).

APPENDIX B (CONTINUED)

TABLE I

A-WEIGHTED RECOMMENDED DESCRIPTOR LIST

<u>TERM</u>	<u>SYMBOL</u>
1. A-Weighted Sound Level	L_A
2. A-Weighted Sound Power Level	L_{WA}
3. Maximum A-Weighted Sound Level	L_{max}
4. Peak A-Weighted Sound Level	L_{Apk}
5. Level Exceeded x% of the Time	L_x
6. Equivalent Sound Level	L_{eq}
7. Equivalent Sound Level over Time (T) ⁽¹⁾	$L_{eq}(Y)$
8. Day Sound Level	L_d
9. Night Sound Level	L_n
10. Day-Night Sound Level	L_{dn}
11. Yearly Day-Night Sound Level	$L_{dn}(Y)$
12. Sound Exposure Level	L_{SE}

(1) Unless otherwise specified, time is in hours (e.g. the hourly equivalent level is $L_{eq}(1)$). Time may be specified in non-quantitative terms (e.g., could be specified a $L_{eq}(WASH)$ to mean the washing cycle noise for a washing machine).

SOURCE: EPA ACOUSTIC TERMINOLOGY GUIDE, BNA 8-14-78, NOISE REGULATION REPORTER.

APPENDIX B (CONTINUED)

TABLE II
RECOMMENDED DESCRIPTOR LIST

TERM	A-WEIGHTING	ALTERNATIVE ⁽¹⁾ A-WEIGHTING	OTHER ⁽²⁾ WEIGHTING	UNWEIGHTED
1. Sound (Pressure) Level ⁽³⁾	L_A	L_{pA}	L_B, L_{pB}	L_p
2. Sound Power Level	L_{WA}		L_{WB}	L_W
3. Max. Sound Level	L_{max}	L_{Amax}	L_{Bmax}	L_{pmax}
4. Peak Sound (Pressure) Level	L_{Apk}		L_{Bpk}	L_{pk}
5. Level Exceeded x% of the time	L_x	L_{Ax}	L_{Bx}	L_{px}
6. Equivalent Sound Level	L_{eq}	L_{Aeq}	L_{Beq}	L_{peq}
7. Equivalent Sound Level Over Time(T) ⁽⁴⁾	$L_{eq(T)}$	$L_{Aeq(T)}$	$L_{Beq(T)}$	$L_{peq(T)}$
8. Day Sound Level	L_d	L_{Ad}	L_{Bd}	L_{pd}
9. Night Sound Level	L_n	L_{An}	L_{Bn}	L_{pn}
10. Day-Night Sound Level	L_{dn}	L_{Adn}	L_{Bdn}	L_{pdn}
11. Yearly Day-Night Sound Level	$L_{dn(Y)}$	$L_{Adn(Y)}$	$L_{Bdn(Y)}$	$L_{pdn(Y)}$
12. Sound Exposure Level	L_S	L_{SA}	L_{SB}	L_{Sp}
13. Energy Average value over (non-time domain) set of observations	$L_{eq(e)}$	$L_{Aeq(e)}$	$L_{Beq(e)}$	$L_{peq(e)}$
14. Level exceeded x% of the total set of (non-time domain) observations	$L_{x(e)}$	$L_{Ax(e)}$	$L_{Bx(e)}$	$L_{px(e)}$
15. Average L_x value	L_x	L_{Ax}	L_{Bx}	L_{px}

(1) "Alternative" symbols may be used to assure clarity or consistency.

(2) Only B-weighting shown. Applies also to C,D,E,.....weighting.

(3) The term "pressure" is used only for the unweighted level.

(4) Unless otherwise specified, time is in hours (e.g., the hourly equivalent level is $L_{eq(1)}$). Time may be specified in non-quantitative terms (e.g., could be specified as $L_{eq(WASH)}$ to mean the washing cycle noise for a washing machine.

**APPENDIX E
SOCIAL AND ECONOMIC
IMPACTS STUDY**

**SOCIAL AND ECONOMIC IMPACTS
OF THE PROPOSED
KAILUA ELDERLY HOUSING PROJECT**

March 1991

Prepared for:

**Department of Housing and Community Development
City and County of Honolulu**

Prepared by:

Community Resources, Inc.

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EXECUTIVE SUMMARY

The Department of Housing and Community Development (DHCD) of the City and County of Honolulu has proposed development of an elderly housing project on a municipal parking lot in Kailua. The Project would include 84 residential units, a meal facility, landscaped gardens, 146 public parking stalls (to replace current parking at the site), and approximately 20 new stalls for residents.

The primary purpose of the Project is to provide affordable rental housing for elderly and handicapped families in Kailua. About 60% of the units (approximately 48 units) will be rented to elderly and/or handicapped families in the "low-moderate" and "gap group" categories. The Project is in response to the island-wide shortage of affordable rental housing for the elderly as evidenced by long waiting lists for affordable units in other projects and sharply increasing rental rates.

Community Issues and Concerns. When Kailua residents were interviewed by Community Resources, Inc. (CRI) for this study, a distinct polarization between the views of senior citizens and the views of owners of businesses and property surrounding the project became evident.

Most elderly representatives were generally supportive of the Project. They might have some concerns about particular aspects of Project design and operations, but, overall, felt that the Project site was good; that the design met their needs; and that the City would do a good job of mitigating construction problems and operating the housing.

These senior citizens liked the site because of its proximity to Kailua shopping, medical offices, and other public facilities as well as access to bus transportation. They thought noise problems would not be significant and that some noise was acceptable given the benefits of a central location.

In sharp contrast were the views of a number of surrounding business and property owners. Many of them strongly opposed the Project; felt that the construction period would be disastrous for local businesses; saw the Project as incompatible with surrounding businesses when built; and mistrusted the City's ability to mitigate construction problems, ensure completion of construction within 16 months, or operate the Project.

In their view, the site was inappropriate for senior citizens because it is not in a quiet residential setting. They thought seniors would find noise unbearable and be victimized by criminals lurking around the Project.

Most concerns about the Project's impacts were raised by the surrounding business and property owners. These included concerns about the suitability of the site and Project design, impacts during construction, and incompatibility between businesses and the Project after completion. A listing of significant concerns and CRI's analysis is provided in Chapter 5 Section 5.2.

In our analysis, we indicated which perceptions were based on incorrect information or did not reflect the most current design or operational concepts. For example, a widely held perception was that mobility handicapped patients would have no easy access to the Medical Arts Building during construction. In response, we noted that the Interim Parking Plan calls for creation of three passenger loading zones in front of the Medical Arts Building on Uluniu and six passenger/freight loading zones in an interim parking lot on a portion of the current lot behind the Medical Arts Building.

Another example was a perception that the City had no agreements with owners of nearby parking lots for provision of stalls shown in the Interim Parking Plan. CRI confirmed that the owners had made informal agreements with the City to provide such parking.

Where concerns about adverse impacts appeared valid, we discussed current design or operational features which might help control adverse impacts and reduce risk.

Economic and Social Impacts. Commercial redevelopment of the area surrounding the Project site is expected to occur with or without the Project. The Project's major impacts are due to provision of affordable housing for elderly/handicapped residents, the replacement of open space with the Project and its landscaped mini-park, and disruption of commercial parking and traffic patterns during construction.

When completed, the Project could house an estimated 100 elderly and handicapped persons, many of whom will have low-moderate incomes. Many of the residents are likely to have

lived in Kailua or have family there, although any resident of Oahu might apply for the Project. The Project's affordable and market rental units should help meet the increasing demand for rental units for the elderly and handicapped in Kailua.

The open space and trees in the existing municipal parking lot will be replaced by the Project building and landscaping. The building will include two floors of parking topped by three stories of residential units, and will occupy about one-third of the existing lot. The remainder of the lot will include a mini-park in front of the building on the Aulike Street side and a 25-foot walkway encircling the Project.

Project construction could directly create about 65 jobs per year if the Project is built over a 16-month period. Most of this employment will be on site. However, actual on-site employment will fluctuate in response to construction requirements. After construction, operational employment on-site might be as many as eight jobs.

Effects of Project-related employment will be balanced by any employment lost due to adverse impacts on business during construction or after Project completion.

Some business turnover is natural. Commercial real estate experts and others have noted the high rate of turnover of businesses in the area near the Project site. Most businesses in the Primary Study Area, including those surrounding the Project site, are small businesses which typically have a high rate of failure, especially in the first three years of establishment.

It appears that some businesses, now already having difficulties, may be at increased risk of failure during the construction period. In addition, most surrounding businesses could suffer some temporary decline in revenues as a result of construction disruptions.

Quantifying such impacts is difficult, if not impossible. To do so would require access to records of past sales and the ability to separate the effects on sales due to independent economic forces like the recession or the exodus of Marines to the Persian Gulf from those due to customer access problems.

CRI feels that it is more important to identify potential impacts, assess their potential severity and likelihood, and determine how best to respond to the risks rather than attempt

to precisely predict the exact size of the impacts. Accordingly, we have identified how existing Project design and operational concepts now address the risk of adverse impact on surrounding businesses.

After completion, Project residents and their guests should offer a new source of customers to surrounding businesses, and their presence may help to reduce minor criminal activities currently occurring at the site.

1.0 PROJECT DESCRIPTION

This chapter provides a description of the proposed project and the scope and organization of Community Resources, Inc.'s study.

1.1 THE KAILUA ELDERLY HOUSING PROJECT

The City and County of Honolulu Department of Housing and Community Development (DHCD) has proposed building elderly housing in central Kailua. The proposed Project Site is located in the center of the block bounded by Oneawa Street, Kuulei Road, Aulike Street and Uluniu Street. (Figures 1-A and 1-B show the regional setting of the Site and the area immediately surrounding the Site.)

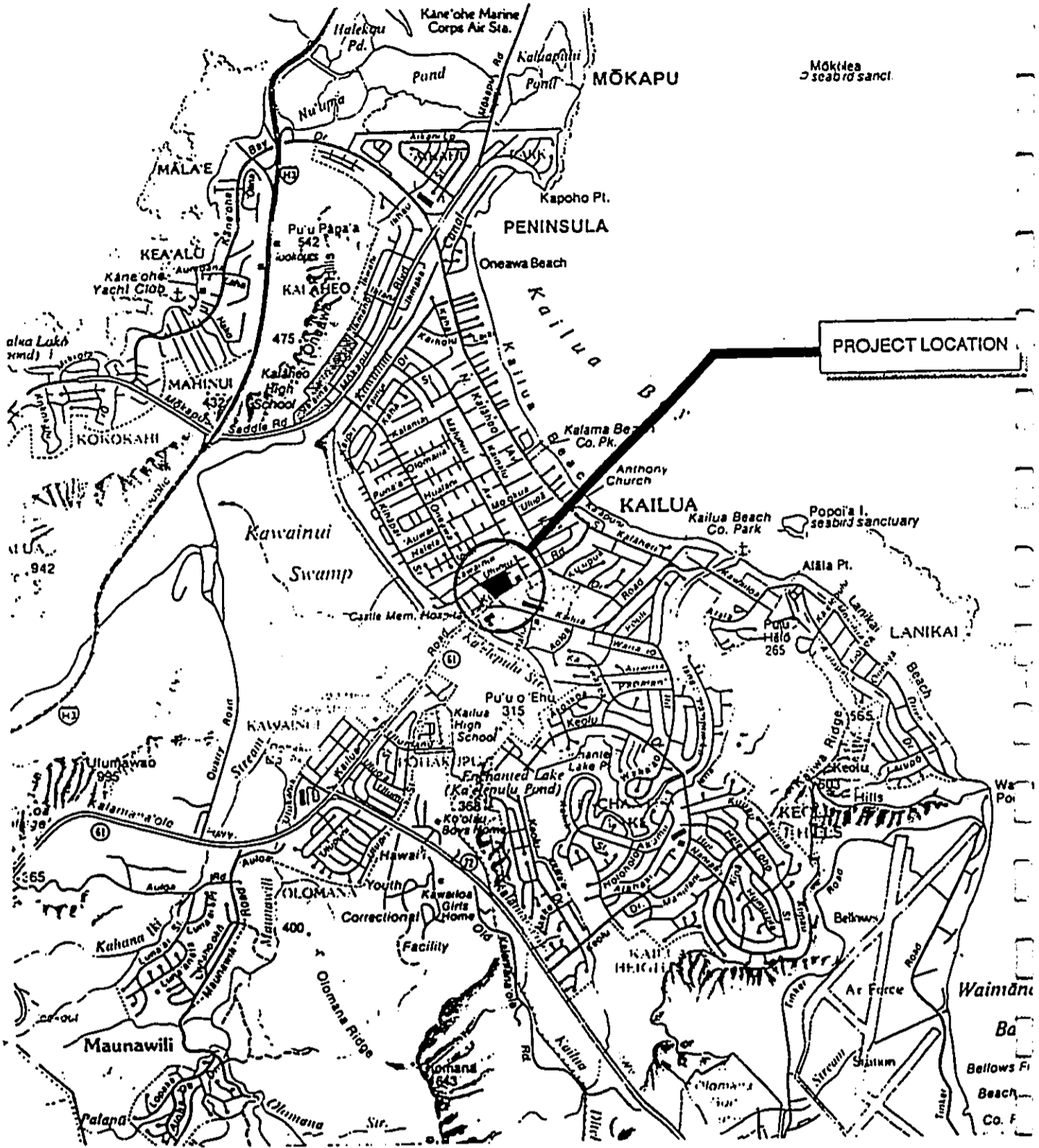
The current design concept for the project calls for 84 residential units, a meal facility, landscaped gardens, 146 public parking stalls (to replace current parking at the Site), and approximately 20 new stalls for residents.

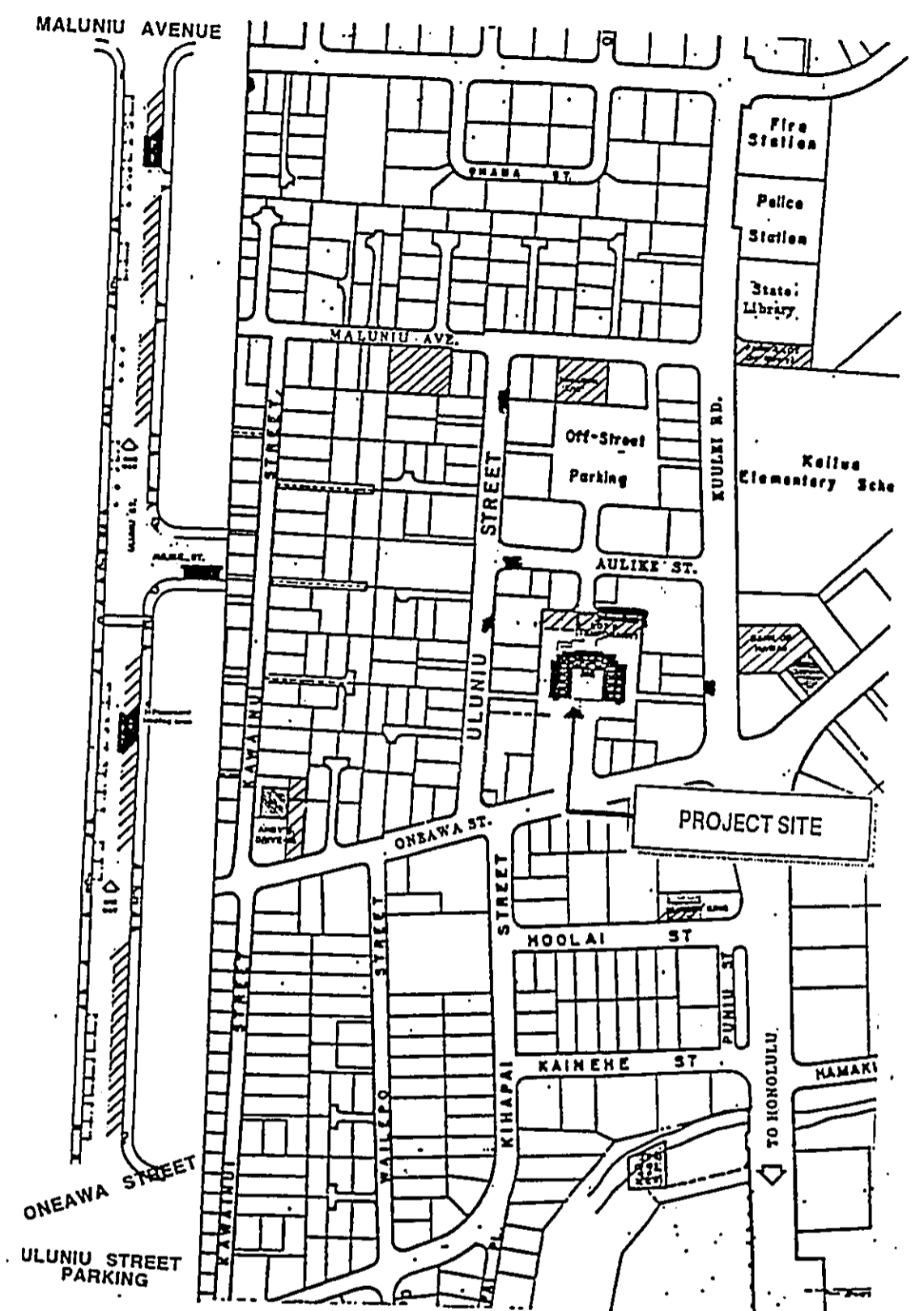
The first two floors (including one below ground level) will be for parking. The top three floors of the structure will be for residential use. (A view of the Project is shown in Figure 1-C.)

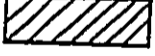

Elderly Housing. All of the residential units will be rented to the elderly and/or handicapped families. (Elderly families have at least one person 62 years old or older; handicapped families have at least one handicapped member. See Section 4.2.2 for definition of handicapped.) Approximately 60 % of the project's units would be rented to elderly and/or handicapped families in the "low - moderate income" and "gap group" categories. See definitions below. Approximately 40 % of the units would be rented to elderly families at market rates.

