DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

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May 20, 2002

CDED-B 02-0177

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State of Hawaii
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Final Environmental Assessment and
Finding of No Significant Impact for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.) and 9-4-132: 100 (por.)

The City and County of Honolulu, Department of Design and Construction, has reviewed the comments received during the 30-day public comment period which began on July 23, 2001. The agency has determined that this project will not have significant environmental effects and has issued a Finding of No Significant Impact (FONSI) determination. Please publish this determination in the June 8, 2002 edition of *The Environmental Notice*.

Four (4) copies of the Final EA/FONSI and a completed OEQC publication form with attached project summary are enclosed. An electronic version of the project summary will be sent to you directly by our consultant, Engineering Concepts, Inc.

Should you have any questions, please call Mr. Harold Sato of the Civil Design and Engineering Division at 527-6244 or Mr. Kay Muranaka of Engineering Concepts, Inc. at 591-8820.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

Encl.

cc: Kay Muranaka – Engineering Concepts, Inc.

51

2002-06-08-OA-FEA-

FINAL ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii

TMK: 9-4-55:146; 9-4-02:28 (por.); 9-4-34:43 (por.); 9-4-55:61 (por.); and 9-4-132:100 (por.)

Proposing Agency:

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 South King Street
Honolulu, Hawaii 96813

Prepared by:

ENGINEERING CONCEPTS, INC.
1150 South King Street, Suite 700
Honolulu, Hawaii 96814

MAY 2002

FINAL ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

~

Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii

TMK: 9-4-55:146; 9-4-02:28 (por.); 9-4-34:43 (por.); 9-4-55:61 (por.); and 9-4-132:100 (por.)

This environmental document has been prepared pursuant to Chapter 343, Hawaii Revised Statutes

Proposing Agency:

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 South King Street
Honolulu, Hawaii 96813

Responsible Official:

Rae M. Loui, P.E., Director

MAY 17 2002

Date

Prepared by:

ENGINEERING CONCEPTS, INC.
1150 South King Street, Suite 700
Honolulu, Hawaii 96814

MAY 2002

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DEVELOPMENT SUMMARY

PROPOSING AGENCY:	Department of Design and Construction City and County of Honolulu 650 South King Street Honolulu, Hawaii 96813
Responsible Official:	Ms. Rae M. Loui, P.E. Director
Contact: Phone: Fax:	Mr. Harold Sato, Project Manager 527-6244 527-6103
PROJECT NAME:	Village Park Connector Road
PROPOSED ACTION:	Construction of a new public road under the H-1 freeway between Village Park and Waipahu Town.
PROJECT LOCATION:	Central Oahu lands extending from Kupuna Loop in Village Park to Loaa Street in Waipahu.
TAX MAP KEY:	9-4-55:146; 9-4-02:28 (por.); 9-4-34:43 (por.); 9-4-55:61 (por.); and 9-4-132:100 (por.)
LAND OWNERS:	State of Hawaii (Interstate H-1) Moanalua Congregational Christian Church of American Samoa (Kanana Fou Church) (TMK: 9-4-02:28 and 9-4-55:146) Tony D. Andres Trust (TMK: 9-4-55:61) Geoffrey P. & Imelda F. Fagaragan (TMK: 9-4-34:43) Taylor T. & Jennifer V. Tran (TMK: 9-4-132:100)
PROJECT AREA:	3.4 acres
STATE LAND USE DESIGNATION:	Urban
ZONING:	R-5 Residential
EXISTING USE:	Cane haul road, freeway and residential development

CHAPTER 1
INTRODUCTION

1.1 PURPOSE OF THIS DOCUMENT

The purpose of this Final Environmental Assessment (EA) is to disclose potential environmental impacts which may result from development of the proposed project, and to identify measures to mitigate these potential impacts. This document was prepared after public review of a Draft EA. Public comments and responses by the proposing agency have been incorporated in this document.

1.2 BACKGROUND

The City and County of Honolulu, Department of Design and Construction (DDC) is proposing to construct a new public road under its 21st Century Community Visioning Process. The proposed Village Park Connector Road would cross under the Interstate H-1 freeway along the alignment of an existing cane haul road to connect the community of Village Park with Waipahu Town in central Oahu. Presently, motorists traveling between Village Park and Waipahu Town use either Kunia Road or Paiwa Street via the H-1 freeway. Neither route is direct. Construction of the proposed connector road would improve traffic conditions by providing an alternate travel route for automobile, bicycle, and pedestrian traffic between the two communities.