<u>Household</u>	<u>Earnings</u>	<u>Maximum</u>
Low-moderate income households	earn 80% or less of median income	(maximum was \$26,350 for a two-person household in 1990)
Gap-group households	earn over 80% of and up to 120% of median income	(maximum was \$39,500 for a two-person household in 1990)

FIGURE 1-A: KAILUA ELDERLY HOUSING PROJECT REGIONAL MAP





-  OFF-STREET PARKING LOT
-  LOADING ZONE

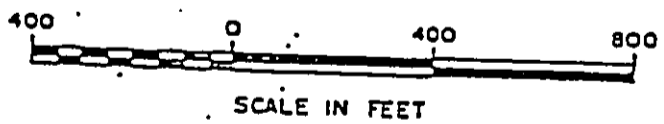
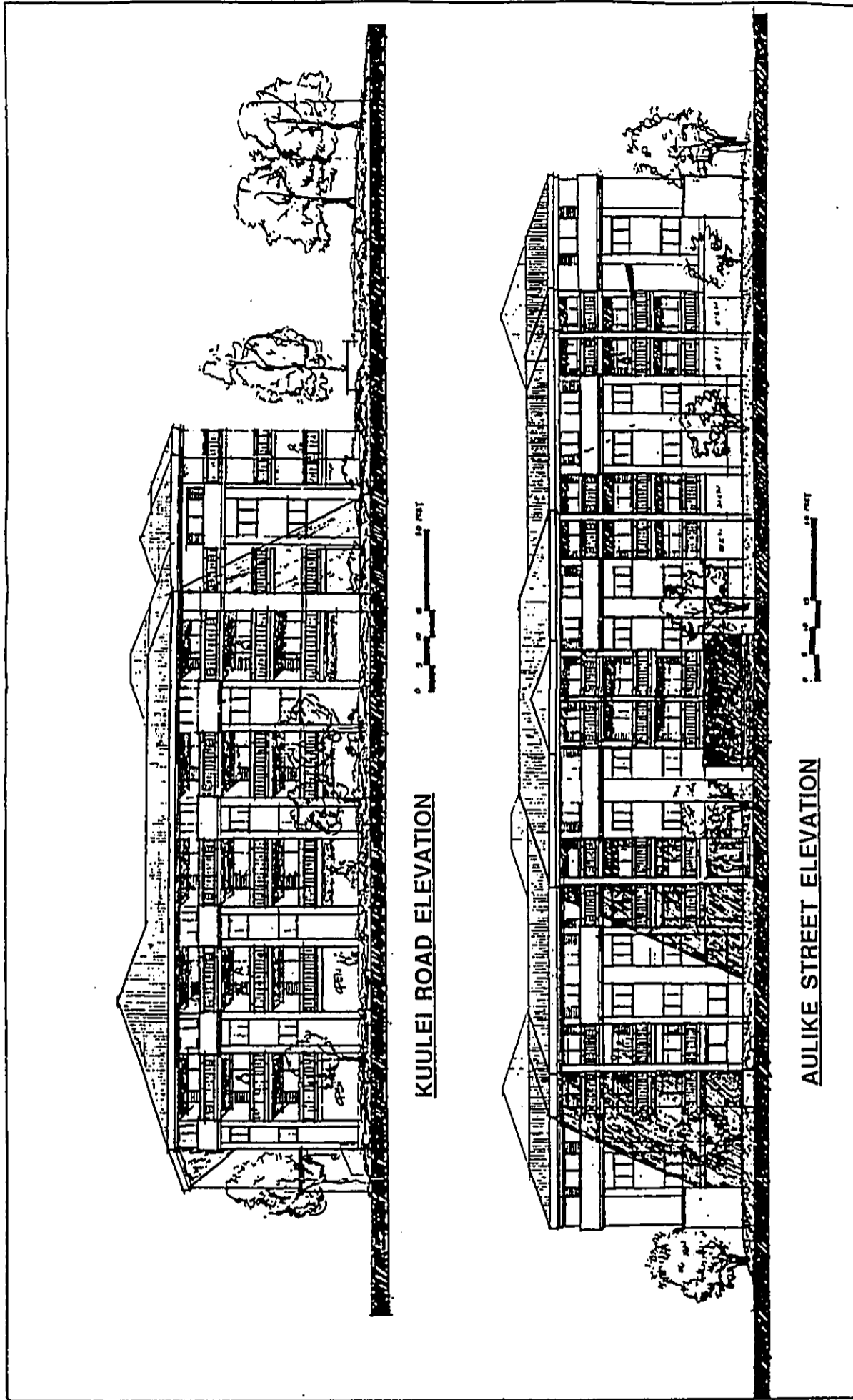


EXHIBIT 1-B: PROJECT SITE & INTERIM PARKING AREAS

FIGURE 1-C: PROJECT DESIGN ELEVATION



Under recent Federal guidelines, five percent of all units (four units) must be adapted for the needs of physically handicapped residents, and the entire project must be accessible to mobility handicapped residents. Tenant selection policies will be determined when the managing agency has been selected. See Chapter 4 for definition of qualifying disabilities and a more extensive discussion of tenant selection and screening.

Parking. The Site is currently a City parking lot with 146 stalls. No Parking will be lost because of the Project. All of the existing stalls are to be replaced by stalls located on the first two floors of the Project. In addition, 20 new stalls for the Project residents will be provided.

The Project includes an Interim Parking Plan that would provide parking within two blocks of the Project site during the construction period. The plan includes parking on a portion of the existing lot and at nearby private and public parking lots and on-street adjustments to increase metered parking and loading stalls. The Interim Parking Plan would provide approximately 89 24-hour public parking stalls, 16 evening and weekend stalls, 122 on-street metered stalls, 12 loading stalls, and 22 separate parking stalls for construction workers. (Figure 1-B shows the proposed interim parking sites and loading zones.)

Project Schedule. Construction of the Project is scheduled to begin by Fall 1991 and last 16 months. Occupancy would start in early 1993.

1.2 STUDY OBJECTIVES

DHCD has contracted with AM Partners to prepare an Environmental Impact Statement (EIS) for the Project. AM Partners, in turn, contracted with Community Resources, Inc. to prepare a Social and Economic Impact Assessment for the Project for inclusion in the EIS.

The objectives of CRI's study were as follows:

- o To describe existing socio-economic conditions for Kailua,
- o To describe the forces for change in Kailua which are independent of the Project,

- o To project the nature and distribution of economic impacts of the project, including:
 - Impact on Employment and Business Opportunity,
 - Impact on Income,
 - Impact on Property and Business Values, and
 - Change in the Availability of Goods and Services.
- o To project the nature and distribution of social impacts of the project, including:
 - Demographic Changes
 - Impacts on Neighborhood Use Patterns
 - Impacts on Housing Conditions
 - Quality of Life Impacts, and
 - Effect on Community Concerns and Objectives
- o To identify and discuss potential mitigations for adverse project impacts.

1.3 METHODOLOGY OVERVIEW

To accomplish the tasks listed above, CRI staff reviewed information from DHCD and AM Partners files, made several site visits, conducted library research, conducted 38 in-depth interviews with "community key informants" and interviewed a number of experts on real estate conditions, Kailua statistics, and elderly/handicapped housing projects.

The community key informants were chosen because they had expressed positions on the Project in past community debates, or were clearly impacted by the Project, or were identified as knowledgeable about Kailua and community issues and concerns.

The results of our research and interviews were used in analyzing the likely economic and social impacts of the Project.

1.4 REPORT ORGANIZATION

The rest of the report is in four chapters:

- o Chapter 2 describes existing socio-economic conditions;
- o Chapter 3 details the forces for change independent of the Project;
- o Chapter 4 presents CRI's analysis of probable economic and social impacts of the Project; and
- o Chapter 5 discusses community issues and concerns.

2.0 EXISTING SOCIO-ECONOMIC CONDITIONS

This chapter describes historic and current socio-economic conditions in the Kailua region and the immediate area of the Project. Community issues and concerns collected from public meeting records and from in-depth interviews with community "key informants" are also reported.

2.1 GEOGRAPHIC AND HISTORIC BACKGROUND

This section describes the geographic setting for CRI's study of Project impacts and provides a review of the history of development in the Kailua area.

2.1.1 Description of the Primary and Total Study Areas

The Primary Study Area for this report includes the Project Site and the surrounding downtown Kailua area, as defined by 1980 Census Tracts 109.03 and 109.05 and Census Tract 111.01 Block Group 1. (See Figure 2-A.) This is the area in which the majority of the Project's impacts will be felt.

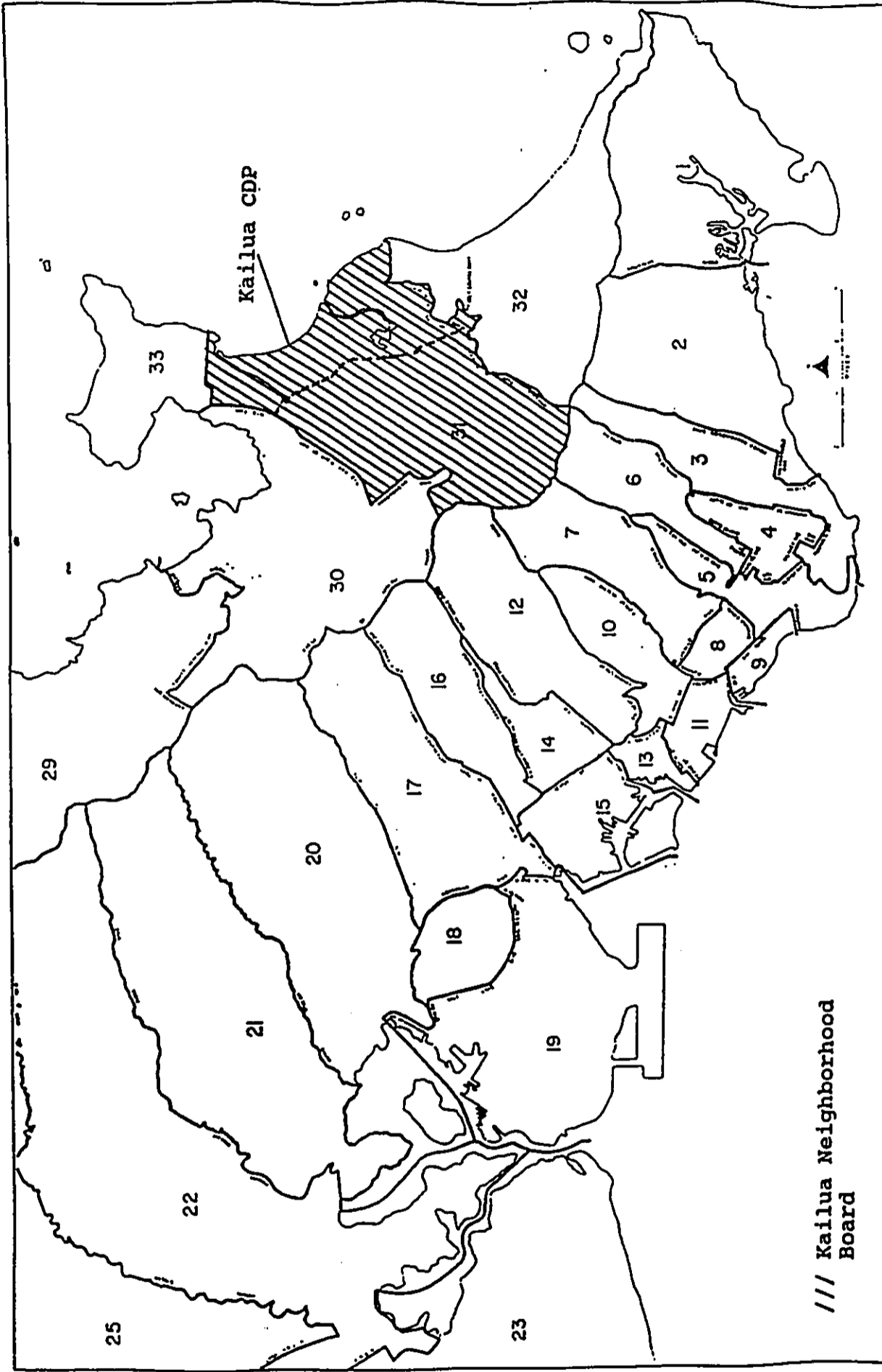
In addition, regional trends, concerns, and issues were considered for a Total Study Area, defined by the Kailua Neighborhood Board Area which includes Kailua town, Enchanted Lakes, Lanikai, and Maunawili. (See Figure 2-B.)

2.1.2 Land Use and Development Trends

In Hawaiian times, the ahupua'a of Kailua had a population of more than 1,500 and was the site of extensive taro cultivation, the Kawainui and Ka'elepulu fishponds, and several heiau. During the 1780s, Kailua even served as the short-lived capital of the conqueror Kahekili from Maui (Mustapha, 1985).

During the nineteenth century, both sugar and pineapple plantations were attempted without success (Mustapha, 1985). However, rice and taro cultivation, especially in the vicinity of Kawainui, was fairly extensive in the last two decades of the century (Kelly and Clark, 1980).

FIGURE 2-B: TOTAL STUDY AREA



In 1884, the Rice family -- inheritors of Judge Harris's extensive landholdings in the area -- leased its lands to Mendonca and Bolte, who began the Kaneohe Ranch Company.

The difficulty in traveling from Honolulu to Windward Oahu by steamer or along the Pali horse trail (built in 1845) retarded the growth of the area. In 1861, the trail was improved to accommodate wagon traffic, and further improved in 1898. Nevertheless, access to the region remained time consuming and difficult (Mustapha, 1985).

By the turn of the century, only a small population of fishermen, rice planters, and taro farmers lived in Kailua. Kawainui had by this time fallen into disuse as a fishpond and had become the location of numerous rice paddies, mixed with a few cash-crop farms (Kelly and Clark, 1980). Arthur Rice ran a copra plantation in what is now Coconut Grove. When the business later went into decline, the area was subdivided into residential lots. The area along Kailua Beach was fairly uninhabited, with sand dunes, marsh, ponds, and cattle pasture comprising the main topographical features. Harold Castle became the most important landowner in 1917, when he purchased the Mendonca-Bolte property from the Rice family. Castle's vast landholdings stretched from Waimanalo to Heeia (Mustapha, 1985).

The Pali Road was finally paved in 1921, by which time Kailua was primarily a farming, hunting, and vacation spot serviced by a combination tavern and store (Mustapha, 1985). Rice cultivation declined and was replaced by pasture (Kelly and Clark, 1980). In 1924, Richard Trent subdivided the Maunawili Beach region, and the Frazier Company disclosed plans to develop the Lanikai area for housing. During the following year, Raphael Campos bought a 2,000-acre lease in what is now the central business district and began the largest dairy farm on the island.

At the end of the First World War, Mokapu Peninsula was acquired by the military. Initial construction of a sea plane base began in 1939. During World War Two, the military presence at the Kaneohe Naval Air Station and the environs of Kailua grew appreciably. The name of the facility was changed to the Kaneohe Marine Corps Air Station during the 1950s (Mustapha, 1985).

The Air Station's large number of personnel has made it influential in shaping the community's character. In 1985, the base had almost 1,900 housing units (Hawaii State Census Statistical Areas Committee, 1985). In 1989, the facility was manned by 8,719 persons, of whom 404 were civilian employees (Department of Defense counts reported by Hawaii State Data Center, Hawaii State Department of Business, Economic Development, and Tourism, January 1990). The recent deployment of thousands of Marines to the Persian Gulf and resulting reduced sales for local businesses has underscored the importance of the base to Kailua's prosperity.

As was true elsewhere on the island, the post-war years saw a tremendous boom in Kailua's growth. The 1950 population of 7,740 had tripled by 1960, due in large measure to the new Pali Highway and Pali Tunnels. Improved vehicle access led to a commuter-bedroom community development, where a large number of Kailua residents commuted to jobs in Honolulu. Also during the 1950s, Kailua Shopping Center was built and the Territory's first supermarket was erected.

Further growth spurred initial development of the Ka'elepulu Swamp into an area for light industrial activity and the Enchanted Lake residential subdivision. The first 1,000 houses of Enchanted Lake were completed in 1960, and by mid-decade, the Enchanted Lake Shopping Center was opened. Other developments included Aikahi Park, Maunawili Estates, Kailua Drive-in, and the 1967 opening of Hawaii Loa College (Mustapha, 1985).

Pressure to urbanize the Kawainui Marsh in the 1970s spawned debate over the future of the wetlands. In addition to buffering neighboring urban areas from flooding, the Marsh has value as a wildlife sanctuary (Kawainui Marsh Technical and Policy Advisory Committee, 1983). Further concerns about the Marsh's management resulted when severe flooding occurred during the New Year's Eve flood of 1987. Waters from the Marsh overflowed into the Coconut Grove area during a period of record rainfall.

Another major source of controversy was the debate over the construction of the H-3 freeway. Construction of the first segment from Kaneohe Marine Corps Air Station to Kamehameha Highway began in 1969, but construction of the remaining segment was halted by a series of court challenges by community and environmental groups. Work resumed in 1987 after a congressional exemption from environmental regulations was obtained. A tunnel, now under construction, will carry traffic through the Koolau Range at Haiku Valley to the Leeward side, ending at the Halawa Interchange. Completion of the project is scheduled for 1994. (Personal communication, Sterling Morikawa, Assistant Chief of Construction and Maintenance, State Department of Transportation, February 1991.)

The Department of General Planning began work on a Kailua Urban Design Plan in 1990. The Plan, which is the first in a series of plans to be prepared for various business districts on Oahu, has the goal of enhancing "the image of the business district," and of helping "provide a sense of identity for Kailua as a residential beach community." (Department of General Planning, Preliminary Kailua Town Urban Design Plan, December 4, 1990.)

The Preliminary Plan includes five objectives:

- o "Create attractive and distinctive entrances to the business district;
- o Enhance the pedestrian environment and circulation pattern;
- o Enhance the overall visual appearance of the downtown business district;
- o Improve vehicle circulation; and
- o Provide design guidelines for renovations and new development."

As reported by The Sunday Star Bulletin & Advertiser, Ben Lee, the City's Chief Planning Officer, does not intend for "government to create a special district" but rather wants the Plan "to encourage private landowners to 'cleanup, fixup and beautify' Kailua." (The Sunday Star-Bulletin & Advertiser, "Kailua Town Faces Major Housing and Planning Decisions," December 23, 1990.)

2.2 EXISTING SOCIO-ECONOMIC CONDITIONS

This section describes existing economic, demographic, housing, and labor characteristics of Kailua. Statistics for the Primary Study Area ("downtown" Kailua and residential areas), the Total Study Area (the Kailua Neighborhood Board area), and the Kailua Census Designated Place (most of the Kailua Neighborhood Board Area except for Maunawili) were combined to produce a composite picture of conditions in the area.

Some of the significant characteristics of Kailua are:

- o Kailua is a suburban bedroom community with most local employment in supporting retail and service sectors. It can be characterized as a stable or mature market for commercial activities without growth opportunities typical of rapidly developing communities.

- o The population and housing supply of Kailua have grown slowly over the past decade, primarily due to lack of developable urban land and City Development Plan policies directing growth to Leeward and Central Oahu.
- o As shown by 1980 Census data, Kailua's population is predominantly Caucasian. Kailuans are also likely to be longtime Hawaii residents or to have moved to Hawaii from the Mainland. In addition, they have generally received higher levels of education than other Oahu residents, and work in more professional occupations.
- o Residents of Kailua were generally more likely to live in "traditional" family households and enjoyed a significantly higher median family income. Compared to other Oahu residents, a significantly higher percentage of Kailua residents were home owners. Homes in Kailua were generally in better condition than elsewhere on the island.
- o Residents of the Primary Study Area, particularly those located in Census Tract 109.03 (that portion of Coconut Grove between Oneawa Street and Kawainui Marsh), do not fit into the picture of the typical Kailuans painted above. Primary Study Area residents had significantly lower income and were much less likely to own their home than residents of the Total Study Area. Within the Primary Study Area, the population of Census Tract 109.03 were least educated, earned the lowest incomes, and lived in the worst housing conditions.

These characteristics will influence the success of the proposed elderly housing project, the survival and prosperity of businesses surrounding the Project, and the nature of redevelopment plans of area property owners.

Discussion of these and other characteristics is provided in greater detail in the following sub-sections.

2.2.1 Economic Activities

Kailua is a suburban residential community with supporting retail and service activities located in neighborhood shopping centers and strip developments.

The largest employer in the area is the Kaneohe Marine Corps Air Station, which, as was noted above, has a significant impact on local business activity. Other significant local employers include the Castle Hospital and Hawaii Loa College.

Most businesses are small "Mom and Pop" operations. Hawaii Business Directory files available from the Oahu Metropolitan Planning Organization indicate there were only 36 employers with 50 or more workers in Kailua in 1989. In contrast, the Census Bureau counted over 440 retail, wholesale, and service establishments in Kailua in 1987. (See Table 2-C).

Kaneohe Ranch is the largest landowner in the area. A significant portion of the downtown Kailua area is leased from the Kaneohe Ranch, with many leases expiring by 2005. Uncertainty about the future of those leases has led to a slowdown in renovation and redevelopment activity for leased properties.

Commercial. As shown in Table 2-C, Kailua retail sales declined as a percent of Honolulu total retail sales during the 80's while Kailua's share of retail employment stayed roughly the same. Kailua's share of island sales and employment stayed roughly the same for wholesale establishments and increased slightly for service establishments.

The primary centers of commercial development in recent years in Kailua have been along Kailua Road and Hamakua Drive. Commercial development in the vicinity of the Project site has been smaller scale, and more affordable. Real estate analysts feel this is due to the lower traffic flows through the area and a perception of the area as being somewhat "on the wrong side of the tracks" (Community Resources, Inc. interviews, January 1990).

2.2.2 Demographic Characteristics and Trends

The discussion in this section is drawn primarily from 1980 Census data contained in Tables 2-D and 2-E. From the discussion of the topics below, we can depict the Primary Study Area of downtown Kailua and its surrounding residential areas as a slow-growth town whose population is predominantly Caucasians. Kailuans are likely to be longtime Hawaii residents or residents who have moved to Hawaii from the Mainland.

Unless otherwise specified, the population being discussed is that of the Primary Study Area.