The proposed Village Park Connector Road was identified in the *Waipahu Livable Communities Initiative* (1998), a document which focused on improving the quality of transportation facilities and promoting the economic revitalization of Waipahu. The document identified specific projects to aid in implementing the Waipahu Town Plan, a community-based plan prepared to economically revitalize and enhance the land use, circulation, and urban design aspects of Waipahu which was adopted by the Honolulu City Council in 1996.

The Waipahu Livable Communities Initiative is part of a national Livable Communities Initiative program funded by the Federal Transit Administration. Key characteristics of Livable Communities include:

- Full community participation in the decision-making process by residents, neighborhood organizations and the business community, including small and minority businesses; and

- Transit, pedestrian and bicycle access that is compatible with land use, zoning, and urban design to reduce dependence on the automobile.

During the Livable Communities Initiative process, formal inquiries were initiated with then landowner Robinson Trust regarding the possibility of acquiring or obtaining an easement or a joint use agreement for use of the existing cane haul road identified for the proposed connector road alignment. These lands have since been sold by Robinson Trust to the

Moanalua Congregational Christian Church of American Samoa (now known as Kanana Fou Congregational Christian Church / UCC). During the sale, the Robinson Trust informed the church of the possible future roadway.

The Waipahu Vision Team has budgeted Fiscal Year 2000 funds for planning of the proposed connector road. Design and construction funds have been budgeted for Fiscal Years 2001 and 2002.

1.3 OBJECTIVES

The proposed Village Park Connector Road was one of the projects addressed in the Waipahu Livable Communities Initiative project to improve the quality of transportation facilities and promote economic revitalization in Waipahu. To this end, specific objectives of the Waipahu Vision Team related to the proposed project are:

- To provide a more direct link between Village Park / Royal Kunia and the Waipahu Town core area;
- To provide pedestrian and bikeway facilities in association with vehicular travel lanes; and
- To foster a sense of one community.

1.4 PROJECT DESCRIPTION / LOCATION

The project site is located in Waipahu Town and Village Park in central Oahu (see **Figure 1-1**). Portions of the proposed road will be constructed within the right-of-way of an existing cane haul road, affecting lands owned by Kanana Fou Church. It is anticipated that land acquisition will also be required in order to construct roadway connections to Loaa Street in Waipahu and Kupuna Loop in Village Park. The proposed road alignment will be contained within the existing cane haul road easement under the Interstate H-1 freeway.

1.5 ALTERNATIVES CONSIDERED

Engineering Concepts, Inc., was contracted to work with the Waipahu Vision Team to evaluate alternatives for the proposed connector road within the existing cane haul road alignment. In addition to the proposed action, two alternative road layouts exist, both following the proposed road alignment. A third alternative considering a different alignment for the connector road was mentioned in the *Waipahu Livable Communities Initiative*, although not evaluated by Engineering Concepts, Inc.

While this environmental assessment specifically addresses the recommended road layout, all of the alternatives considered and "no action" are presented in **Chapter 5**.

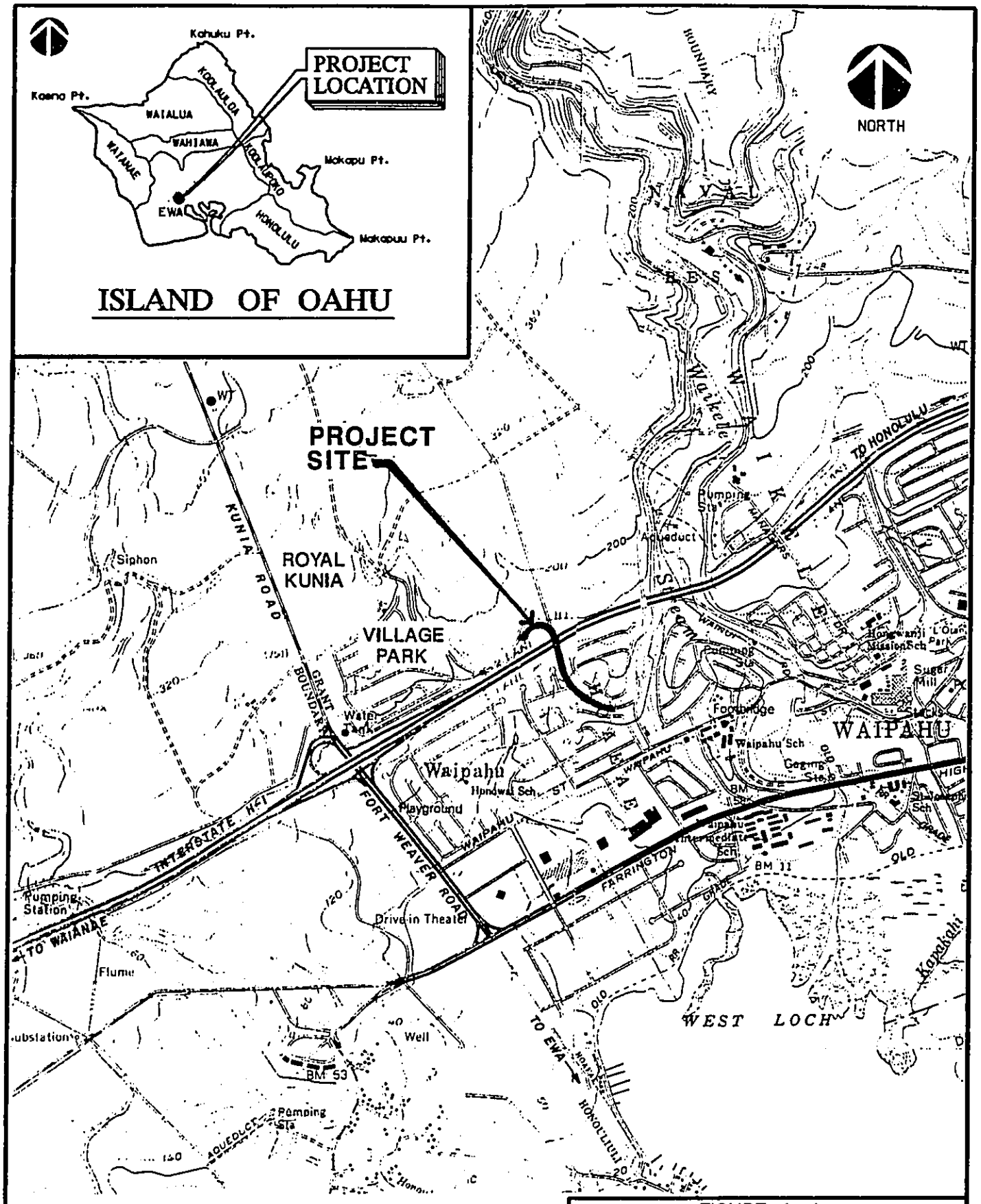


FIGURE 1-1

LOCATION MAP

1.6 SUMMARY OF POTENTIAL IMPACTS AND MITIGATION MEASURES

Regional Impacts

Short term regional impacts are increased traffic, dust and noise during construction, which may result in increased calls to the Honolulu Police Department. Mitigative measures are summarized in the sections that follow. The long term regional impact is reduced traffic on Kunia Road and improved access between Village Park and Waipahu Town for cars, bicycles and pedestrians.

Topography

Impacts will be minimal since the proposed connector road will be constructed within the right-of-way of the existing cane haul road.

Soil Erosion

Short term impacts will occur during construction due to removal of existing vegetation and grading activities. Mitigative measures include implementation of control measures specified on the construction drawings; conducting clearing, grubbing and grading activities in accordance with local ordinances; and timely re-establishment of vegetation and/or pavement. No long term impacts are anticipated. The entire area of disturbance will be paved or landscaped upon completion of construction.

Flood and Tsunami Hazard

The project site is not located in a flood zone or tsunami innundation area.

Flora and Fauna

The project is not anticipated to impact rare or endangered flora or fauna, or habitat due to location within the right-of-way of an existing cane haul road and the urbanized surroundings.

Archaeological, Historic and Cultural Resources

The project is not anticipated to impact archaeological, historic and/or cultural resources. However, work will be halted and direction will be requested from the State Historic Preservation Division and the Oahu Island Burial Council if discoveries are made during construction.

Land Ownership and Neighboring Lands

Land will need to be acquired from several private landowners, which may be viewed as a negative impact if there are conflicting plans for the properties. Kanana Fou Church has been aware of the proposed connector road through their property since the time of purchase. Correspondence has been initiated with other affected landowners.