Population Growth. The average annual growth rate of the Total Study Area was significantly lower than that of Honolulu County as a whole. According to City estimates, the study area experienced an annual average growth rate of 0.5% for the period from 1980 to 1988. The average annual growth rate for the County was 1.2% over the same period. This slower growth was due to the lack of available urban land and City development policies directing growth to Ewa and Central Oahu.

TABLE 2-C: COMMERCIAL TRENDS, 1982-1987

Characteristics	Honolulu		Kailua (1)			
	1982	1987	1982		1987	
			Total	Pct. of Oahu	Total	Pct. of Oahu
Establishments						
Retail	4,318	4,918	154	3.6%	173	3.5%
Wholesale	1,417	1,577	30	2.1%	31	2.0%
Service	4,864	5,704	200	4.1%	242	4.2%
Total	10,599	12,199	384	3.6%	446	3.7%
Sales (2)						
Retail	\$3,898,767	\$6,079,556	\$150,387	3.9%	\$175,779	2.9%
Wholesale	\$3,392,728	\$4,501,802	\$25,978	0.8%	\$21,399	0.5%
Service	\$3,234,314	\$1,974,216	\$31,712	1.0%	\$57,539	2.9%
Total	\$10,525,809	\$12,555,574	\$208,077	2.0%	\$254,717	2.0%
Paid Employees						
Retail	63,320	74,485	2,061	3.3%	2,383	3.2%
Wholesale	14,750	16,907	80	0.5%	105	0.6%
Service	52,849	66,533	806	1.5%	1,154	1.7%
Total	130,919	157,925	2,947	2.3%	3,642	2.3%

- (1) Kailua Census Designated Place.
(2) In thousands of dollars.

SOURCE: U.S. Bureau of the Census, CENSUS OF RETAIL TRADE: GEOGRAPHIC AREA SERIES, HAWAII; CENSUS OF WHOLESALE TRADE: GEOGRAPHIC AREA SERIES, HAWAII; CENSUS OF SERVICE INDUSTRIES: GEOGRAPHIC AREA SERIES, HAWAII. (1982 AND 1987).

TABLE 2-D: POPULATION GROWTH TRENDS, 1980-1988

<u>Year</u>	<u>Honolulu</u>	<u>Kailua</u>
1980	762,534	52,906
1988	838,500	55,072
Annual Average Growth Rate	1.2%	0.5%

SOURCE: State Department of Business, Economic Development, and
Tourism, 1990 STATE DATA BOOK, p. 26.

TABLE 2-E: DEMOGRAPHIC CHARACTERISTICS OF HONOLULU COUNTY AND STUDY AREA, 1980

	CITY AND COUNTY OF HONOLULU	TOTAL STUDY AREA (1)	PRIMARY STUDY AREA (2)	PRIMARY STUDY AREA COMPONENTS		
				CENSUS TRACT 109.03	CENSUS TRACT 109.05	BLOCK GROUP ONE OF C.T. 111.01
TOTAL POPULATION	762,565	41,291	9,530	4,158	2,536	2,836
ETHNICITY						
Caucasian	33.1%	56.8%	52.0%	42.9%	41.4%	74.9%
Japanese	24.9%	15.8%	14.3%	16.6%	21.5%	4.5%
Chinese	6.9%	4.6%	3.4%	3.6%	5.2%	1.7%
Filipino	12.8%	3.3%	4.9%	6.4%	5.9%	1.8%
Hawaiian	10.5%	12.3%	15.0%	18.3%	18.1%	7.4%
Other	11.8%	7.2%	10.4%	12.4%	7.9%	9.8%
AGE						
Less than 5 yr.	7.9%	7.1%	8.0%	9.1%	6.9%	7.5%
5 to 17 yr.	24.3%	27.7%	24.4%	26.6%	24.8%	21.0%
18 to 64 yr.	60.6%	59.6%	60.8%	58.5%	59.4%	65.4%
65 or more yr.	7.3%	5.6%	6.7%	5.8%	8.9%	6.1%
Median age (yrs.)	28.1	25.0	N/A	25.5	30	27.5
PLACE OF BIRTH*						
Hawaii	55.1%	54.8%	59.4%	68.4%	72.9%	34.3%
Other U.S.**	30.1%	39.2%	34.5%	24.6%	21.7%	60.5%
Foreign	14.8%	6.0%	7.0%	7.0%	5.4%	8.4%
RESIDENCE IN 1975* (people aged 5 or more)						
Same house	48.2%	48.6%	54.7%	61.9%	69.3%	33.3%
Same county	25.5%	27.1%	23.9%	22.3%	20.6%	28.9%
Other county	1.3%	3.6%	0.5%	0.4%	0.0%	1.0%
Other state	18.4%	17.9%	18.4%	13.9%	6.8%	34.0%
Other country	6.6%	2.8%	2.4%	1.6%	3.4%	2.8%
EDUCATION*						
(people aged 25 or more)						
Less than H.S.	14.4%	7.6%	13.4%	18.1%	13.8%	7.2%
H.S. graduate only	35.5%	33.9%	36.1%	41.8%	39.8%	25.7%
Some post H.S.	18.3%	20.1%	20.0%	15.7%	17.9%	27.4%
College, 4+ yr.	21.7%	29.4%	17.8%	10.3%	12.1%	32.3%

NOTES: * Figures based on 15 percent sample; hence, numbers represent estimates.
 ** Includes persons born in U.S. territories, or born abroad or at sea to U.S. parents.
 (1) Includes Census Tracts 109.01, 109.03, 109.04, 109.05, 110, 111.01, 111.03, 111.04, 112.01, and 112.02.
 (2) Includes Census Tracts 109.03 and 109.05, and Block Group 1 of Tract 111.01.
 "N/A" Not Available.

SOURCES: U.S. Bureau of the Census, 1981a, 1981b.

The estimated population of the Total Study Area in 1988 was 55,072. The population of the County was 838,500. (See Table 2-D.)

Ethnicity. Table 2-E shows that more than half of the Primary Study Area's population, 52.0%, was made up of Caucasians. This is high compared to the percentage of Caucasians in the County (33.1%). The population of one of the three components in the Primary Study Area (Block Group 1 of Census Tract 111.01) was comprised of 74.9% Caucasians.

The Primary Study Area also has a higher percentage of Hawaiians, and a lower percentage of Japanese, Chinese, and Filipinos compared to the County.

Age. The 1980 age distribution of Primary Study Area residents was very similar to the County distribution. Just over 60% fell between the ages of 18 and 64 years. The next largest segment of the population (24.4%) was made up of people ages 5 to 17. Children under 5 were 8% of the population of the area. The remaining 6.7% were people aged 65 or more.

Comparing the Total Study Area, the Primary Study Area, and the three components of the Primary Study Area to the County, only one portion of the Primary Study Area (Census Tract 109.05), had a higher percentage of people aged 65 or more (8.9%) than the County as whole (7.3%). This may be surprising to those who think of Kailua as having primarily an aging population.

Place of Birth. The Primary Study Area had a significantly smaller percentage of foreign born residents (7.0%), in comparison to the County (14.8%). The Primary Study Area also had a higher percentage of locally born residents and residents who were born in other U.S. States.

Residence. In Honolulu County in 1980, 48.2% of the population was living in the same house as five years before. In the Primary Study Area, a significantly larger percentage (54.7%) was living in the same house. In Census Tract 109.05, 69.3% were longtime residents.

Kailua residents were more likely to have been longtime residents of Kailua or previous residents of other U.S. states, than were County residents as whole. In addition, Kailua residents were less likely than other Oahu residents to have come from a foreign country, another Hawaiian island, or from elsewhere on Oahu.

Education. Generally, education levels were higher for Kailuans in 1980 than for Oahu residents as a whole. However, Primary Study Area residents had proportionately fewer college graduates than the rest of Kailua or Oahu as a whole.

Within the Primary Study Area, residents of Coconut Grove were significantly less educated while residents of Block Group One of Census Tract 11.01 were significantly more educated. (See Exhibit 2-E.)

2.2.3 Family Characteristics and Income

The discussion in this section is drawn from 1980 Census data shown in Table 2-F. We can conclude that the Total Study Area (the Kailua Neighborhood Board area) contains a more affluent population than the County as a whole which was also more likely to live in a "traditional" family household. However, there are families in parts of the Primary Study Area ("downtown" Kailua and surrounding residential areas) which had significantly different conditions from the picture of prosperity painted for the Total Study Area.

Family Characteristics. Table 2-F shows that a larger percentage of Primary Study Area and Total Study Area residents are in families (89.6% and 94.9%, respectively) compared to County residents (85.6%).

A higher percentage of families in the Total Study Area were headed by both a husband and wife (86.2%) than in the County (82.8%).

The most significant differences in family characteristics are seen within the Primary Study Area. For example, Tract 109.03 (Oneawa Street to Kawainui Marsh) had 9.1% of families with children under 18 headed by a female. The Total Study Area had 6.7% of these families headed by a female, and the County had 7.5%.

Income. Median family income was significantly higher in the Total Study Area (\$29,850) than for the County as a whole (\$23,550).

There were fewer families below poverty level in the Total Study Area (5.3%) than in the County (7.5%). However, the percentage of families below poverty level in the Primary Study Area (9.0%) was significantly above the percentage for the county and the Total Study Area.

The most significant differences are again seen within the components of the Primary Study Area, where the Coconut Grove tract had 15.3% of the families in poverty while Block Group One

TABLE 2-F: FAMILY CHARACTERISTICS AND INCOME OF HONOLULU COUNTY AND STUDY AREA, 1980

	CITY AND COUNTY OF HONOLULU		TOTAL STUDY AREA (1)		PRIMARY STUDY AREA (2)		PRIMARY STUDY AREA COMPONENTS		
	653,118	85.6%	39,204	94.9%	8,541	89.6%	CENSUS TRACT 109.03	CENSUS TRACT 109.05	BLOCK GROUP ONE OF C.T. 111.01
PERSONS IN FAMILIES					3,816	2,320	2,405		
% of total population					91.8%	91.5%	84.8%		
NUMBER OF FAMILIES	178,516		10,404		2,521		814		
% below poverty level	7.5%		5.3%		9.0%		3.7%		
HEAD									
Husband/Wife	82.8%		86.2%		83.6%		85.7%		
Male only	4.5%		3.0%		3.8%		1.5%		
Female only	12.7%		10.8%		12.6%		12.2%		
WITH OWN CHILDREN UNDER 18	54.9%		55.5%		49.5%		45.0%		
Female head	7.5%		6.7%		8.5%		8.6%		
MEDIAN FAMILY INCOME	\$23,554		\$29,846		N/A		\$21,895		\$25,500
NUMBER OF NON-FAMILY HOUSEHOLDS	53,298		1,719		653		155		277
% below poverty level	15.7%		N/A		21.6%		42.5%		18.1%

NOTES: All figures (except "Persons in Families" and "Non-Family Households") based on 15 percent sample; hence, numbers represent estimates.

(1) Includes Census Tracts 109.01, 109.03, 109.04, 109.05, 110, 111.01, 111.03, 111.04, 112.01, and 112.02.

(2) Includes Census Tracts 109.03 and 109.05, and Block Group 1 of Tract 111.01.

"N/A" Not Available.

SOURCES: U.S. Bureau of the Census, 1981a, 1981b.

111.01 111.02 111.03 111.04 111.05 111.06 111.07 111.08 111.09 111.10 111.11 111.12 111.13 111.14 111.15 111.16 111.17 111.18 111.19 111.20 111.21 111.22 111.23 111.24 111.25 111.26 111.27 111.28 111.29 111.30 111.31 111.32 111.33 111.34 111.35 111.36 111.37 111.38 111.39 111.40 111.41 111.42 111.43 111.44 111.45 111.46 111.47 111.48 111.49 111.50 111.51 111.52 111.53 111.54 111.55 111.56 111.57 111.58 111.59 111.60 111.61 111.62 111.63 111.64 111.65 111.66 111.67 111.68 111.69 111.70 111.71 111.72 111.73 111.74 111.75 111.76 111.77 111.78 111.79 111.80 111.81 111.82 111.83 111.84 111.85 111.86 111.87 111.88 111.89 111.90 111.91 111.92 111.93 111.94 111.95 111.96 111.97 111.98 111.99 112.00 112.01 112.02 112.03 112.04 112.05 112.06 112.07 112.08 112.09 112.10 112.11 112.12 112.13 112.14 112.15 112.16 112.17 112.18 112.19 112.20 112.21 112.22 112.23 112.24 112.25 112.26 112.27 112.28 112.29 112.30 112.31 112.32 112.33 112.34 112.35 112.36 112.37 112.38 112.39 112.40 112.41 112.42 112.43 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of Census Tract 111.01 (the area between Kailua Road - Kuulei Road and Kaelepulu Stream) had 3.7% of the families in poverty.

2.2.4 Housing Conditions

The discussion in this section is based upon 1980 and 1990 Census data, and 1989 Federal Home Loan Bank of Seattle data shown in Tables 2-G, 2-H, and 2-I. In recent years, Kailua's housing supply has grown more slowly than the supply for the County. There are very few vacant units in Kailua. Proportionately more Kailuans were home owners than the County average in 1980, and homes in Kailua were generally in better condition.

Housing Supply Trends. According to Postcensus Local Review Census Tract counts, Kailua had a housing supply of 14,437 in 1990. Kailua's housing supply makes up about 4.4% of the total housing supply in Honolulu County (329,260).

From 1980 to 1990, the annual average growth rate of housing supply for Kailua was 1.4%. This is considerably lower than the annual average growth rate for Honolulu County (2.7%). (See Table 2-G.) As was noted above, this lower growth rate was due to lack of developable urban land and City policies directing growth to Ewa and Central Oahu.

Vacancy Rates. Table 2-H provides information about housing vacancy trends in Kailua and Honolulu County.

The total housing supply in Kailua in 1989 was made up of 83% single family units and 17% multi-family units. Only 1.0% of the housing units in Kailua were vacant in 1989. This is up from the 0.2% vacant in 1979, but still low compared to the overall Honolulu County vacancy rate of 1.5% (1989).

Tenure. In 1980, 49.5% of all occupied housing units in Honolulu County were occupied by owners. The remaining 50.5% were renter-occupied. The Primary Study Area was similar to the County, with 50.6% of the units owner-occupied and 49.4% renter-occupied.

The Total Study Area, however, is very different from both the Primary Study Area and the County. Table 2-I shows that 72.3% of the occupied housing units were occupied by owners and the remaining 27.7% were renter-occupied.

General Conditions. As indicated in Table 2-I, the housing conditions in Kailua in 1980 were considerably better than for the County as a whole, and the conditions in the Total Study Area were a bit better than those in the Primary Study Area.

TABLE 2-G: HOUSING SUPPLY TRENDS, HONOLULU AND KAILUA,
1980 - 1990

<u>Year</u>	<u>Honolulu</u>	<u>Kailua</u>
1980	252,038	12,578
1990	329,260	14,437
Annual Average Growth Rate	2.7%	1.4%

SOURCE: U.S. Census Bureau, 1980 CENSUS OF POPULATION AND HOUSING. CENSUS TRACTS, HONOLULU HAWAII, STANDARD METROPOLITAN AREA; 1990 CENSUS OF POPULATION AND HOUSING, POSTCENSUS LOCAL REVIEW LISTING, HONOLULU COUNTY.

TABLE 2-H: HOUSING VACANCY TRENDS, HONOLULU AND KAILUA, 1979-1989

	City and County of Honolulu		Kailua (1)	
	1979	1989	1979	1989
ALL HOUSING TYPES				
Total units	232,134	257,050	13,820	14,372
Percent vacant	1.8%	1.5%	0.2%	1.0%
Vacant used	1.1%	1.3%	0.1%	0.8%
Vacant new	0.6%	0.1%	0.1%	0.3%
Under construction	2.0%	1.2%	2.3%	0.9%
SINGLE-FAMILY UNITS				
Total units	116,300	147,767	10,712	11,922
Percent vacant	0.6%	0.9%	0.3%	0.7%
Vacant used	0.3%	0.8%	0.2%	0.7%
Vacant new	0.3%	0.1%	0.1%	0.1%
Under construction	1.2%	1.4%	0.7%	0.1%
MULTI-FAMILY UNITS				
Total units	115,766	108,934	3,108	2,450
Percent vacant	2.9%	2.1%	0.1%	2.5%
Vacant used	1.9%	2.0%	0.1%	1.2%
Vacant new	1.0%	0.1%	0.0%	1.3%
Under construction	2.9%	0.8%	7.6%	4.8%

(1) Kailua defined by ZIP Code area 96734.

SOURCE: Federal Home Loan Bank of Seattle. HONOLULU, HAWAII:
HOUSING VACANCY SURVEY, JUNE 1979, MAY 1989.

TABLE 2-I: HOUSING CONDITIONS OF HONOLULU COUNTY AND STUDY AREA, 1980

	CITY AND COUNTY OF HONOLULU	TOTAL STUDY AREA (1)	PRIMARY STUDY AREA (2)	PRIMARY STUDY AREA COMPONENTS		
				CENSUS TRACT 109.03	CENSUS TRACT 109.05	BLOCK GROUP ONE OF C.T. 111.01
TOTAL YEAR-ROUND HOUSING UNITS	250,866	12,570	3,232	1,288	815	1,129
Vacant (total)	8.2%	3.7%	3.7%	1.9%	2.6%	6.6%
Vacant for sale	0.5%	0.4%	0.4%	0.1%	0.4%	0.7%
Vacant for rent	3.6%	1.0%	1.2%	0.5%	0.6%	2.3%
Held for occas. use	0.9%	0.4%	0.4%	0.1%	0.4%	0.7%
Other	3.2%	1.9%	1.8%	1.2%	1.2%	2.9%
TOTAL YEAR-ROUND OCCUPIED UNITS	228,656	12,099	3,111	1,263	794	1,054
TENURE						
Owner-occupied	49.5%	72.3%	50.6%	49.7%	58.2%	45.9%
Renter-occupied	50.5%	27.7%	49.4%	50.3%	41.8%	54.1%
SELECTED CONDITIONS						
Lacking some or all plumbing	1.5%	0.4%	0.6%	0.6%	0.5%	0.7%
1.51 or more persons/room	7.4%	3.1%	5.3%	8.9%	3.8%	2.3%
PERSONS PER HOUSEHOLD	3.15	3.38	N/A	3.28	3.18	2.69
MEDIAN CASH RENT (renter-occ'd)	\$279	\$426	N/A	\$286	\$313	\$398
% of median family income**	14.2%	17.1%	N/A	20.2%	17.2%	18.7%
MEDIAN VALUE* (owner-occ'd)	\$130,400	\$138,200	N/A	\$100,300	\$107,600	\$159,600
MEDIAN MONTHLY MORTGAGE* (owner-occ'd)**	\$494	\$552	N/A	\$414	\$487	\$618
% of median family income	25.2%	22.2%	N/A	29.3%	26.7%	29.1%

NOTES: * Median values are for non-condominium housing units. ** Figures based on 15 percent sample; hence, numbers represent estimates.

(1) Includes Census Tracts 109.01, 109.03, 109.04, 109.05, 110, 111.01, 111.03, 111.04, 112.01, and 112.02.

(2) Includes Census Tracts 109.03 and 109.05, and Block Group 1 of Tract 111.01.

"N/A" Not Available.

SOURCES: U.S. Bureau of the Census, 1981a, 1981b.

The Primary Study Area had 5.3% of the units with 1.51 or more person per room, while the Total Study Area had 3.1%, and the County had 7.4%. Of the units in the Primary Study Area, 0.6% were lacking some or all plumbing, compared to 0.4% in the Total Study Area, and 1.5% in the County.

2.2.5 Labor Force Conditions

The discussion in this section is based upon 1980 Census data and 1990 Department of Labor and Industrial Relations estimates shown in Tables 2-J and 2-K.

Kailua's unemployment rate is very close to that of the County. Generally, residents of Kailua tend to work in professional occupations, but there are distinct differences in occupation and industry patterns between component areas of the Primary Study Area.

Employment Rates. The estimated unemployment rate for Kailua in 1990 was 2.6%. This was just 0.1 percentage points higher than the County unemployment rate of 2.5%.