Traffic

Traffic control plans will be prepared to safely route traffic around the construction area. The plans will be submitted to appropriate agencies for approval. Construction operations will be scheduled to avoid peak traffic conditions. Upon completion of the project, there will be a change in the traffic pattern along Loaa Street and Kupuna Loop. Signs will be installed and Loaa Street residents will be notified of the change in the traffic pattern. Traffic calming measures will be constructed along Kupuna Loop. In the long term, the project will have a net positive long term impact on traffic.

Air Quality

Short term impacts to air quality include generation of fugitive dust and exhaust emissions during construction. The contractor will be required to implement an effective dust control plan and minimize vehicle exhaust emissions in compliance with the state Department of Health regulations. No long term air quality impacts are anticipated. The mobile source impact analysis results indicated compliance with federal and state carbon monoxide standards under worst case conditions of meteorology and peak hour traffic.

Noise

The contractor will be required to comply with state Department of Health regulations to minimize the short term noise impacts associated with construction. A Community Noise Permit for Construction Activities will be obtained. Predicted noise levels projected to the year 2020 should not exceed 65 Ldn along the proposed connector road; therefore, traffic noise mitigation measures should not be required.

Hazardous Materials

No direct evidence of hazardous substance/waste surface contamination was present at the site. Analytical results of limited sampling of surface soils indicated that abandoned motor vehicles and/or runoff from the H-1 freeway into the site have not caused petroleum contamination above the state Department of Health's Tier 1 Action Levels for Soil and Ground Water.

Utilities

Impacts to nearby existing utilities will be minimized by coordination during planning, design and construction. The contractor will ultimately be responsible to locate and protect existing utilities; and repair any damage which may result to existing utilities due to the project construction.

1.7 PERMITS AND APPROVALS REQUIRED

Permits and approvals which may be required for construction of the proposed project are listed in **Table 1-1**. The applicability of these environmental permits will be coordinated with the respective agencies, and permit applications will be prepared as planning and design of the project proceeds.

TABLE 1-1
PERMITS AND APPROVALS

AGENCY	PERMIT / APPROVAL
State of Hawaii Department of Health	• Community Noise Permit for Construction Activities • Variance from Pollution Controls
State of Hawaii Department of Transportation	• Construction Plan Approval
City and County of Honolulu Department of Design and Construction	• Construction Plan Approval
City and County of Honolulu Department of Planning and Permitting	• Grubbing, Grading and Stockpiling Permit • Sign Permit • Permit to Excavate Public Right-of-Way • Construction Plan Approval • Traffic Control Plan Approval
City and County of Honolulu Department of Transportation Services	• Street Usage Permit
City and County of Honolulu Fire Department	• Construction Plan Approval

The project site is not located in the Special Management Area or Conservation District. Further, the area of disturbance will not exceed five acres and therefore is not currently subject to a National Pollutant Discharge Elimination System (NPDES) permit for discharge of storm water associated with construction activity.

CHAPTER 2
PROJECT DESCRIPTION

2.1 NEED FOR THE PROJECT

Presently, motorists traveling between Village Park and Waipahu Town use either Kunia Road or Paiwa Street via the H-1 freeway. Neither route provides direct access or favors bicycle or pedestrian traffic. Construction of the proposed Village Park Connector Road would improve traffic conditions by providing an alternative travel route for automobile, bicycle and pedestrian traffic between the two communities.

2.2 DESCRIPTION OF THE PROPOSED ACTION

The proposed road will follow the alignment of an existing cane haul road from Loaa Street in the Harbor View Subdivision of Waipahu to Kupuna Loop, the main collector road in Village Park. The alignment traverses under the Interstate H-1 freeway.

In planning the proposed Village Park Connector Road, the Waipahu Vision Team identified several concerns which needed to be addressed. A slow travel speed was desired, entailing incorporation of traffic calming measures in the road design. Further, restricting truck and bus traffic was desired to minimize noise impacts to adjacent homes. Finally, no street parking would be permitted as an added security measure for homes with backyards adjacent to the proposed connector road.

The City and County of Honolulu, Department of Planning and Permitting, Traffic Review Branch also had recommendations that need to be incorporated in the design:

- Inclusion of vehicular turnoff areas for emergency stops;
- Two 10-foot wide travel lanes and 2-foot shoulders;
- 12-foot wide travel lanes at intersections;
- Streetlighting;
- Skew intersection of proposed connector road with Loaa Street up to 15 degrees;
- Addition of "no parking" signs along Loaa Street to accommodate the increase in traffic turning into the proposed connector road; and
- Assess the feasibility of incorporating a mini-roundabout at the intersection of the proposed connector road and Loaa Street during design.

The proposed connector road will be designed to meet the Americans with Disabilities Act Accessibility Guidelines (ADAAG) requirements, or an application for technical infeasibility

will be submitted during design. Additionally, the design will meet current standards of "A Policy on Geometric Design of Highways and Streets" by the American Association of State Highway and Transportation Officials, "Manual on Uniform Traffic Control Devices for Streets and Highways" by the Federal Highways Administration, and "Traffic Standards Manual" by the City and County of Honolulu Department of Transportation Services.

2.2.1 Proposed Road Layout and Alignment

The proposed road alignment is illustrated on **Figure 2-1.** A typical cross section of the road is illustrated on **Figure 2-2.** Automobile traffic will be limited to two 10-foot wide travel lanes with 2-foot shoulders. A 5-foot wide drainage swale located on one side will be adequately designed for conveyance of storm water to ensure that flooding or ponding problems will not develop. No on-street parking will be permitted, although there are provisions for two emergency turn-off areas (one in each direction). A landscape strip of varying width will separate automobile traffic from the 12-foot wide multi-use path (consisting of two 4-foot wide bike lanes and a 4-foot wide pedestrian lane). Slow vehicle speeds of 20 to 25 mph will be employed, and the road gradient will vary between a minimum of 0.5 percent to a maximum of 9.6 percent. Due to existing space limitations, the proposed connector road will be constructed within a 50- to 60-foot wide right-of-way. A variance from the newly adopted City and County Subdivision Street Standards may be necessary to construct a road in the existing cane haul road corridor that best satisfies the needs and preferences of the Waipahu Vision Team and the community it represents.

2.2.2 Utilities

The existing concrete ditches along the cane haul road will be reconstructed, as necessary, to meet the maximum road gradient. The tops of existing sewer manholes within the cane haul road will also be adjusted to coordinate with the proposed connector road profile. Streetlighting will be installed along the proposed connector road.

2.2.3 Land Acquisition

Most of the proposed connector road alignment is presently located within privately-owned lands. The landowners were informed of this project during the pre-assessment consultation stage and were provided with a copy of the Draft EA for review. Copies of correspondence are included in **Appendix A.** Refer to **Figures 2-3 and 2-4** for land ownership information along the proposed alignment.

Acquisition of the cane haul road (TMK: 9-4-55:146) under the ownership of Kanana Fou Church for the proposed connector road, is in accordance with the terms of agreement between the Church, Mark Robinson Trusts (Testamentary and Inter Vivos), Caroline J. Robinson Ltd., Partnership and J.L.P. Robinson, for roadway purposes for nominal value. Acquisition of TMK: 9-4-2:28 from Kanana Fou Church will require negotiating a sale price based on the appraised value of the property.

Additionally, right-of-way will need to be acquired at the intersections of the proposed connector road with Kupuna Loop and Loaa Street in order to provide adequate road edge horizontal curve radius.