Historically the unemployment rate for Kailua and the County has gone down over the past decade. Kailua has seen a drop from 4.9% in 1980 to 2.6% in 1990, and the County's rate has gone from 4.6% to 2.5%. (See Table 2-J.)

Occupation. Table 2-K indicates that the distribution of occupations held by residents of the Primary Study Area was similar to the distribution throughout the County. However, in comparison to the County, residents of the Total Study Area held significantly more jobs in managerial or professional positions, and less service and laborer jobs.

As was seen in previous tables, there are great differences among the components of the Primary Study Area. Residents in Census Tract 109.03 (Oneawa Street to Kawainui Marsh) held significantly more service and laborer jobs than residents of Block Group 1 of Census Tract 111.01 (along Kailua Road toward Lanikai), and considerably fewer jobs in managerial and professional fields.

Industry. In comparison to residents of the County, residents of the Primary Study Area held significantly more jobs in construction, and slightly more jobs in agriculture, manufacturing, and entertainment and recreation services. They held fewer jobs in the retail trade, financial, health, and public administration industries.

TABLE 2-J: UNEMPLOYMENT RATES, HONOLULU AND KAILUA,
1980 - 1990

<u>Year</u>	<u>Honolulu</u>	<u>Kailua</u>
1980	4.6%	4.9%
1990	2.5%	2.6%

SOURCE: U.S. Census Bureau, 1980 CENSUS OF POPULATION AND HOUSING; State Department of Labor and Industrial Relations, unpublished estimates, 1991.

TABLE 2-K: LABOR FORCE CONDITIONS OF HONOLULU COUNTY AND STUDY AREA, 1980

	CITY AND COUNTY OF HONOLULU	TOTAL STUDY AREA (1)	PRIMARY STUDY AREA (2)	PRIMARY STUDY AREA COMPONENTS		
				CENSUS TRACT 109.03	CENSUS TRACT 109.05	BLOCK GROUP ONE OF 111.01
POTENTIAL LABOR FORCE (Aged 16+)	574,903	30,641	7,362	3,086	1,932	2,344
Not in labor force	30.8%	32.0%	34.3%	37.8%	37.6%	26.9%
Armed forces	10.1%	3.1%	6.2%	5.8%	2.9%	9.6%
Civill. labor force	59.1%	65.0%	59.5%	56.4%	59.5%	63.5%
CIVILIAN LABOR FORCE	339,863	19,904	4,379	1,741	1,149	1,489
Unemployed	4.6%	4.1%	6.1%	5.1%	6.4%	7.1%
TOTAL EMPLOYED, CIVILIAN LABOR FORCE	324,113	19,090	4,113	1,653	1,076	1,384
OCCUPATION						
Service	17.6%	13.4%	18.3%	21.2%	16.6%	16.2%
Manage./profes. Technical, sales & adminis.	24.7%	32.1%	22.1%	15.5%	19.4%	31.9%
Farm/fish/forest	33.8%	34.5%	32.5%	34.5%	28.1%	33.5%
Precision/craft/repair	1.8%	1.1%	1.4%	1.1%	3.1%	0.6%
Operators/fabricators/laborers	11.3%	10.4%	13.6%	13.6%	17.9%	10.2%
	10.9%	8.6%	12.2%	14.2%	14.9%	7.6%
SELECTED INDUSTRY						
Agric., forest, fish, mining	1.7%	1.4%	2.3%	2.2%	3.2%	1.7%
Construction	6.6%	7.7%	9.5%	10.0%	10.7%	8.0%
Manufacturing	7.7%	6.2%	7.8%	7.1%	9.3%	7.4%
Retail trade	20.5%	16.3%	17.5%	17.4%	16.4%	18.6%
Financial, insur., real estate	8.1%	10.1%	7.6%	9.0%	9.0%	4.9%
Personal, entertain. & recreat. services	8.1%	6.0%	8.5%	9.6%	10.4%	5.7%
Health, educ. & professional	18.5%	20.4%	16.7%	14.2%	17.2%	19.3%
Public admin.	10.9%	10.8%	9.9%	12.3%	7.2%	9.1%
COMMUTE TO WORK						
45 minutes or more	13.4%	N/A	18.3%	19.4%	13.8%	20.4%
Mean travel (mins.)	22.6	N/A	N/A	24.6	24.8	27.6

NOTES: All figures based on 15 percent sample; hence, numbers represent estimates.

(1) Includes Census Tracts 109.01, 109.03, 109.04, 109.05, 110, 111.01, 111.03, 111.04, 112.01, and 112.02.

(2) Includes Census Tracts 109.03 and 109.05, and Block Group 1 of Tract 111.01.

"N/A" Not Available.

SOURCES: U.S. Bureau of the Census, 1981a, 1981b.

There are significant differences in industrial patterns within the Primary Study Area. (See Table 2-K.) A comparison of Census Tract 109.03 and Block Group 1 of 111.01 reveals vast differences, especially in the construction, financial, and professional industry classifications.

2.3 LIFESTYLE AND VALUES

CRI conducted interviews primarily to discover perceptions, issues, and concerns surrounding the Project. (See Chapter 5 below.) However, we also asked our "key informants" to tell us about perceived community values and lifestyle.

When asked to describe what makes Kailua different from other communities, key informants commonly responded that Kailua's slow pace, strong sense of community, low crime rate, and beautiful beaches and mountains make Kailua unique. Respondents also described Kailua as a friendly bedroom community whose residents express concern for each other.

Most key informants agreed that many residents are highly interested in preserving Kailua's special qualities. Kailua has a history of resisting changes which are viewed as threats to its lifestyle. Concern for damage to the environment is often a theme of community opposition. Development at Mount Olomana and damage to the ocean, streams, and Kawainui Marsh were mentioned by interviewees.

Some key informants believe residents often overreact to new development and other changes. Other key informants feel this cautious attitude has protected Kailua from detrimental change.

Longtime residents interviewed noted the community has changed considerably during the past 10 years. The Kailua of the past is described as an affordable family oriented beach community where many families had second homes. Today, Kailua is a bedroom community to Honolulu; housing prices are higher; and military personnel are a larger part of the population. Longtime residents have noticed that Kailua has lost some of its small town character due to growth.

Despite these changes, most key informants believe that Kailua will not change much in the next 10 years. Some of the informants would like to see improvements to the appearance of Kailua through the landscaping and upgrading of commercial areas. Several key informants stated that Kailua suffers from a lack of planning, and that an urban plan is needed.

2.4 ISSUES AND CONCERNS INDEPENDENT OF THE PROJECT

CRI researchers reviewed files, minutes, and media reports, and conducted 38 interviews with key community informants in order to understand and summarize major issues and concerns facing Kailua which would arise whether or not the Project was built.

The essence of what our research uncovered is summarized below in two sections covering findings from our survey of Kailua Neighborhood Board meetings minutes and our interviews with representatives of community organizations, senior citizen groups, elderly housing, and businesses. (See Appendix A for a listing of all interviews conducted for this study.)

These descriptions and listings of issues and concerns provide a context for later discussions of impacts and concerns directly related to the Project. In particular, it should be noted that both our research of Neighborhood Board discussions and our key informant interviews underscored the importance and frequency of discussion of land use development, traffic, design and environment, and business prosperity and development in the Kailua community. Each of these concerns is clearly impacted by the Project, and Project impacts and mitigations related to these community concerns are presented in Chapters 4 and 5.

2.4.1 Issues Raised in Neighborhood Board Meetings

Kailua Neighborhood Board (No. 31) minutes were reviewed for the period of November 1988 through November 1990 to identify major issues and concerns of Kailua residents. Neighborhood Boards provide an important public forum through which residents have the opportunity to express their concerns for their community. Board members are elected by fellow residents and serve as community liaisons to the City and County of Honolulu. During the period reviewed, 32 residents served on the Board.

Topics discussed by the Neighborhood Board, roughly in their order of frequency of discussion, included:

(Most Frequently)

- o Land Use and Development,
- o The Environment,
- o Traffic,

(Somewhat Frequently)

- o Public Safety,
- o Crime,

(Less Frequently)

- o Health,
- o Infrastructure,
- o Government, and
- o Public Access to Beaches.

Each of these topics is summarized below.

Land Use and Development was the most frequently discussed topic. Residents expressed strong concern for the impacts of proposed and on-going development projects.

- o **Parking Impacts:** The need for a park-and-ride facility to reduce competition for parking in Kailua received frequent discussion.

Residents raised concerns about the relocation of a pre-school to Kailua Beach Center because employees of the school would park on-site and reduce the number of available parking spaces.

- o **Impacts on Urban Design:** Residents often made comments about development projects they believed were incompatible with Kailua's existing development.

At another meeting, residents expressed the fear that transient vacation rentals would turn Kailua into another Waikiki.

The Board approved a proposal to impose civil fines for building violations and another supporting Board review of liquor license applications.

- o **Traffic Impacts:** The proposal for a shopping center at Kuulei Road and Kainalu Road and the proposed relocation of a pre-school to Kailua Beach Center caused residents to be concerned that existing traffic congestion would increase. Concern for the safety of children who frequent the area was also mentioned.

The need for a park-and-ride facility to reduce competition for parking in Kailua received frequent discussion.

- o **Environmental Impacts:** The construction of a home on Mount Olomana and the proposal to expand the Women's Community Corrections Center at Mount Olomana were important issues. As a result of these discussions, the Board voted in favor of the Save Olomana Association proposal that laws be enacted to better protect and restore Mount Olomana.

The issue of seawalls and their impact on beaches arose when a property owner requested the Board's approval of a special management application to rebuild a moss rock wall at Kailua Beach Park. The Board's disapproval was based on the conclusion that seawalls cause sand to wash away from the shore and prevent the formation of beaches.

The Environment was a significant concern, and ways to prevent further damage to the environment were often discussed.

- o **Kailua Wetlands:** Damage to Kawainui Marsh and various streams and lakes by sewage spills, the spraying of herbicides, and the alteration of land features were discussed. The responsible party was often identified and asked to correct the situation.

Sewage spills have been a recurring problem because sewage plant facilities have been unable to handle current demand. The Board recommended the adoption of a moratorium to stop new sewage connections until facilities are upgraded.

- o **Litter and Recycling:** Community interest in cleaning up litter and recycling was high. Clean up efforts at Kapaa Quarry Road were organized, a recycling pilot program established, and public collection bins made available.

Traffic problems identified included:

- o speeding,
- o a lack of parking, and
- o the need for a park-and-ride facility.

Efforts to establish contra flow lanes on the Pali Highway received the Board's support.

Public Safety issues included:

- o flooding from Kawainui Marsh,
- o flooding at Lanikai, and
- o fire hazards.

Residents expressed an urgent need for a water level sensor and flood warning system for Kawainui Marsh. It was also mentioned that drainage and clearance of the marsh is needed. Flooding at Lanikai was also discussed.

Fire hazards caused by gas fumes from a gas station and from businesses that clutter sidewalks and stairwells with trash were also discussed.

Crime issues focused on:

- o burglaries,
- o youth gangs and loitering problems,
- o vandalism and graffiti, and
- o police patrols and slow response time.

Health issues discussed included concerns about the air pollution from the sewage plant, and problems with unsanitary conditions on private lots.

The primary Governmental Issue raised involved the question of Limited County Home Rule which would move current State functions to the counties.

Beach Access/Beach Use discussions included:

- o maintaining traditional access routes,
- o regulating conflicting uses, and
- o improving beach facilities and amenities.

2.4.2 Issues Raised in Community Interviews

Community interviews for this study included a number of questions about issues and concerns in Kailua which are independent of (although potentially related to) the proposed elderly housing project.

Responses by CRI's community informants were often similar to those recorded in Kailua Neighborhood Board meeting minutes and reported in the preceding section. (In many cases, our informants had participated in many of the Neighborhood Board meetings.) The emphasis and frequency of mention of issues and concerns was slightly different from that recorded for the Board.

However, this may reflect the nature of the issues appearing before the Board, and CRI's invitation to community key informants to give a broad overview of Kailua's major opportunities and issues.

Key informants indicated that following are significant issues and concerns in Kailua:

- o Traffic,
- o Housing,
- o Business Prosperity and Development,
- o Land Use and Development,

- o Environment,
- o Recreation,
- o Health Care,
- o Education, and
- o Crime.

Each of these topics is summarized below.

Traffic in downtown Kailua and from Kailua to Honolulu during commuter hours is an important concern to most of the persons interviewed. Specific traffic issues raised include:

- o volume of traffic,
- o speeding,
- o congestion downtown and at Waimanalo and Castle Junctions at rush hour,
- o need for more traffic lights, especially at the intersection of Kuulei and Aulike,
- o need for a park and ride facility,
- o problems with tour buses driving through Kailua's narrow streets, and
- o lack of parking.

Housing in Kailua and islandwide is an increasing concern for key informants. Housing issues included concern about the:

- o cost of housing, especially near the beach,
- o need for affordable housing, and
- o need for elderly housing to accommodate Kailua's growing elderly population.

Business Prosperity and Development concerns raised included perceptions that:

- o area businesses are hurting because the military deployment to the Gulf has taken away many customers and some workers,
- o the appearance of some downtown business places is shabby,
- o downtown Kailua businesses are not responsive to buyers needs -- too many service businesses and not enough merchandise businesses,
- o there is a rapid turnover of small businesses in Kailua,
- o there is a need for a pedestrian oriented shopping center,
- o the proximity of industrial and retail businesses to each other is detrimental, and
- o parking and access to businesses is inadequate.

Land Use and Development issues were frequently addressed by key informants. The lifestyle of Kailua has largely dictated the reaction to development and land use. There seems to be a general unwillingness for change; however, some informants saw the need for change.

Land use and development issues included perceptions about:

- o the lack of comprehensive planning,
- o the need for renovations to downtown Kailua,
- o implementation of the Urban Design Plan (many like the ideas suggested but are skeptical about the realization of such a plan [See discussion of the Plan above in Section 2.1.2]),
- o the deteriorating quality of buildings over the years -- both business and residential,
- o poor planning and wasted space,
- o the desire to keep Kailua's present character,
- o the impact of the Kaneohe Ranch Kailua Gateway Project,
- o Kawainui Marsh development,
- o the future of Camp Kailua,
- o development near Mount Olomana,
- o simultaneous development projects' compatibility with one another and with existing surroundings, and
- o parking impacts.

Environmental issues and concerns include:

- o windward sewage in Kailua Bay,
- o lack of tertiary sewage treatment plant,
- o drinking water being used to irrigate golf course
- o seawalls in Lanikai, and
- o stream and seawater quality.

Recreational issues include:

- o need for more and better kept parks,
- o more bikeways,
- o desire for a performing arts center,
- o access to Kailua Beach Park, and
- o access to public hiking trails.

Health Care issues included the need for elder day care and affordable nursing care.

Generally the public Education system in Kailua was spoken of favorably. There is a desire by some key informants to have a private high school on the windward side of the island.

Although, as was noted above in Section 2.3, most informants felt Kailua had a low crime rate, some key informants did indicate that Kailua has a problem with Crime. Crimes most often mentioned were burglaries and vandalism. Informants were concerned, in some cases, with the emergence of new types of criminal activity such as gangs, or in other cases, with the continued existence of problem areas where criminal activity was most likely to occur in Kailua.

3.0 FORCES FOR CHANGE INDEPENDENT OF THE PROJECT

This chapter presents an overview of the land use, population, economic, and employment trends that are likely to affect Kailua in the near future. A brief summary is also provided of significant planned and proposed residential, commercial, and infrastructure projects for Kailua.

These trends and developmental projects will create the future environment within which the Kailua Elderly Housing Project will be developed and operated. They will also influence the possible responses and opportunities for the owners of businesses and properties surrounding the Project.

The future Kailua is likely to continue to be a low-rise suburban commuter community with slower population growth than the island as a whole. Commercial development opportunities will depend, as a result, on income growth more than population growth and success in capturing a larger portion of local resident's spending on goods and services. Redevelopment of downtown Kailua properties is likely to continue as centrally located and developable vacant urban land becomes increasingly scarce.

3.1 LAND USE AND POPULATION TRENDS

By the year 2000, it is estimated Oahu's population will grow to 932,800 (an annual rate of growth of 1.1 percent from the 1990 Census population count of 836,231). Oahu's population is expected to reach 999,500 by the Year 2010. [Department of Business and Economic Development, Population and Economic Projections for the State of Hawaii to 2010 (Series M-K). Honolulu, Hawaii (November, 1988).] Compared to the Neighbor Islands, Oahu's population is growing at a slower rate.

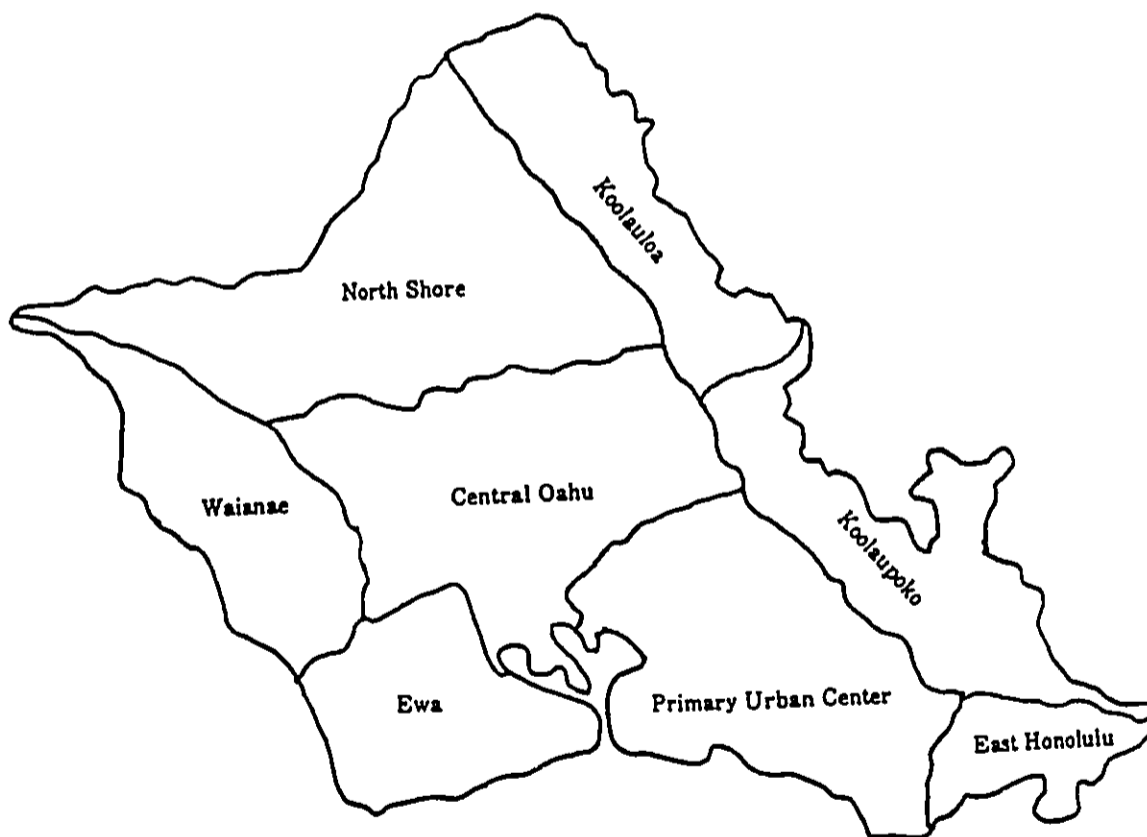
Target population levels are set for different parts of Oahu in the City and County of Honolulu's General Plan. (See Table 3-A.) The Total Study Area is located in the Koolaupoko Development Plan Area. As amended by the City Council on January 19, 1989, the General Plan recommends a decrease in Koolaupoko's share of total island population. The General Plan calls for the population of Koolaupoko to be 11.0 to 12.2 percent of Oahu's population at the Year 2010. In 1989, approximately 14 percent of Oahu's population lived in Koolaupoko. (City and County of Honolulu, General Plan: Objectives and Policies, Supplement 1 to the 1988 Edition, 1989.)

TABLE 3-A: TARGET POPULATION LEVELS FOR OAHU DEVELOPMENT PLAN AREAS

Location	1980		2010		2010	
	Resident Population	Pct. of Total	Target Pct. of Total	Pct. of Total	Projected Range of Resident Population (1)	
Primary Urban Center	417,240	54.7%	45.1% - 49.8%		450,800 - 497,800	
Ewa	35,523	4.7%	12.0% - 13.3%		119,900 - 132,900	
Central Oahu	101,685	13.3%	14.9% - 16.5%		148,900 - 164,900	
East Honolulu	43,213	5.7%	5.3% - 5.8%		53,000 - 58,000	
Koolaupoko	109,373	14.3%	11.0% - 12.2%		109,900 - 121,900	
Koolauloa	10,983	1.4%	1.3% - 1.4%		13,000 - 14,000	
North Shore	13,061	1.7%	1.6% - 1.8%		16,000 - 18,000	
Waianae	31,487	4.1%	3.8% - 4.2%		38,000 - 42,000	
Oahu Total	762,565	100.0%	95.0% - 105.0%		949,500 - 1,049,500	

(1) Population ranges based on target percentages specified in the General Plan and the State Department of Business and Economic Development Series M-K population projection of 999,500 for the year 2010.

SOURCE: City and County of Honolulu, GENERAL PLAN: OBJECTIVES AND POLICIES, Supplement 1 to the 1988 Edition, Honolulu, 1989.



According to the Koolaupoko Development Plan, Kailua and Kaneohe are to remain primarily single-family bedroom communities with regional commercial and industrial centers. Waimanalo and Kahaluu-Kualoa communities will be characterized by low-density residential development and diversified agricultural activity. For all of the Koolaupoko area, low rise development and open space are important goals of the Development Plan. (City and County of Honolulu, Development Plan Status Review, 1990.)

Presently in downtown Kailua, commercial expansion has been occurring along Hamakua Drive. Nearer to the Project site, individual property owners and businesses have been renovating and redeveloping properties. Examples are the recent renovation and expansion of the Kailua Medical Arts Building and construction of office buildings.

Such redevelopment and renovation is not typical of the areas on the Waimanalo side of Kuulei, where the imminent expiration of leases from Kaneohe Ranch does not allow recovery of such improvements.

3.2 ECONOMIC AND EMPLOYMENT TRENDS

Industry and occupation forecasts for Oahu by the State Department of Business and Economic Development (DBED) and the State Department of Labor and Industrial Relations (DLIR) show the continued predominance of tourism as the major generator of new jobs and income for Oahu, with support from construction and Federal government spending. Agricultural jobs are less than one percent of all jobs on Oahu. (See Table 3-B.)

Unless target population levels for the Koolaupoko development plan area increase, economic development related to population growth will be limited. A major impetus from Kaneohe Marine Corps Air Station is also unlikely, given the winding down of the Cold War and proposed shrinkage of the military. However, such proposals for reduction were made prior to the Gulf War and the recent counter-reform efforts in the Soviet Union.

Proposed developments, such as Kaneohe Ranch's Gateway Project, and the possible redevelopment of their commercial lands into a shopping center when current leases expire, may create new employment centers for Kailua.

Most residents are employed outside of the area, and local businesses have to compete for their business with Honolulu merchants.

TABLE 3-B: PROJECTIONS OF OAHU CIVILIAN JOBS BY INDUSTRY, 1985 - 2010

Jobs	1985 (1)		1989 (1)		2010 (2)	
	Total	Pct. of Total	Total	Pct. of Total	Total	Pct. of Total
Civilian jobs	369.7	100.0%	421.6	100.0%	511.2	100.0%
Wage and salary jobs	345.1	93.3%	397.9	94.4%	473.4	92.6%
Agriculture	2.7	0.7%	2.3	0.5%	2.9	0.6%
Manufacturing	15.9	4.3%	16.1	3.8%	17.8	3.5%
Construction	14.1	3.8%	22.5	5.3%	20.3	4.0%
Transp., com., util.	27.1	7.3%	32.7	7.7%	33.1	6.5%
Trade	91.9	24.9%	102.1	24.2%	128.9	25.2%
Eating & drinking	31.7	8.6%	NA	NA	42.2	8.3%
Banking & finance	27.0	7.3%	28.7	6.8%	34.8	6.8%
Services	87.3	23.6%	109.0	25.8%	146.7	28.7%
Hotels	16.1	4.4%	18.7	4.4%	19.0	3.7%
Other services	71.2	19.3%	90.3	21.4%	127.7	25.0%
Government	79.0	21.4%	84.8	20.1%	89.0	17.4%
State/local	48.0	13.0%	52.5	12.5%	56.1	11.0%
Federal	31.2	8.4%	32.4	7.7%	32.9	6.4%
Self-employed	24.8	6.7%	23.7	5.6%	37.7	7.4%

- (1) Department of Labor and Industrial Relations estimates.
(2) Department of Business and Economic Development projections.

SOURCE: Department of Business and Economic Development, Population and Economic Projections for the State of Hawaii to 2010 (Series M-K). Honolulu, Hawaii (November 1988). Department of Labor and Industrial Relations, Labor Force Data Book (March 1978), as revised annually through April 1990.

An example of the extent of this competition is Castle Hospital's estimate that almost half of Windward residents seek medical attention in Honolulu. Capture of a larger share of the local resident's patronage could increase employment in Kailua.

The area around the Project site is fee simple, and commercial rents are somewhat lower than in other commercial areas of Kailua. This is due to being somewhat out of the major traffic flows and also to having an image of being somewhat "on the wrong side of the tracks."

The area is characterized by small, undercapitalized "Mom and Pop" operations sensitive to cost increases or sales decreases. Turnover is frequent with such tenants.

3.3 PLANNED AND PROPOSED NEW RESIDENTIAL DEVELOPMENTS

As part of its proposed Kailua Gateway Project, Kaneohe Ranch plans to build townhomes and a retirement community. A portion of the residential units would be affordable housing. The project would also include a community center and a daycare center (personal communication, Randy Moore, Chief Executive Officer, Kaneohe Ranch, January 28, 1991).

The proposed project site is 22 acres of a total 97-acre Kaneohe Ranch property. Approximately 20 to 30 acres of the total property are wetlands and would be given to the State after a group called Ducks Unlimited completes environmental restoration.

3.4 PLANNED AND PROPOSED COMMERCIAL DEVELOPMENTS

Redevelopment of the Kailua Medical Arts Building, adjacent to the Project site, has been partially completed. A portion of the building has been replaced with a new structure, and other portions will be replaced in the future.

Owners of other properties in the area, including Kaneohe Ranch which owns a large part of Downtown Kailua, are also thought to have redevelopment plans which have not yet been made public.

3.5 PLANNED AND PROPOSED INFRASTRUCTURE IMPROVEMENTS

Transportation. Construction of the H-3 freeway is the largest infrastructure improvement project currently impacting Kailua. At present, the section of H-3 from Kaneohe Marine Corps Air Station to Halekoa Interchange at Kamehameha Highway is open to traffic, and construction is underway on the

trans-Koolau portion. When completed, the freeway will cross the Koolau Range at Haiku Valley and end at Halawa Interchange on the Leeward side of Oahu.

Possible sites for a Kailua park-and-ride facility are being negotiated (personal communication, Pierson Koike, Civil Engineer, City and County of Honolulu Department of Transportation Services, February 7, 1991). It is estimated the facility will be built in the next six years (City and County Department of General Planning, Development Plan Status Review, 1990).

Police Facilities. Plans to modify the Kailua Police Substation are currently in the design stage. Construction is expected to start at the end of 1991. Modifications will include central air conditioning, improved building security, and additional office space (personal communication, Clifford Morikawa, Engineer, City and County of Honolulu Department of Building, February 7, 1991).

Flood Control: Waterways of Kawainui Marsh are being cleared to prevent flooding of the Coconut Grove area and will be completed by the end of 1991. The Army Corps of Engineers also has plans to implement flood control measures at the Marsh and are in the process of producing an environmental impact statement (personal communication, Lavern Higa, Project Engineer, City and County of Honolulu Department of Public Works, Division of Engineering, February 7, 1991).

Flood control improvements are also being made to Lanikai. Drainage improvements have been made to the Mokulua area and design approvals are being pursued for channel improvements (personal communication, Melvin Takakura, Engineer, City and County of Honolulu Department of Public Works, Division of Engineering, Drainage Section, February 7, 1991).

Wastewater Management: The Kailua Wastewater Treatment Plant is being expanded to serve the area from Kahaluu to Kailua. The expansion will be complete in 1993 (personal communication, J. Hamai, Civil Engineer, City and County of Honolulu Department of Public Works, Wastewater Management Division, February 7, 1991).

Recreation Facilities: The construction of a multi-purpose building at Kailua field is near completion. The facility will be used primarily for senior citizen activities.

Land is presently being acquired for the expansion of Kailua Beach Park (personal communication, City and County of Honolulu Department of Parks and Recreation, February 7, 1991).

4.0 PROJECT SOCIAL AND ECONOMIC IMPACTS

This chapter presents CRI's analysis of both the probable economic and social impacts resulting from the Project. In addition, existing design and operation features which respond to community issues and concerns are described.

Economic impacts identified and analyzed included impacts on:

- o Employment and Business Opportunity,
- o Income,
- o Property and Business Values, and
- o Availability of Goods and Services.

Social impacts identified and analyzed included impacts on:

- o Population and Demographic Patterns,
- o Neighborhood Use Patterns,
- o Housing Conditions,
- o Quality of Life, and
- o Distribution of Adverse Impacts and Benefits.

4.1 ECONOMIC IMPACTS

This section presents the economic impacts likely as a result of the Project. A summary of the economic impacts is followed by a more extensive discussion of each impact area.

4.1.1 Summary of Economic Impacts

The major impacts identified by CRI are as follows:

- o **Employment and Business Opportunity.** Impacts are divided between those on-site at the Project and off-site at surrounding businesses.

-- **Impact.** The Project will provide employment for the equivalent of an estimated 65 Full-Time Equivalent (FTE) jobs per year during construction. Most of these jobs will be on-site. After completion, employment on-site might be as many as eight FTE positions.

-- Impact. Surrounding businesses, especially those fronting on the current parking lot, are likely to experience some adverse impacts during construction.

The severity of the impact and its impact on employment and business survival will vary depending on the business's location, competitive environment, financial resources, and business condition.

-- Impact. After Project completion, business opportunities will be increased for those businesses which can respond to needs of the elderly and their guests or take advantage of the proximity to the landscaped plaza in front of the Project. Other businesses may find their sales reduced if the parking is inconvenient to use or drop off/pick up activities are impeded.

o Income. Impacts can be analyzed at the State, County, and local level and during construction and after Project completion.

-- Impact. The Project will not increase personal and business income for either the State or the island of Oahu, either during construction or operation. If the Project was not built, the funds would be expended elsewhere on Oahu.

-- Impact. Some minor increase in income for Kailua is possible during the construction period due to the presence of construction workers who would have otherwise spent their money elsewhere.

-- Impact. Impacts after Project completion depend on the extent to which surrounding businesses are able to adapt successfully to construction conditions and then take advantage of subsequent opportunities.

o Property and Business Values. The risk of adverse impacts on wealth is greater for business owners than property owners.

-- Impact. Property owners are unlikely to suffer major diminishment in property values in the long run as a result of the Project's construction, but may have some temporary diminishment during the construction period.

- Impact. Business values could be affected both positively and negatively in the long run, depending on ability to respond to new marketing opportunities or retain their existing customer base.
- o Availability of Goods and Services. Impacts can be analyzed during construction and after Project completion.
 - Impact. Construction, even with the mitigations of the Interim Parking Plan, will cause some inconvenience and reduction in access to surrounding businesses and offices.
 - Impact. After Project completion, availability of affordable housing for elderly and handicapped families and individuals will be increased, and parking closely equivalent to that currently provided will be restored.

Some firms, now providing goods and services, may not survive. However, a high turnover of small businesses is typical for this area, and new businesses more suited for the sites are likely to take their places.

Each of these impact areas is discussed in greater detail below.

4.1.2 Employment and Business Opportunity

On-site Employment. The current budget cost for construction of the project, including planning and engineering is \$11.7 million. Based on 1990 construction cost per labor estimates, the Project will provide estimated annual average Full-Time Equivalent (FTE) employment of 65 jobs during construction. (See Table 4-A.) Most of these jobs are likely to be located on-site. Actual number of workers on site will vary in response to the demands of construction.

After Project completion, employment on site might be as many as eight FTE positions. On-site employment might include a part-time supervisor, one maintenance worker, a laborer assistant, a site manager for the meal facility, and security personnel.

Construction Impact on Study Area Business. Businesses located on the Project site block, especially those fronting on the current parking lot, are likely to experience some adverse impacts during construction, even if the best possible mitigations were used. The inevitable changes in traffic patterns and parking availability may cause some customers to avoid visiting the businesses, delay visits, or patronize competitors. Even in cases where no competitor is located within Kailua or the Windward area (as is the case with some of the medical services), customers may postpone or fail to make visits.

Assessing the exact amount of impacts is difficult, if not impossible. The severity of the impact and its impact on employment and business survival will vary depending on each business's location, competitive environment, financial resources, and business condition.

Without in-depth of study of each business's situation, an aggregate quantitative assessment is not possible. Even with access to such records, other analysts have found it difficult to distinguish between changes in sales due to access difficulties and those due to the normal fluctuations of business conditions (personal communication with Jerrold Guben, attorney for Nimitz Highway businesses which sued the State for damages due to losses resulting from construction, February 1991).

However, it is more important to identify potential impacts, assess their potential severity and likelihood, and determine how best to respond to the risks than it is to attempt to precisely predict the exact size of the impacts. Accordingly, it seems likely that construction will cause some adverse impacts on sales and revenues even though it may be difficult to measure to what extent. The key question is how to control these adverse impacts and reduce the risks for the businesses.

[] **Interim Parking Plan.** The interim parking plan's design and operation could help control adverse impacts and reduce risks for surrounding businesses. The most recent design for the Interim Parking Plan which CRI has reviewed (Feb. 1, 1991) includes elements which may meet many of the concerns expressed by business owners surrounding the Project site. Those concerns included adequacy and location of parking for customers and of loading zones for deliveries to businesses.

TABLE 4-A: ESTIMATED PROJECT EMPLOYMENT

During Construction	Estimates
-----	-----
Construction Cost for 16 months (including Planning and Engineering) (1)	\$11,700,000
	x 12/16
Annual Average Cost of Construction (12/16 of Total Cost)	----- \$8,775,000 /year
Annual Average Construction Cost Per Job (1990 Annual Average) (2)	divided by \$135,030 /job-year

Estimated Annual Average Full Time Equivalent (FTE) Project Jobs	65 jobs
During Operations (3)	

Project Management & Maintenance	
Supervisor	1/4 FTE jobs
Maintenance Person	1
Laborer	1
Congregate Meals Program	
Site Manager	1
Project Security	4-5

Total	7-8 FTE jobs

(1) Department of Housing and Community Development Memorandum to Chief, Housing Development Division, from Chief, Planning and Analysis Division on Kailua Elderly Housing Project Transfer to Housing Development Division, July 27, 1990.

(2) Based on State Department of Taxation General Excise Tax Base for Contracting totals for 1990 of \$4,003,650,000 and State Department of Labor and Industrial Relations estimated annual average contract construction jobcount for 1990 of 29,650 jobs.

(3) Based on staffing patterns in comparable Hawaii Housing Authority projects and Lanikila Meals Facilities programs.

Parking

- o The latest revision includes 36 stalls (33 parking stalls and three loading stalls) to be located in the existing parking lot on the Aulike Street side near Someplace Else and Pizza Hut. (See Figure 4-A.)
- o Parking to meet needs caused by construction includes:

24-Hour Replacement Parking

On-site parking	33 stalls
Maluniu Street lot	21
Parks Department lot (by State Library)	<u>20</u>
Total	74 stalls

Additional Evening, Weekend, and Bank Holiday Parking

Bank of Hawaii	16 stalls
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New Metered Parking

Maluniu Street	22 stalls
Aulike Street	18
Kuulei Road	30
Uluniu Street	<u>70</u>
Total	140 stalls

- o At present, 146 stalls in the existing lot would be affected by the construction. As shown above, the Interim Plan would provide for 74 replacement stalls on a 24-hour basis and an additional 16 stalls during evening, weekend, and bank holiday hours.
- o The Department of Transportation Services (DTS) measured the daytime use of the Project site parking lot in February 1989, and found that between 40% and 60% of the stalls were occupied, indicating a typical daytime demand for between 60 and 90 parking stalls.

- o In the same survey, DTS surveyed the daytime use of the 148 parking stalls in the Municipal lot between Aulike and Maluniu Streets, and found that between 60% and 85% of the stalls were occupied. As a result, an estimated 20 to 60 vacant stalls should be available to help with parking needs.
- o In addition, the Plan provides for metering 140 existing stalls on surrounding streets, which should promote greater turnover and deter use by park-and-ride drivers.
- o Other parking mitigation features include the provision of 22 free parking stalls for construction workers at two sites, and the possible addition of another 50 parking stalls at several other sites "for use during emergency periods." (DHCD, Kailua Interim Parking Plan, Revised January 5, 1991.)

Loading Zones

- o The most recent Interim Parking Plan calls for creation of nine loading zones. The three on-site freight and passenger loading zones should allow fairly convenient delivery of supplies, drop-off/pick-up of medical patients, and loading and unloading of equipment needing repairs.
- o In addition, the three passenger loading zones in front of the Medical Arts Building offer another drop off/pick up area for medical patients, while freight loading zones on Uluniu, Aulike, and Kuulei may serve some businesses better than the on-site zones.
- o The freight and passenger loading zones provided include:

Freight/passenger loading stalls	
(on-site on the Aulike Street side	
near Pizza Hut and	
Someplace Else)	3
Passenger loading zones	3
Freight loading zone on Uluniu	
in front of Kailua Square	1
Freight loading zone on Aulike	
near Uluniu	1
Freight loading zone on Kuulei	
in front of Hungry Ear Records	<u>1</u>
	9

Specific locations of parking areas and loading zones are shown in Figure 1-B. The Interim Parking Plan is also included as an appendix to the Environmental Impact Statement.

To insure that the Interim Parking Plan does meet its desired objectives and to deal with any emergency parking problems that might arise, DHCD could, at a minimum, designate a contact person to field complaints and resolve problems.

The Interim Parking Plan seems a reasonable, good faith effort to find ways of relieving the parking and loading needs of surrounding businesses during the construction period. However, no plan is perfect. Providing a person for local residents and business owners to contact if problems arise could help monitor parking usage and indicate if changes are needed.

[] Christmas Season Impacts. The Christmas season is very important to the success of most retail operations. With an estimated 16-month construction period, it is possible to impact two Christmas seasons if construction begins after September. If the construction completion were delayed by unforeseen causes, a start before September would be necessary to insure completion before the second Christmas season was affected.

Operations Impact on Study Area Businesses. After Project completion, business opportunities will be increased for those businesses which can respond to needs of the elderly and their guests or take advantage of the proximity to the landscaped plaza in front of the Project.

Other businesses may find their sales reduced if the parking is inconvenient to use or drop off/pick up activities are impeded.

CRI has reviewed the most recent design of the Project (February 22, 1991) for its impacts on patronage of surrounding businesses and offices. (See Figures 4-B and 4-C.) The community key informants interviewed by CRI (See discussion in Chapter 5) were particularly concerned with the access:

- o for patients visiting the Medical Arts Building,
- o for customers visiting surrounding businesses, especially those visiting the ten firms who front on the existing parking lot, and
- o for deliveries to the firms who front on the existing parking lot.

DHCD and AM Partners have made an effort to respond to these and other concerns which emerged in the course of Project planning, various community meetings, Neighborhood Board review, and this social and economic impact assessment. Design changes have been made, and refinements are continuing. The impact of the most current design on key informants' concerns is discussed below.