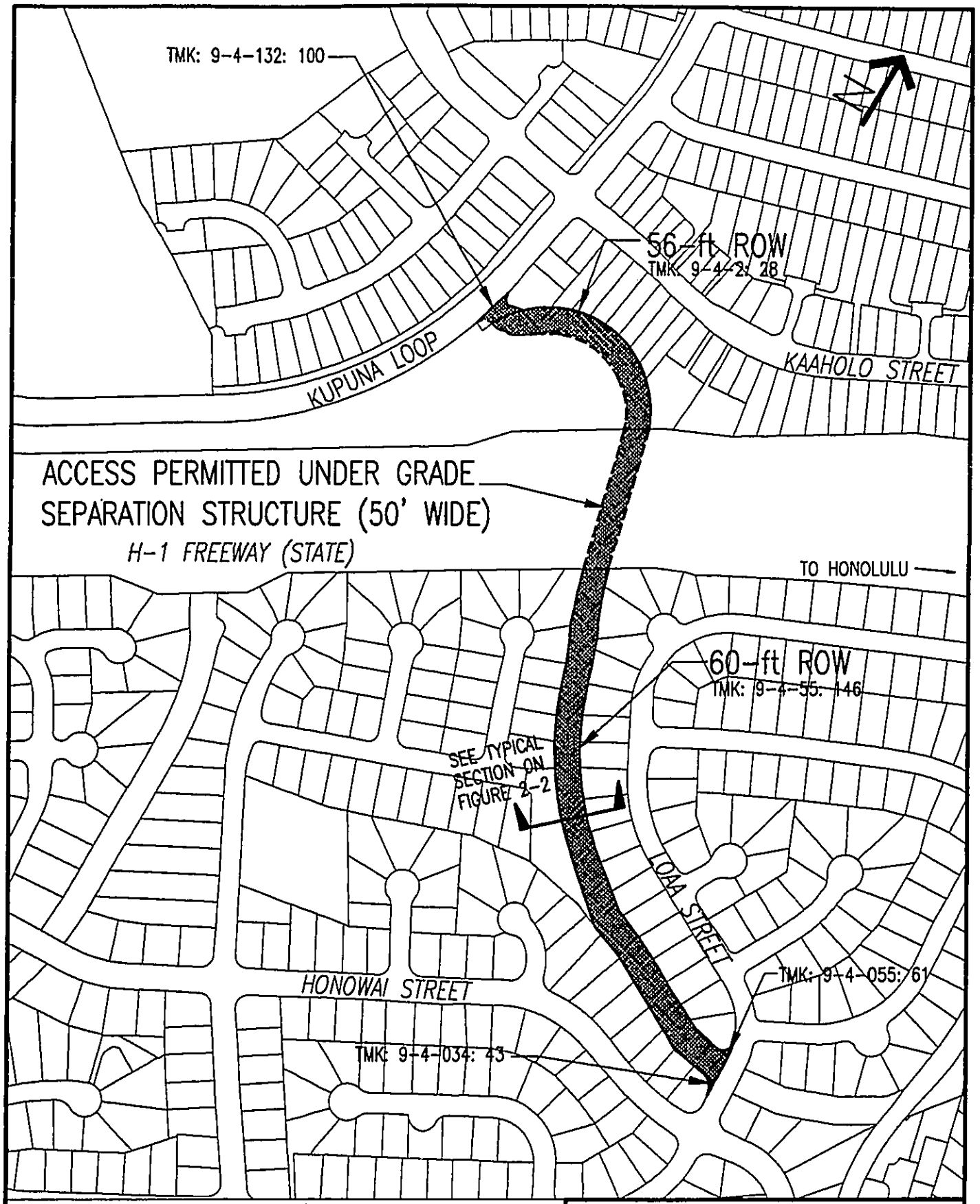
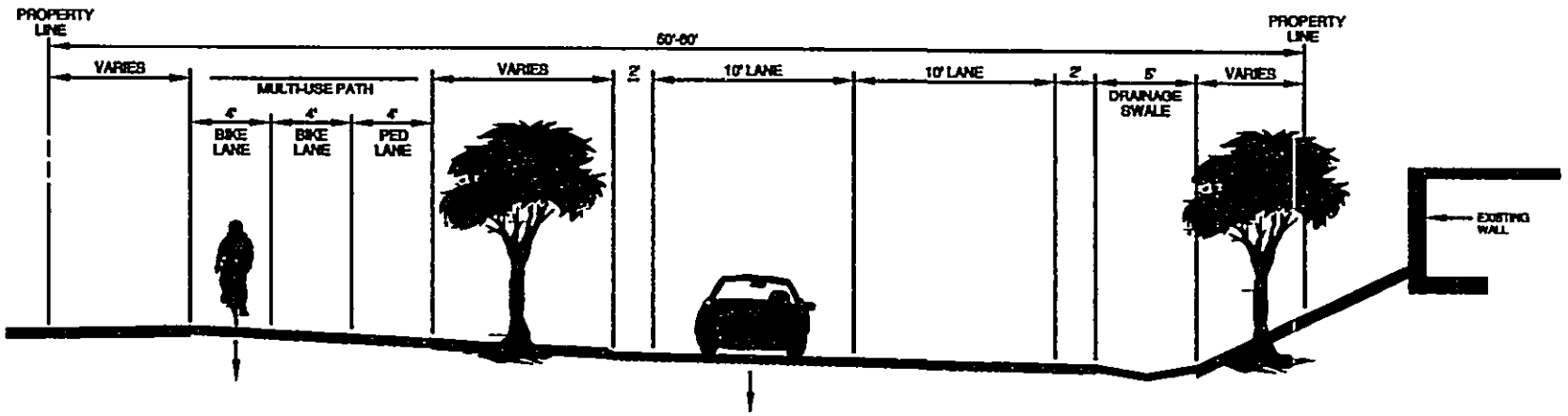