Impacts on Patients' Usage

After the Project is completed, patients visiting the Medical Arts Building will have several choices:

- o They could be dropped off and picked up in the passenger loading circle in front of the Project (they would then cross the driveway, and travel along the sidewalk to the entrance of the Medical Arts Building);
- o They could be dropped off and picked up in the passenger loading zones directly in front of the Medical Arts Building on Uluniu Street;
- o If handicapped and driving a car with a handicapped sticker, they could park in one of three handicapped parking stalls across from the passenger loading circle in front of the Project;
- o They could park in one of the 39 public stalls located on the ground floor of the Project, exit either by the main parking entrance or at the Oneawa - Uluniu corner of the building, and travel along the surrounding sidewalk to the Medical Arts Building (both exits are accessible to the mobility-handicapped); and
- o They could park in one of the 105 public stalls located in the basement of the Project, exit either by stairs located in all four corners of the basement or by ramps located in the Uluniu - Aulike and the Oneawa - Kuulei corners, and travel along the surrounding sidewalk to the Medical Arts Building.

The access provided to patients will be somewhat less convenient than that now provided from the existing parking lot. Patients may not be able to park as close to the Medical Arts Building as they now can. In addition, 70% of the Project's stalls require use of the stairs or ramps from the basement, in contrast to the ground level access provided by the existing lot.

Residents of the Project who are patients at the Medical Arts Building would follow routes similar to patients using either the ground floor parking or the passenger loading circle in front of the Project. If they exited from the front of the Project, they would cross the driveway and travel on the surrounding sidewalk to the Medical Arts Building. They could also go through the ground floor parking to the exit in the Oneawa - Uluniu corner and then by sidewalk to the Medical Arts Building.

Impacts on Customers' Usage

Customers using the Project would have choices similar to those described above for patients. They could use the passenger loading circle, they could park in the handicapped stalls in front of the Project if qualified, or they could park in the 39 ground floor stalls or the 105 basement level stalls.

As with the patients, the access provided customers will be somewhat less convenient than that now provided from the existing parking lot. In general, customers will not be able to walk directly to a store or office from their car, but will have to find the exit nearest the store or office and then proceed on the surrounding sidewalk to their destination.

At ground level, the customer parking is all on the Uluniu Street side. Customers of the businesses on the Kuulei Road side of the Project would have to park somewhat farther away from those stores than they do in the current lot where they can often park very near to the store fronts.

In the basement where most of the public parking will be located, customers will have to climb the stairs or ramps to reach the stores. Since the basement parking will not be open to the outside, customers may also become confused about which exit to take. Directional signs which give street orientation might help customers orient themselves.

Customers' ability to see the stores and offices facing the existing lot will be significantly limited by the presence of the Project building and the enclosed nature of much of the parking. As a result, awareness of the businesses and stimulation of impulse buying could be reduced.

DHCD has also indicated that the basement parking level may be closed at some point in the evening to reduce security risks. If this policy were implemented, only the 39 ground floor stalls and the three handicapped stalls in front of the Project would be available for late night parking in contrast to the 146 stalls available now in the existing lot. However, some on-street parking may be available at such hours.

In addition, some portions of the ground floor and basement parking may be inaccessible to vehicles with clearances higher than 6 1/2 feet. Clearances at most commercial garages on Oahu are restricted to only 6 1/2 feet, and many passenger vehicles and small vans can be accommodated with such heights. It is not clear what portion of existing users of the parking lot might exceed this height. Specifications for handicapped van access call for clearances of 9 1/2 feet, so handicapped van pickup and dropoff would probably have to occur in the loading circle in front of the Project.

Impacts on Delivery Access

In the most current design (February 22, 1991), two loading zones are provided. One zone is located in front of the Project (on the Aulike Street side) and a second zone is located on the Oneawa side of the project at the end of the current entrance from Oneawa Street.

This second zone on the Oneawa Street side should provide reasonable proximity for deliveries to the interior businesses and for pickup and drop-off of equipment for the repair shop located along the walkway to Kuulei Road.

4.1.3 Income

The Project's impact on income can be analyzed at four levels: the State, the island of Oahu, Kailua, and the individual establishment.

State and County. The Project's effect on personal and business income from the standpoint of the State and the island of Oahu will be neutral both during construction and operation. This is because if the Project wasn't built in Kailua, the money would be expended elsewhere on Oahu.

Kailua. Some minor increase in income for Kailua businesses is possible during the construction period due to the presence of construction workers who otherwise would have spent their money elsewhere on Oahu. This will be offset by any decrease in Kailua business income due to customers who either postpone visits or fail to purchase goods or services because of construction access and congestion problems.

After Project completion, the Project's residents will add to the customer base for Kailua businesses and increase potential revenues. This increase will be offset by any lost income caused if turnover and business failures are increased by the Project's impacts. Such an effect could be short-lived as new businesses more adapted to the new environment occupy vacant spaces.

Individual Establishment. The effects on individual establishments can be separated into those during construction and those after Project completion.

Construction

As was noted above in Section 4.1.2, it is difficult if not impossible to quantify the amount of income loss that surrounding businesses might experience during construction. DHCD appears to have made a good faith effort to create an Interim Parking Plan which provides roughly comparable customer access for businesses on the Project site block. However, even the best plan cannot exactly duplicate present conditions with the result that customers will not be able to follow their customary patterns of use, and some may stop patronizing the businesses or delay their visits.

Operations

Impacts after Project completion depends on the extent to which surrounding businesses are able to successfully adapt to construction conditions and take advantage of subsequent opportunities.

As is indicated by the record of business turnover in the area in recent years, some businesses might fail even without the Project. Those businesses which fail could be replaced by new businesses which find the new Project area environment compatible with their operations.

No clear assessment can be made as to whether, on balance, business income will be higher, the same, or lower after Project completion. The outcome depends on individual responses to the opportunities and risks created.

4.1.4 Property and Business Values

In this section, the Project's impact on the wealth of property owners and business owners is discussed.

Property Values. Discussion of property value impacts can be divided into analysis of property values for owners of property on the Project site block and those in the rest of the Primary Study area (downtown Kailua and immediately surrounding residential areas).

Owners of property on the Project site block are unlikely to suffer major diminishment of property values in the long run as a result of the Project's construction. Current tenants may be replaced by tenants more suited to the new environment, but

the block's central location and frontage on two of Kailua's busiest streets should insure continued appreciation in value.

In the short run, however, these property owners may suffer some temporary diminishment during the construction period as values might be difficult to realize either through tenant rentals or property sales. In the long run, revenue and redevelopment potential should be unchanged although the market orientation of any projects may be changed by the presence of the Project.

Property owners in the rest of the Primary Study Area should be unaffected, either positively or negatively, by the presence of the Project. The Project will not detract from the value of their properties, nor will it materially affect potential revenue flows or redevelopment potential of these areas.

Business Values. All surrounding businesses on the Project site block will probably suffer some temporary diminishment in business value during the construction period. Sale of any business while construction is occurring in close proximity is made more difficult because expected revenues are likely to be suppressed somewhat during the construction.

Business values will be affected both positively and negatively in the long run, depending on ability to respond to new marketing opportunities or retain existing customer base. Some businesses may suffer long-term reduction in value if customer patterns are permanently disrupted by the Project or if they are incompatible with the changed environment.

Some businesses on the block are not thriving under the current circumstances, especially with a weakening U.S. economy and the assignment of Kaneohe Marines to the Persian Gulf. Construction disruptions might mean failure for these businesses. Without access to individual business records and a case-by-case study, it is impossible to estimate how many businesses are at risk.

4.1.5 Availability of Goods and Services

Even with the mitigations of the Interim Parking Plan, construction will cause some inconvenience and reduction in access to surrounding businesses and offices. Such disruptions can be minimized but not eliminated totally.

After Project completion, availability of affordable housing for elderly and handicapped families and individuals will be increased by the provision of 50 units. According to DHCD, if the Project had been operating in 1990, low-moderate income families would have paid around \$450 for a studio and

\$500 to \$550 for a one-bedroom. Gap-group families would have paid \$500 to \$525 for a studio and \$575 to \$625 for a one-bedroom. (Ron Lim, DHCD Planner, Kailua Neighborhood Board Planning and Zoning Committee Meeting, July 17, 1990.) (See Section 4.2.2 for a definition of low-moderate income and gap group families.)

The supply of market priced units for elderly and handicapped families in Kailua will also be increased by the 34 market units in the Project.

Units in Kailua recently listed in the Honolulu Advertiser had rents between \$550 and \$600 for studios and \$600 and \$700 for one-bedroom apartments. New units should be able to command higher rents. Estimates of new unit market rental rates by brokers were \$700 to \$800 for a studio unit and \$800 to \$1,000 for a one-bedroom unit. (CRI interviews, January 1991.)

In addition, an equivalent number of parking stalls to the 146 in the current lot will be provided in two floors of the Project.

There may be some temporary disruption in the availability of goods or services now available on the Project block after the Project is completed. Some firms, now providing goods and services from the Project site block, may not survive or may relocate to other locations. However, a high turnover of small businesses is typical for the area, and new businesses more suited for the new environment are likely to take their places.

4.2 SOCIAL IMPACTS

This section presents the social impacts likely as a result of the Project. A summary of social impacts is followed by more extensive discussion of each impact area.

4.2.1 Summary of Social Impacts

The major impacts identified by CRI are as follows:

- o **Population and Demographic Changes.** The Project will increase the population of the Primary Study Area by providing 84 homes for an estimated 100 elderly and handicapped persons, many of whom will have low-moderate incomes.

-- **Impact.** In some elderly/handicapped housing projects developed under past programs with other guidelines than those now applying to the Project, inappropriate mixtures of elderly and non-elderly

handicapped residents have led to problems, mostly of the nuisance variety (e.g. late night noise or intoxicated behavior).

Priority guidelines, such as those used by U.S. Department of Housing and Urban Development projects, can insure that most if not all residents are either elderly handicapped or elderly residents. In addition, tenant screening for past problems and enforcement of lease agreements can avoid or remove problem tenants.

- o **Neighborhood Use Patterns.** The Project will change neighborhood use patterns, both during construction and after project completion.
 - **Impact.** During construction, existing uses for recreation and entertainment, shopping, traffic flow, and parking will be affected. The extent of the impacts depend on the design and operation of the Interim Parking Plan.
 - **Impact.** After project completion, parking replacement could allow restoration of much of existing customer parking and shopping patterns as a result of features in the most current Project design (February 22, 1991). Some convenience will have been lost due to the change from an open parking lot to a two-story parking structure. In addition, traffic will no longer be able to use the site to move from Oneawa Street to Aulike Street as is currently possible since all access to and from the Project will be from Aulike Street. (See Section 4.1.2, p. 4-9, for a more detailed look at impacts on customer usage.)
 - **Impact.** New neighborhood use patterns will emerge as the elderly and handicapped residents and their guests patronize area stores, medical offices, and restaurants, and use transportation services.
- o **Housing Conditions.** The adequacy and availability of housing for the elderly and handicapped in Kailua will be improved by the addition of 84 studio and one-bedroom units.
- o **Quality of Life.** The Project will impact Kailua shoppers', residents', and workers' perceptions of Kailua's quality of life both during construction and after project completion.

-- Impact. During construction, parking convenience will be disrupted, and traffic congestion and crowding is likely to increase in the vicinity of the Project site. Noise and construction dust and dirt, while minimized, still will be perceptible and an irritant to some.

-- Impact. Minor criminal behavior at the existing site could also be affected, either positively or negatively during construction. Positive impacts might result if criminal activity were displaced because the construction area and the on-site interim parking lot may be less conducive to late night gatherings. In addition, contractors typically hire a security patrol to prevent damage or theft from their sites which may have the additional effect of deterring crime for surrounding businesses. Some minor negative impacts might result because barriers and equipment at the construction site will block visibility and make it more difficult for police to monitor the area.

-- Impact. After project completion, some greenery and open space will have been removed, as well as views for some residents and workers in neighboring buildings.

Lost open space and views cannot be replaced, but current project design features such as landscaping and a mini-park could compensate by adding attractive elements to the block.

-- Impact. Crime patterns in the area will be greatly impacted by Project design and operations characteristics.

Planned lighting and the presence of residents could help reduce existing minor crime activities. Lighting should be located to insure that the four stairwells in each corner of the Project and the two ramps are well lighted.

DHCD has also indicated that the basement parking area may be closed at some point in the evening to reduce security risks.

Surveillance of the basement parking area at night (before the planned closing hours) will not be possible from the security office on the ground floor or from outside because the basement has no windows. As a result, there is some risk of security problems.

- o **Distribution of Adverse Impacts and Benefits.** Three groups will enjoy most of the benefits and suffer most of the adverse impacts.

- The primary beneficiaries of the project are the elderly and handicapped residents of the Project who gain new affordable and accessible rental units.

They also may have to bear some risk of security problems, disruptions due to late night use of the area by bar patrons, or noise from use of the parking structure. Suggested mitigations and existing Project elements could greatly reduce the extent of such concerns.

- Minor risks may be borne by property owners whose long term property values are unlikely to be affected but who may suffer some short term losses during construction.

- The most adverse impacts may be borne by the business owners and employees of businesses located on the Project site, particularly those whose businesses front on the parking lot. Adverse impacts could be most severe during the construction period. Mitigations to insure customer flow and delivery access, and provision of business assistance could be of value in reducing adverse impacts for these surrounding businesses.

Each of these impact areas is discussed in greater detail below.

4.2.2 Population and Demographic Changes

The Project will house elderly and handicapped individuals and families. Of the 84 units in the Project, 60% (50 units) will be for rental to low-moderate income and to gap group individuals and households. The remaining 40% (34 units) will be rented at market rates to elderly or handicapped families. Five percent of all units (i.e. five units) will be adapted to meet the needs of families with a physically handicapped member.

Elderly families are defined as those in which one family member is 62 years old or older. Handicapped families are defined as families in which one member is disabled. The

disability could be a physical handicap, visual or hearing impairment, mental retardation, or emotional disability.

Low-Moderate Income Families. Low-moderate income families are defined as earning less than 80% of the median income earned by families on Oahu. The U.S. Department of Housing and Urban Development issues annual estimates of median income which are used by housing agencies to establish eligibility for each size family. In Fiscal Year (FY) 1989-90, the maximum that a two-person family could earn and qualify as having low-moderate income was \$26,350.

Gap Group Families. Gap group families are defined as earning more than 80% of median family income but no more than 120% of median family income. In FY 1989-90, the maximum that a two-person family could earn and qualify as gap group was \$39,500.

Market Unit Families. Thirty four of the units will be rented at market rates. Market-priced rental units comparable to those proposed for the Project are in short supply in Kailua. According to brokers, vacant studio and one-bedroom units rent within a week of being listed.

Elderly and handicapped families renting market units will be those who can afford the typical \$700 to \$800 rent for studios and the \$800 to \$1,000 rents for one-bedroom units (1991 market rent levels).

Household Size. The maximum number of people that can occupy the studio units will be two. For the 1-bedroom units, the maximum will be three. Comparable elderly housing projects in Honolulu average 1.18 persons per unit (Hawaii Housing Authority, Composite Report, 1990).

Population Impacts. Based on the above average of 1.18 persons per unit, the probable number of residents to be added to the Primary Study Area by the Project is 100. In addition, four to five workers would be on duty during peak hours. As a result, the peak daytime population on site might be around 105, not counting senior citizens from Kailua visiting to attend the programs and lunch in the congregate meal facility.

Tenant Mix. No estimate can be made of the share of residents who will be elderly and handicapped, elderly, or non-elderly handicapped until DHCD and its management company agree on tenant selection guidelines.

Some key informants were concerned that the tenants might include non-elderly persons with mental disabilities, or drug or alcohol dependencies. Some projects developed by government or private non-profit agencies do have such mixes of residents.

Most have had some problems with such tenant mixes, mostly minor nuisances or conflicts about noise and late night activity (personal communication with Bob Muranaka, Hawaii Housing Authority, February 8, 1991.)

According to Mike Flores, Director of the Housing Division of the Honolulu Office of the U.S. Department of Housing and Urban Development (HUD), HUD recognizes that it is unfair to require elderly projects to accept handicapped residents who may be much younger than the other elderly residents. In their current elderly projects, they are recommending setting up a priority for applicants in which the elderly and handicapped get first priority; next are the elderly; and last are the non-elderly handicapped (personal communication with Mike Flores, U.S. Department of Housing and Urban Development, February 8, 1991).

In addition, tenant screening, including thorough reviews of credit records and experiences of previous landlords, can help identify tenants who have a history of disturbances or damages. As a further safeguard, a strict lease agreement enforcement policy can ensure that residents who cause problems are removed.

4.2.3 Neighborhood Use Patterns

Existing Uses. Existing uses of the Project site include:

- o Parking for shops, offices, and restaurants without their own parking or whose parking is full,
- o Access to ten businesses which front the parking lot,
- o Parking for delivery vehicles,
- o Pick up and drop off of equipment for repair, rental returns, etc.,
- o Parking for patients visiting doctors' offices and other medical services,
- o Pick up and drop off of patients with limited mobility,
- o Parking for employees of businesses in area,
- o Passage for traffic from Oneawa Street to Aulike Street,
- o Passage for foot traffic between businesses, including the two late night bars,

- o Parking lot socializing in late night hours, and
- o Occasional disorderly behavior, vandalism, and burglaries in late night hours.

Construction. As described in greater detail above in Section 4.1, during construction, parking will be provided under an Interim Parking Plan. The City will obtain temporary parking by:

- o Retaining 30 stalls and six loading zones on the Aulike Street side of the existing lot,
- o Using lots provided by surrounding businesses and government agencies,
- o Making Uluniu Street one-way with diagonal metered parking, and
- o Creating metered parking on Maluniu Street, Aulike Street, and Kuulei Road.

Access to stores and offices fronting the existing parking lot will be furnished by setting aside walkway areas between the stores and the construction site. (See Figure 4-A.)

Parking for vehicles making deliveries to interior businesses and for dropping off and picking up patients will be provided by six loading zones in the interim lot on the Aulike side of the existing lot.

Traffic will be unable to drive through from Oneawa Street to Aulike because of the construction. Construction vehicles will use the Oneawa Street entrance to access the construction site and staging area.

Foot traffic will be able to move between the businesses, including between the two late night bars, along the walkways around the construction site.

Operations. After the Project is built, the existing 146 parking stalls will be replaced by stalls in the first two floors of the Project (the basement and ground floor). Current patterns of customer, client, and patient visits to the surrounding businesses could be substantially restored based on the most current design (February 22, 1991). Some convenience will have been lost due to the change from an open parking lot to a two-story parking structure.

In addition, traffic will no longer be able to use the site to move from Oneawa Street to Aulike Street as is currently possible since all access to and from the Project will be from Aulike Street. (See Section 4.1.2, pp. 4-7 to 4-10, for a more detailed look at impacts on patient and customer usage.)

New neighborhood use patterns will emerge as the elderly and handicapped residents and their guests patronize area stores, offices, and eating places and use transportation services.

4.2.4 Housing Conditions

The adequacy and availability of housing for the elderly and handicapped in Kailua will be improved by the addition of 84 studio and one-bedroom units. The 50 "affordable" units will meet the increasing need of low-moderate income and gap group elderly and handicapped for rentals they can afford. The 34 market units will assist in improving the supply of studio and one-bedroom rental units in the Kailua area available to elderly and handicapped persons.

In addition to improving housing affordability and supply conditions, the Project location will help meet needs of elderly and handicapped residents to have easy access to downtown Kailua shops and offices, to bus lines, to medical services, and other community facilities.

The Project units' design will also promote independent living by the handicapped and help the elderly to "age in place" and delay the moment when they need to move into an elderly care facility.

4.2.5 Quality of Life

The Project will impact Kailua residents', shoppers', and workers' perceptions of Kailua's quality of life both during construction and after project completion.

Construction. During construction, existing parking, drop off/pick up, and delivery patterns will be disrupted. The extent and severity of the disruption will depend on the design and operation of the Interim Parking Plan.

In addition, traffic congestion is likely to increase in the vicinity of the Project site due to the movement of construction vehicles and the dispersal of customers to lots surrounding the Project site.

Noise and pollution from construction dust and dirt will be minimized where possible, but cannot be eliminated. Some residents and workers will be inconvenienced or irritated by problems or disruptions caused as a result.

Current disturbances and petty crime activity at the site in the late night hours may be reduced because the construction area and the on-site interim parking may be less conducive to late night gatherings. In addition, contractors typically hire a security patrol to prevent damage or theft from their sites which may have the additional effect of deterring crime for surrounding businesses. However, the barriers and equipment at the construction site will reduce visibility of store fronts and impede surveillance patrols by police.

Operations. Significant quality of life issues after project completion involve visual impacts and urban design issues, crime and security concerns, enhancement of access and mobility, and noise.

- o **Visual Impacts/Urban Design Issues.** After project completion, some trees will have been relocated or replaced, and open space will have been lost, as well as views for some residents and workers in neighboring buildings. In its place will be the Project with its landscaping and other amenities.

Lost open space and views cannot be replaced, but project design features may compensate by adding attractive elements to the block.

The current design for the Project building is very comparable to other attractive private multi-family low-rise buildings in Kailua. In addition, the design calls for the creation of a mini-park at the entry way (on the Aulike side of the site).

The "canyon" effect feared by some of CRI's key informants has been reduced by creating a 25 foot walkway around the perimeter of the site, limiting the building "footprint" so it covers only 1/3 of the site, and including the mini-park.

- o **Crime and Security Problems.** Crime and security concerns of residents and businesses around the Project will be greatly impacted by Project design and operations characteristics.

As currently designed, the Project offers no areas on its perimeter which would encourage loitering or act as hiding places (assuming adequate lighting will be provided for the four stairwells and the two ramps).

Planned lighting should make detection of suspicious activities relatively easy.

Also, the DHCD has indicated that the basement parking area may be closed in the late evening. In addition, the presence of the residents themselves should increase the concern by criminals that they will be observed, reported, and apprehended.

As was noted above, CRI has expressed some concerns about the security aspects of the current design for the basement parking area. It will be difficult to provide surveillance of the basement parking because it has no windows, cannot be viewed from the security office located on the ground floor, and can be entered from each of the four corners of the Project.

- o Access and Mobility. The quality of the lives of the elderly and handicapped residents of the Project will be enhanced by the additional access and mobility which the location will provide. The stores, offices, and public facilities of downtown Kailua are in close proximity, and the site is served by two bus lines.
- o Noise. Project residents may be inconvenienced or affected adversely by some noise either from use of the parking structure or from late night patrons of nightclubs. However, most residents of comparable projects located in urban areas accept some noise as the cost of having the advantages of a central location.

Provision is made in the design for individual unit air conditioners. The noise consultant's report also suggests that tire squeal noise in the parking structure be reduced through the use of a "brushed or other coarse finish on the circulation driveways." (Y.Ebisu & Associates, Noise Study for the Proposed Kailua Elderly Housing Project, Kailua, Oahu, February 1991.)

4.3 DISTRIBUTION OF BENEFITS AND ADVERSE IMPACTS

This section summarizes the distribution of the social and economic impacts discussed in the preceding sections. Impacts are seen to focus on three groups of Kailua residents and workers:

- o Elderly and handicapped families who become Project residents,
- o Business owners and their employees, and
- o Property owners.

The primary beneficiaries of the Project will be the elderly and handicapped residents of the Project. They will gain new affordable and accessible rental units that will promote independent living. For many of the residents, the cost of the units will be far below what they could expect to pay for market units.

The adverse impacts that the residents may face are the risk of security problems due to late night use of the area by bar patrons and others, and disturbance by noise from late night activities or parking lot use.

Security is a significant issue to seniors whose increasing frailty make them fearful of criminal behavior. Design features may alleviate some of these concerns.

Seniors at other comparable elderly housing projects in urban areas near freeways and all night facilities have chosen to accept the discomfort of noise problems in exchange for affordable rentals and the convenience of access to community facilities and transportation. (Personal communication with June Yokoyama, Public Housing Supervisor, Hawaii Housing Authority, January 1991).

Residents of the nearby Meridian East are predominantly senior citizens. Only recently were younger residents permitted in the building. The high interest that senior citizens currently exhibit in owning and renting units in Meridian East indicates that, despite noise and security problems, Kailua senior citizens do prefer to live in the Project site location because of its convenient access to community facilities and transportation. (CRI Interviews, January 1991.)

Minor risks are likely to be borne by property owners of the land surrounding the Project site. In the short run during construction, some of the businesses may fail at least partially because of the construction disruptions.

As a result, the property owners may suffer some loss of rental revenue and difficulty in attracting new tenants during the construction period. In addition, owners wanting to sell their property might have difficulty selling while construction is imminent or underway.

After the Project has been built, property owners will probably not suffer significant adverse impacts. Most of the properties have not been developed to their maximum potential under the existing B-2 Zoning. Any redevelopment can take into account the presence of the Project in its design and can be marketed to tenants who might prosper by being adjacent to

elderly housing. Given the growing demand for commercial space near the center of Kailua, long-term property values should be largely unaffected.

The most adverse impacts of the Project could be borne by the owners and employees of businesses located on the Project site, particularly those whose businesses front only on the parking lot. Adverse impacts could be most severe during the construction period when customers may have difficulty finding parking and may be discouraged or diverted to competitors, delivery of supplies and equipment may be impeded, and construction noise and dust may make business conditions unpleasant, unappealing to customers, or impose extra costs.

After project completion, it is uncertain whether most businesses would continue to suffer adverse impacts. As reviewed above in Section 4.1 (pp. 4-7 to 4-10), customer usage patterns could be substantially restored if parking in the completed structure is viewed as relatively comparable to that provided in the current lot. The decreased visibility of store fronts and signage may reduce customer awareness and traffic. However, this might be countered by the presence of 100 residents plus Project guests and employees.

Some businesses now located surrounding the Project site may be incompatible with the Project, at least as they now market themselves. However, the presence of the residents offers the existing businesses an opportunity to tap a new market which could be very loyal. Opportunities for restaurants, food retailers, personal services, and medical services would seem to be enhanced by the Project.

5.0 COMMUNITY CONCERNS

This chapter presents the major findings from CRI's interviews with key community informants. It reports the significant concerns and issues which they raised about the project as well as their perceptions of possible benefits. Each concern is related to Project design or operations elements.

The first section describes CRI's purpose in conducting community interviews and presents our interview methodology. The second section summarizes concerns, indicates which group holds these views and how widely held the concern or issue is, and discusses concerns about the project in light of current Project design and operations concepts and likely impacts.

5.1 PURPOSE AND METHODOLOGY

Community Resources, Inc.'s approach to identification and analysis of social and economic impacts centers around interviews of key community informants. We conduct these interviews for a number of reasons:

- o To provide full disclosure of community issues and concerns;
- o To assist in identifying the scope of concerns that should be addressed in the Environmental Impact Statement;
- o To identify one of the impacts of the Project, those community concerns and issues which are raised by the proposal and planning of the Project; and
- o To offer another channel for community input on design and operational details which, if modified, might mitigate potential adverse impacts.

CRI's survey of key community informants was not a random public opinion survey, and cannot be used to indicate the strength or extent of public support or opposition to the Project. Its intent was to surface the range of perceived benefits, concerns, and issues surrounding the Project so that these could be identified, analyzed, and mitigated if valid.

For this project, 38 individuals were interviewed at length, using open-ended questions. These individuals or "key informants" were selected on the basis of knowledge of the community or the project and/or being identified as belonging to some potentially affected interest group such as nearby residents, business owners, senior citizens, or property owners.

Appendix A lists the key informants as well as eight experts consulted for their specialized knowledge of Kailua commercial and residential real estate conditions, property owner's plans, or elderly housing project conditions.

Appendix A lists organizational affiliations of those interviewed in order to indicate some of the networks or interests of those interviewed. It should be noted, however, that each individual was asked to speak as an individual and not as a representative of their organizations.

Interviews were loosely structured, usually beginning with questions about perceptions about the Project and concluding with questions about Kailua and its future. Informants were told that their comments and those of others interviewed would be summarized in our report, but that their individual answers would be kept confidential.

5.2 COMMUNITY CONCERNS AND ISSUES

In the course of our interviews with key community informants, a distinct polarization between the views of senior citizens and the views of business and property owners became clear. Some of this reflects the participation of our informants in the community debate over the Project. In many cases, our informants were publicly on record as holding the views relayed to us in our interviews. In addition, this polarization should not be taken to indicate that a community survey would measure such a division if a representative sample of Kailua residents were surveyed.

Nonetheless, for the persons CRI interviewed, the difference between the views of the two groups was striking.

5.2.1 Senior Citizens' Reasons for Supporting the Project

Most elderly representatives were strongly supportive of the Project, felt that housing needs of Kailua senior citizens were so great that development should not be delayed, thought the site would be good for senior citizens, and trusted the City to do a good job of mitigating construction problems and operating the housing.

They stressed the extent of the housing need for senior citizens and the urgency of doing something to improve the situation, noting that finding appropriate, affordable housing is one of the most difficult problems for the elderly. One informant noted that high rents and fixed incomes have forced many senior citizens to live with their children while others have to sacrifice on medical care and food so they can pay rent.

These senior citizens liked the site because of its proximity to Kailua shopping, medical offices, and other public facilities as well as transportation. In their opinion, noise was not likely to be a major problem at the site.

5.2.2 Business and Property Owners' Concerns about the Project

In sharp contrast were the views of a number of representatives or owners of businesses and property surrounding the Project site. Many of them strongly opposed locating the Project at the proposed site, felt the development would be disastrous for their businesses, and mistrusted the City's ability to mitigate construction problems, ensure completion of construction within 16 months, or operate the project.

They expressed dismay at the possibility of senior citizens having to live in the Project, insisting that they would find the noise unbearable and be victimized by criminals lurking around the Project.

5.2.3 CRI's Analysis of Concerns about the Project

Out of the interviews, a number of questions, perceptions, and concerns of Kailua residents emerged. As a result of the polarization described above, most of the negative perceptions or concerns came from the business and property owners.

This section deliberately focuses on the negative perceptions alone, in order to distinguish reasonable concerns from misinformed ones. In our analysis of impacts, we have indicated that many of the senior citizens' positive views of the Project are valid and therefore, they do not need further analysis or elaboration here. The greater attention given here to negative concerns in no way implies that project proponents' issues and concerns are less important than those of the project opponents.

In what follows, we either:

- o Provide factual answers to questions or mistaken perceptions of Project design and operation concepts, or
- o Indicate the nature of more detailed responses to be found elsewhere in the EIS and supporting reports.

Community issues and concerns were classified in the following categories:

- o Project Site,
- o Project Residents,
- o Parking Lot Usage Surveys,
- o Parking Mitigation Plans during Construction,
- o Parking in Completed Structure,
- o Access to Interior Businesses after Completion,
- o Traffic Impacts,
- o Project Costs, and
- o Project Design.

In the listings which follows, an asterisk (*) indicates that the issue, concern, or perception was widely shared by our informants. The issues and concerns are paraphrased summaries of statements made in interviews. These paraphrased statements are surrounded by quotation marks (") and highlighted with **bold print**. CRI's analysis follows each statement.

Project Site

- * o "The City has threatened to not build an elderly housing project in Kailua if this project site is not approved."

Analysis: If the DHCD were unable to build the Project at the current site, there would be a delay of some time before another site could be found and necessary approvals and funding secured. The DHCD's assessment of available alternative sites is that the current site offers the best advantages of any available in the immediate future.

The search for another site that is low cost, suitable to elderly residents, developable, and accessible to transportation and community facilities has not been successful in the past and is not likely to be more easily achieved in the future as land use intensifies in Kailua.

However, the elderly housing need will persist in Kailua, and the City will continue to try to find ways to meet the need if the current site cannot be used.

- o "Alternative site studies were cursory, superficial."

Analysis: Alternative sites were studied by the Honolulu Department of Housing and Community Development and reported on in a series of memos and letters. A summary of the Alternative Site Analysis can be found in the main body of the Environmental Impact Statement.

- o "Alternative sites are available which would not cost the City any money."

Analysis: Alternative sites perceived to be without cost were found by DHCD to be either not actually available without significant costs, or available only in exchange for rezoning of other lands, or not environmentally suitable, or not available for development within a time period comparable to that of the current site.

Project Residents

- * o "The Project can't give preference to Kailua residents or insure Kailua elderly residents have a home there. An islandwide list is used to pick those who will live in the Project."

Analysis: Potential residents sign up for a lottery which creates the initial waiting list for the Project. Applicants have their eligibility reviewed in the order given by the lottery. Those who qualify are then offered a unit in the Project. Any resident of Oahu can apply for a unit in the Project.

In practice, elderly residents tend to apply for and select units near their family and friends with the result that many of the units are likely to go to residents of Kailua or persons with family living in Kailua.

- o "The handicapped residents might include young mentally ill persons, recovering drug addicts, or alcoholics. The Kaneohe Elderly Project had such a mix with bad results."

Analysis: It is correct that the Federal definition of the range of disabilities of the handicapped residents includes the physically handicapped, visually and hearing impaired, mentally retarded, as well as those with emotional

disabilities or substance abuse problems. Federal regulations require that handicapped individuals cannot be discriminated against in choosing residents.

The Kaneohe Elderly Project was built under a Federal program which no longer is in existence and did have such inappropriate mixtures of residents. Currently, it is possible to establish priorities for tenant selection to insure that most residents are either elderly or elderly handicapped. Combined with tenant screening and enforcement of lease agreement, disruptive residents can be excluded or removed. (See discussion in Section 4.2.2, p. 4-17.)

- o "If market units can't be rented to the elderly, they will be rented to welfare families"

Analysis: If market units cannot be rented at a certain rent, the rent would be reduced until renters were willing to rent the units. The operator of the Project has an incentive to set these rents at the market rate and keep them occupied in order to earn funds necessary to repay development costs and receive incentive fees.

Given the speed with which comparable units are rented in Kailua and the quality of the design for the Project, it is unlikely under housing market conditions expected for the next twenty years that significant vacancies would persist.

Parking Lot Usage

- * o "The City didn't adequately study existing parking lot usage."

Analysis: Parking lot usage for both the Municipal Parking lot at the Project site and the Municipal Parking lot in the block makai of the Project site was measured during the day by the Honolulu Department of Transportation Services in February 1989. The study measured occupancy of stalls seven times during five working days (five mornings and two early afternoons).

No study was done of weekend or evening usage.

Further discussion of the study and its implications for mitigation of parking problems during construction are found above in Section 4.1.2 (p. 4-5). The Interim Parking Plan is also included as an appendix to the Environmental Impact Statement.

- o "Access for drop off/pick up or quick shopping visit is very important and wasn't measured in City study."

Analysis: Drop off/pick up and quick shopping visit behaviors were not studied in the DTS study. However, provision is made in the Interim Parking Plan for 33 parking stalls to be located behind Someplace Else and Pizza Hut on the Aulike Street side of the current lot during construction which should meet some of this need.

Parking Mitigation Plan

- * "The parking mitigation plan won't work because:
 - o The drop off/pick up zones (Loading zones) are too far from business. These need to be close for heavy things/patients.
 - o The loading zones aren't big enough (only hold one or two vehicles)
 - o The loading zone on Kuulei is unworkable because of traffic congestion/safety.
 - o The loading zone behind Zippy's won't work because the road from Oneawa is too narrow, and there is no other way out.
 - o The loading zones won't work because of competition between delivery vehicles for businesses, customer pick-up/drop-off, and construction use."

Analysis: The Interim Parking Plan appears to be a good faith attempt to answer many of these concerns. The latest revision (February 1, 1991) does provide three dedicated loading stalls close to interior businesses and the Medical Arts Building. The Oneawa Street entrance will no longer be used for interim parking and will only be used by construction vehicles.

No plan is likely to perfectly anticipate all of the possible problems in its usage. At a minimum, DHCD could establish a contact person to field complaints and resolve problems. (See Section 4.1.2, pp. 4-6 to 4-7 for a more extensive discussion of the Interim Parking Plan's features.)

Under the current Interim Parking Plan, customer and delivery access is not as convenient as under current conditions, but there has been an attempt to address the needs of surrounding businesses as best as possible.

- * o "Mobility handicapped medical patients won't be able to easily access doctors' offices."

Analysis: The Interim Parking Plan calls for the creation of three passenger loading zones in front of the Kailua Medical Center on Uluniu Street and three handicap parking stalls at the Aulike end of the current parking lot. (See Figure 4-A).

- * o "Kailua residents will not walk across the street or down the block to go to businesses, especially when rainy. In addition, crosswalks are a barrier because they are not adequate and hazardous."

Analysis: This widely held perception is supported by the experience of area businesses interviewed by CRI. Senior citizens also commented on the hazards and difficulties of pedestrian movements. Impacts of this problem are likely to be highest during peak shopping periods such as at Christmas.

- o "Construction workers will not park at the site assigned to them but will use closer areas."

Analysis: Presumably, the construction workers' parking at the two outlying sites would be free. DHCD has also indicated an intent to place requirements on their contractors to restrict their workers' parking to this area. No formal monitoring of worker compliance is currently planned, but if complaints are received, the contractors will be required to insure that violations stop.

- o "Businesses on Uluniu Street haven't been consulted about the impact of changing Uluniu to one-way."

Analysis: CRI interviews confirm some Uluniu business owners have been consulted and support the changes to Uluniu. Due to budget, scope, and time limitations, CRI did not survey all the Uluniu businesses to determine their level of awareness of proposed parking and traffic direction changes or any potential adverse impacts. The Department of Transportation Services should notify and consult with these businesses before implementing the changes.

- o "The businesses that are to provide the alternative parking have not been contacted, and City has no agreements or guarantees that lots will actually be provided."

Analysis: CRI has contacted owners or responsible officers for each of the businesses identified in the current Interim Parking Plan and confirmed the existence of informal agreements to provide the parking described in the Plan.

- o "Other interim parking sites, such as the lot near the State Library or on Maluniu, are already used to capacity and can't provide any extra capacity."

Analysis: Existing usage of these lots and extra capacity is not discussed in the most recent version of the Interim Parking Plan (January 5, 1991). However, CRI interviews disclosed that although the Maluniu lot is partially used at present for employees, there is unused space for 21 cars which would be made available.

- o "Metering Uluniu will not create many new spaces for short term customers or employee parking because most spaces are not used for park and ride but for local businesses' employees."

Analysis: No usage surveys for Uluniu were available in the materials reviewed by CRI. Changing to metered status should increase turnover somewhat although local employees probably will be willing to pay the cost for metered parking (\$4.00/day).

- o "Are any additional spaces added by making Uluniu one way and putting diagonal parking on only one side?"

Analysis: The revised Interim Parking Plan indicates that diagonal parking will physically add an additional 18 stalls from what is currently available, for a total of 70 stalls.

Parking in Completed Structure

- o "Parking needs of elderly have been underestimated. They will use more than the 20 units assigned to them. As a result, there will be somewhat less than 100% replacement of existing units."

Analysis: DHCD and HHA experiences do justify ratios of 1 stall per 4 units for elderly housing. Initially, such ratios may be slightly low because new residents of such projects tend to be the "young, active senior citizens" who do drive and are still fairly mobile. With time, the average age of the

residents rises and mobility and use of cars declines so that the ratio should be adequate. (Communication with Bob Muranaka, Hawaii Housing Authority, February 8, 1991.)

- o "The 146 replacement stalls, while adequate for the existing level of development of the area, will be inadequate when properties are developed to their highest potential over the next 10 years."

Analysis: The Project site block has B-2 Zoning which allows four-story buildings up to the 45 foot height. However, AM Partners has advised CRI that existing zoning and building requirements would insure that any redevelopment would have to provide adequate parking to handle the employee and customer demand that it generated.

Access after Completion

- o "Access for deliveries to businesses will be too difficult, especially those fronting on the parking lot. In particular, how will large food delivery vehicles get supplies to the delicatessen?"

Analysis: As described above in Section 4.1.2 (p. 4-10), a loading zone will be created on the Oneawa Street side of the Project, according to the most current design (February 22, 1991). This zone should provide reasonably close proximity for such deliveries to interior businesses.

- o "Access for emergency vehicles (fire, rescue) will be inadequate or difficult."

Analysis: The walkways around the Project offer ample room and appropriate surfaces for emergency vehicles access to the site. In addition, the Fire Department and the City Emergency Ambulance Services will review the Project design and modifications, if necessary, will be made to insure that their needs are met.

Traffic Impacts

- o "Added population from the Project will add to traffic hazards and congestion on already congested streets and intersections surrounding the Project site."

Analysis: According to the project traffic consultant, "trips generated by the proposed project are not considered to be significant (by national standards established by the Institute of Transportation Engineers)." (Traffic Management Consultants, Traffic Impact Assessment Report for the Proposed Kailua Elderly Housing, February 1991.)

Estimated traffic generation for the Project would add only 15 vehicles to the AM peak hour and 22 to the PM peak hour. During the AM peak hour, in comparison, 238 vehicles use Aulike Street currently, while 522 vehicles use Aulike during the PM peak hour.

Project Cost

- o "Approximately \$3 to \$4 million of the project cost is for replacing the existing parking stalls and the interim parking plan improvements. This money could be spent just for housing if another site was picked."

Analysis: The cost of replacing the parking will come from highway funds. Use of other available sites would require funds for acquisition of the land, increasing the rents needed to pay for the Project.

- o "The 40% of the units which are market wouldn't be needed if the parking replacement costs didn't have to be paid for. As a result, a site which would support only 50 units would be okay since the same number of affordable units could be provided."

Analysis: Subsidy of parking is not the only reason for including market rental units in the Project. Such units also gives a better mix of residents to the Project than if the units were only for low-moderate and gap group residents, and helps subsidize affordable units.

Project Design

- * o "The Project will provide hiding places/loitering areas where bar patrons and others will more easily drink, evade police, litter, and commit acts of burglary and vandalism, which are currently problems at the site. The Project area will not be a safe area for elderly residents after dark."

Analysis: The past history of the area indicates that this is a legitimate concern and problem for current residents and businesses. However, the problem may not be as severe as comments would suggest. According to Nathan Matsuoka, Honolulu Police Department Research Statistician, statistics for December 1990 for the area bounded by Oneawa, Kuulei, Nalunui, and Kamanui (Beat 426-Sub-beat B), were as follows:

- No murders, rapes, robberies, or aggravated assaults;
- 2 burglaries;
- 7 thefts;
- 1 simple assault;
- 4 cases of criminal property damage;
- 1 family dispute; and
- 1 driving under the influence.

This record does not indicate an extremely high level of crime is occurring or being reported relative to other areas. The picture it indicates is an area where there occasionally are problems.

As was noted above in Chapter 4 (see pp. 4-21 to 4-22), current Project design elements may actually help to reduce crime problems. In addition, elderly residents are noted for being community minded and good members of Neighborhood Watch groups.

DHCD may also close the basement parking during the late night hours which could reduce the risk of criminal activities.

- o **"With development of Kailua and redevelopment of surrounding properties, a cloistered "canyon" effect will be created as four-story buildings surround the Project. How will it look if that happens?"**

Analysis: In the latest Project design (February 1, 1991) the walkway surrounding the project has been widened to 25 feet. In addition, the project building only covers one-third of the total site and is fronted on the Aulike street side by a mini-park that borders the open parking lot of Pizza Hut and McDonalds.

AM Partners has prepared a scale model of the Project. The model will be available for viewing at community meetings.

It is highly unlikely that an unbroken wall of buildings would be developed around the Project. To do so, one owner would first have to successfully acquire all of the parcels surrounding the Project. Such an acquisition might prove difficult.

Secondly, even if all the parcels were assembled under one owner, it is likely that a building maximizing size and bulk might actually be less valuable than one which was more varied in appearance and offered pleasant transitions both from exterior streets and the interior parking in the Project.

- * o "Noise from existing late night establishments (Zippy's, Fast Eddies, Someplace Else) or their patrons will not be compatible with elderly residents who are likely to complain (as have Meridian East residents) and eventually force these businesses out of operation. Residential and commercial uses are incompatible."

Analysis: Comparable elderly housing projects operated by HHA in urban settings are not significantly adversely affected by noise or proximity to late night activities. Senior citizens are not forced to take these units; they have a choice of accepting the unit, and are warned about the noise or other negative environmental aspects. Most accept these factors as being more than compensated for by the convenient access to community facilities and transportation (personal communication with June Yokoyama, Public Housing Supervisor, Hawaii Housing Authority, January 1991).

The experience with comparable HHA projects is echoed in statements of support made by Kailua senior citizens in community meetings on the Project and in their responses to our interview questions. (CRI interviews and files of public meeting minutes, January 1991.)

APPENDIX A: INTERVIEWS

This list includes 37 "key informants" who were selected for interviews based on their knowledge of Kailua and/or being identified as belonging to some potentially affected group such as nearby residents, business owners, senior citizens, or property owners.

(Please note that those interviewed provided their comments as individuals and not as representatives of their organizations. Organizational identifications are provided only to indicate some of the affiliations and interests of those interviewed.)

The list also includes eight experts who were consulted for their specialized knowledge of Kailua commercial and residential real estate conditions, crime statistics, property owner's plans, or elderly housing project conditions. They are designated on the list with an (E) after their name.

Steve Adams	Kailua Property Owner Realtor Associate, Huffman and Drake, Inc.
Lee Alden (E)	Principal Broker Worrall - McCarter, Inc.
Dorothy Rose Babineau	Member, Kailua Neighborhood Board No.31 Member, Kailua Community Council Member, DHCD Kailua Elderly Housing Project Advisory Committee
Donald O. Bieber	President, Kailua Community Council
Mr. Gunter Brunk	Executive Director, Pohai Nani Good Samaritan Kauhale Member, Board of Directors, Hawaii Long Term Care Association Member, Kaneohe Rotary Club
Pearl Ching	Pali Seniors Club Member, DHCD Kailua Elderly Housing Project Advisory Committee
Karen Crozier	Coordinator of Case Management, Windward District, Public Health Nursing Branch, State of Hawaii Department of Health

Karen Cunningham (E)	Cunningham, Wolf, and Associates
Sandy Donnot (E)	Coldwell Banker McCormack Real Estate
Mrs. Louise Dube	Manager, Meridian East
John R. Elliot	Chair, Transportation Committee, Kailua Neighborhood Board No. 31
Debbie Glanstein	Kailua Merchants Association
Bonnie L. Heim	Chair, Kailua Neighborhood Board No. 31 Member, DHCD Kailua Elderly Housing Project Advisory Committee
Mrs. H. Hues	Member, American Association of Retired Persons Member, National Association of Retired Federal Employees
Bob Hutchison	Chairman, Residents Board, Meridian East
Doug Izak	Owner, Gee... A Deli! Member, Kailua Chamber of Commerce
Ann Ketell	Employee, Windward Senior Day Care Center, Kailua
Mary King	Park Chairperson, Lani-Kailua Outdoor Circle Chair, Kalama Beach Park Advisory Committee Member, Garden Club of Honolulu
Lynette Kurren	County Executive on Aging, Elderly Affairs Division, Office of Human Resources Member, Board of Directors, American Society on Aging Member, Hawaii Gerontology Society Member, DHCD Kailua Elderly Housing Project Advisory Committee
Ellen Lee	President, Pali Seniors Club
Francis G. Lee	Resident, Kaneohe Elderly Housing
Robert Littman	Managing Partner, Kailua Property Partners

Larry Luce (E)	Vice President, Castle Medical Center
Nathan Matsuoka (E)	Research Statistician, Honolulu Police Department
Ted McCrea	President, Kailua Chamber of Commerce
Randolph G. Moore	Chief Executive Officer, Kaneohe Ranch
Bob Muranaka (E)	Public Housing Supervisor, Hawaii Housing Authority
Mary Muranaka	Employee, Windward Senior Day Care Center, Kailua
Thelma Naki	Owner, Ed's Fix It Shop
Alan C. Nelson, M.D.	Vice President, Kailua Merchants Association
Natalie Oda	Director, Windward Senior Day Care Center, Kailua
Patrick O'Malley	Member, Board of Directors, Kailua Chamber of Commerce
Dorothy Ono	President, Kailua Hongwonji Mission Director, Long Term Care Channeling Office, State of Hawaii Department of Human Services
Ed Quigley	Chair, Kailua Merchants Association
Rick F. Renwick, M.D.	Physician with office near Project site
Rae Santos	Employee, Windward Senior Day Care Center, Kailua
Bernard M. Scherman, M.D.	Member, Kailua Chamber of Commerce Member, DHCD Kailua Elderly Housing Project Advisory Committee
Loretta Schuler	President, Kokua Council for Senior Citizens Founders Group
Lulu Shen-Chow (E)	Property Manager, Century 21, Windward Oahu

Doug Shimabukuro	Controller, Zippy's Inc.
Marsha Thorpe	Employee, Windward Senior Day Care Center, Kailua
Agnes Tullis	Employee, Windward Senior Day Care Center, Kailua
Martha Turner	District Coordinator, Windward District Office, Honolulu Community Action Program
Lucrecia Whitehurst	Owner, Lucrecia's Beauty Salon Member, Kailua Merchants Association
Mei Lee Wong	Vice President, New Chinese Garden Chop Suey
June Yokoyama (E)	Public Housing Supervisor, Hawaii Housing Authority

APPENDIX B: REFERENCES

- AM Partners. Kailua Elderly Housing EIS Preparation Notice. Prepared for the Honolulu Department of Housing and Community Development. (November 1990).
- Devaney, Dennis M. Kaneohe: A History of Change. Honolulu: U.S. Corps of Engineers, 1976.
- Eckbo, Dean, Austin, & Williams. H-3 Socio-Economic Study: The Effects of Change on a Windward Oahu Rural Community. Prepared for Hawaii State Department of Transportation: Honolulu, 1973.
- Federal Home Loan Bank of Seattle, Honolulu, Hawaii: Housing Vacancy Survey. (June 1979 and May 1989 surveys).
- Hawaii State Census Statistical Areas Committee. Geographical Distribution of Government Housing in Hawaii, 1985: Report CTC- 63. Prepared for Hawaii State Department of Business and Economic Development: Honolulu, HI, 1985.
- Hawaii Department of Business and Economic Development. Population and Economic Projections for the State of Hawaii to 2010 (Series M-K). (November 1988).
- Hawaii Department of Business, Economic Development, and Tourism. The State of Hawaii Data Book 1990: A Statistical Abstract. Honolulu, 1990.
- Hawaii Department of Labor and Industrial Relations. Labor Force Data Book. (March 1978 as revised annually through April 1990.)
- Hawaii Housing Authority. Composite Report. (1990).
- The Honolulu Advertiser. "Kahanu to Fasi: Relocate Kailua Apartment Project." October 19, 1990.
- _____. "Kailua Parking Garage Opposed." November 5, 1990.
- _____. "Felix, Holmes Seek Solution for Senior Housing in Kailua." December 7, 1990.

Honolulu Department of General Planning. General Plan: Objectives and Policies. (1988).

_____. General Plan: Objectives and Policies. Supplement 1 to the 1988 Edition. (1989).

Honolulu Department of General Planning. Development Plan Status Review. (1990).

Honolulu Department of Housing and Community Development.
"Development Plan Amendment Applications: West Loch Bluffs, Ewa; Kailua Elderly Housing Project, Koolaupoko." Memorandum from Michael N. Scarfone, Director, to Benjamin Lee, Chief Planning Officer, Department of General Planning. (January 16, 1990).

_____. Kailua Interim Parking Plan. (Revised January 5, 1991.)

Honolulu Office of Human Resources, Elderly Affairs Division. Aloha Pumehana. (Special issue on elderly housing). (January 1990).

_____. Design Recommendations for the Manoa Elderly Housing Project. (October 1989).

KPMG Peat Marwick. Rental Housing Development Study for the Island of Oahu. Prepared for the Department of Housing and Community Development. (July 1989).

Kawainui Marsh Technical and Policy Advisory Committee. Resource Management Plan for Kawainui Marsh. Prepared for Hawaii Department of Planning and Economic Development. Honolulu: 1983.

Kelly, M. and Clark, J. Kawainui Marsh, O'ahu: Historical and Archaeological Studies. Prepared for Department of Anthropology, Bernice Pauahi Bishop Museum: Honolulu, 1980.

Mustapha, gael. Kailua, O'ahu: A Community History. Kailua, Hawaii: gael P. Mustapha, 1985.

Oahu Metropolitan Planning Organization. "Employers in Kailua Area with 50+ Employees." File Extract from list compiled by the Hawaii Business Directory in 1989. (January 1991).

Community Resources, Inc. Kailua Elderly Housing

- Okaneke, Randall S. Traffic Impact Assessment Report for the Proposed Kailua Elderly Housing. (Draft, February 1991).
- The Sunday Star-Bulletin and Advertiser. "Creating Housing for Seniors." (October 21, 1990).
- _____. "Kailua Town Faces Major Housing and Planning Decisions." (December 23, 1990.)
- United States Bureau of the Census. 1980 Census of Population and Housing. Summary Tape File 1-A. (Microfiche). (1981).
- _____. 1980 Census of Population and Housing. Summary Tape File 3-A. (Microfiche). (1981).
- _____. 1980 Census of Population and Housing. Census Tracts, Honolulu Hawaii SMSA. (1983).
- _____. 1980 Census of Population and Housing. Neighborhood Statistics Program: Hawaii. (1983).
- _____. 1990 Census of Population and Housing. Postcensus Local Review Listing, Honolulu County. (1990).
- _____. Census of Retail Trade: Geographic Area Series, Hawaii. (1982 and 1987 Census reports).
- _____. Census of Service Industries: Geographic Area Series, Hawaii. (1982 and 1987 Census reports).
- _____. Census of Wholesale Trade: Geographic Area Series, Hawaii. (1982 and 1987 Census reports).
- Urban Land Institute. Dollars and Cents of Shopping Centers: 1990. Washington, D.C.: Urban Land Institute, 1990.
- _____. Parking Requirements for Shopping Centers: Summary Recommendations. Washington, D.C.: Urban Land Institute, 1981.
- _____. Shopping Center Development Handbook. Washington, D.C.: Urban Land Institute, 1981.
- Y. Ebisu and Associates. Noise Study for the Proposed Kailua Elderly Housing Project, Kailua, Oahu. (Draft, February 1991).

APPENDIX F
INTERIM PARKING PLAN

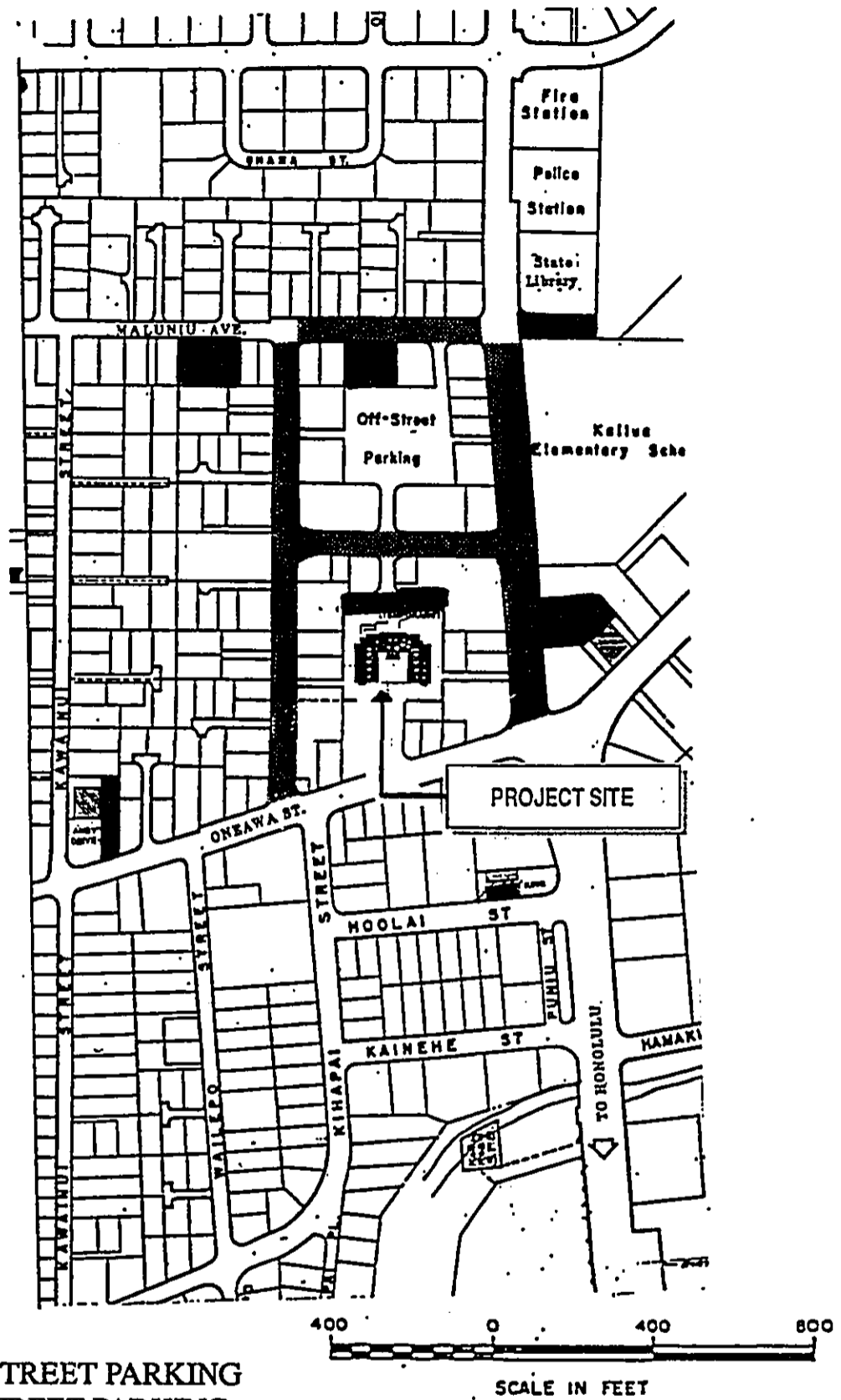
A parking analysis conducted by the City and County of Honolulu's Department of Transportation Services (DTS) in February 1989 concluded that the 146-stall Kailua Municipal Parking Lot B (The Kailua Elderly Housing Project site), which absorbs parking overflow from the immediately makai Municipal lot A, is currently under-utilized. Its closure would require 30 stalls to absorb the "overflow" from the immediately makai Municipal Lot A. A DTS parking analysis update conducted in April 1991 confirmed the current parking underutilization of Kailua Municipal Parking Lot B. To mitigate disruptions to those businesses adjacent to the affected parking lots and to minimize inconveniences to their patrons, DHCD plans to provide significantly more than 30 parking stalls for public and construction worker use during the construction period. These parking stalls will be provided in three ways:

1. By providing parking and loading stalls on a portion of Municipal Lot B during construction;
2. By providing off-street parking at nearby sites by agreement with site owners and occupants;
3. By providing on-street parking and loading stalls through street adjustments.

The table on the following page is a tabulation of the DHCD Interim Parking Plan developed in February, 1991. It displays parking and loading stalls to be made available for public and construction worker use during project construction. This plan may be adjusted once construction commences to improve its workability, if necessary.

KAILUA ELDERLY HOUSING INTERIM PARKING PLAN

<u>LOCATION</u>	<u>STALL TYPE</u>		<u>TOTAL STALLS</u>	<u>INTENDED USER</u>
	<u>PARKING</u>	<u>LOADING</u>		
I. Offstreet				
A. Lot B - Temporary	33	3	36	Public
B. Bank of Hawaii	16	--	16	Public
C. Maluniu Lot	21	--	21	Public
D. Andy's Drive Inn	10	--	10	Construction
E. Burger King	12	--	12	Construction
F. Dept. of Parks & Recreation Lot (Near Library)	35	--	35	Public
TOTAL OFFSTREET	127	3	130	
II. Onstreet				
A. Aulike St. (Between Uluniu St. & Kuulei Road)	18	1	19	Public
B. Maluniu St. (Between Uluniu St. & Kuulei Road)	22	--	22	Public
C. Uluniu St. (One-way between Oneawa St. & Maluniu St.)	70	4	74	Public
D. Kuulei Rd. (Between Oneawa St. & Maluniu St.)	30	1	31	Public
TOTAL ONSTREET	140	6	146	
GRAND TOTAL	267	9	276	



OFF-STREET PARKING
 ON-STREET PARKING

EXHIBIT 1: PROJECT SITE & INTERIM PARKING AREAS
 DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
 FEBRUARY 5, 1991