FIGURE 2-1

PROPOSED CONNECTOR ROAD ALIGNMENT



TYPICAL SECTION ~ MULTI-PATH

FIGURE 2-2

PROPOSED CONNECTOR ROAD SECTION

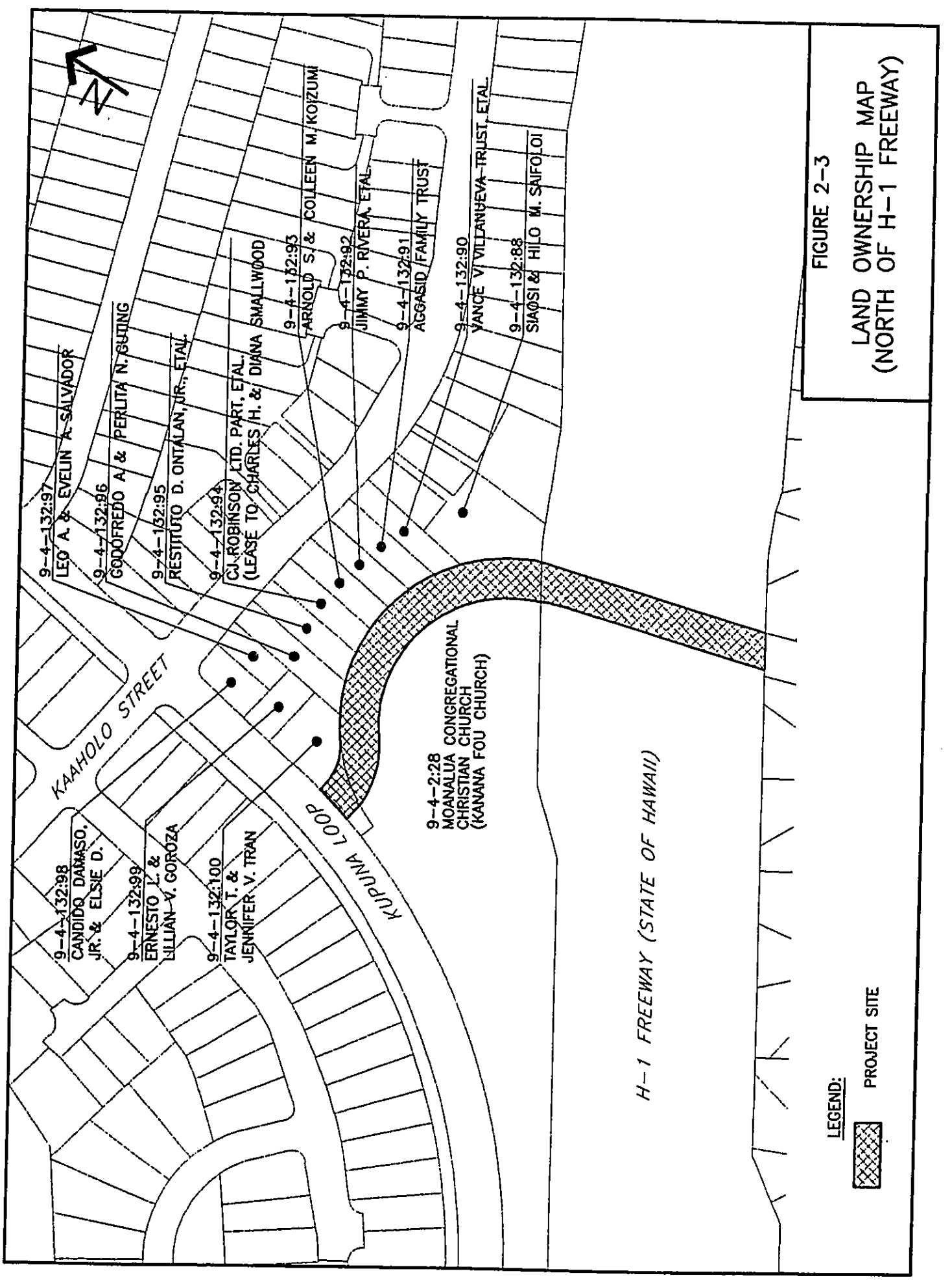


FIGURE 2-3

LAND OWNERSHIP MAP
(NORTH OF H-1 FREEWAY)

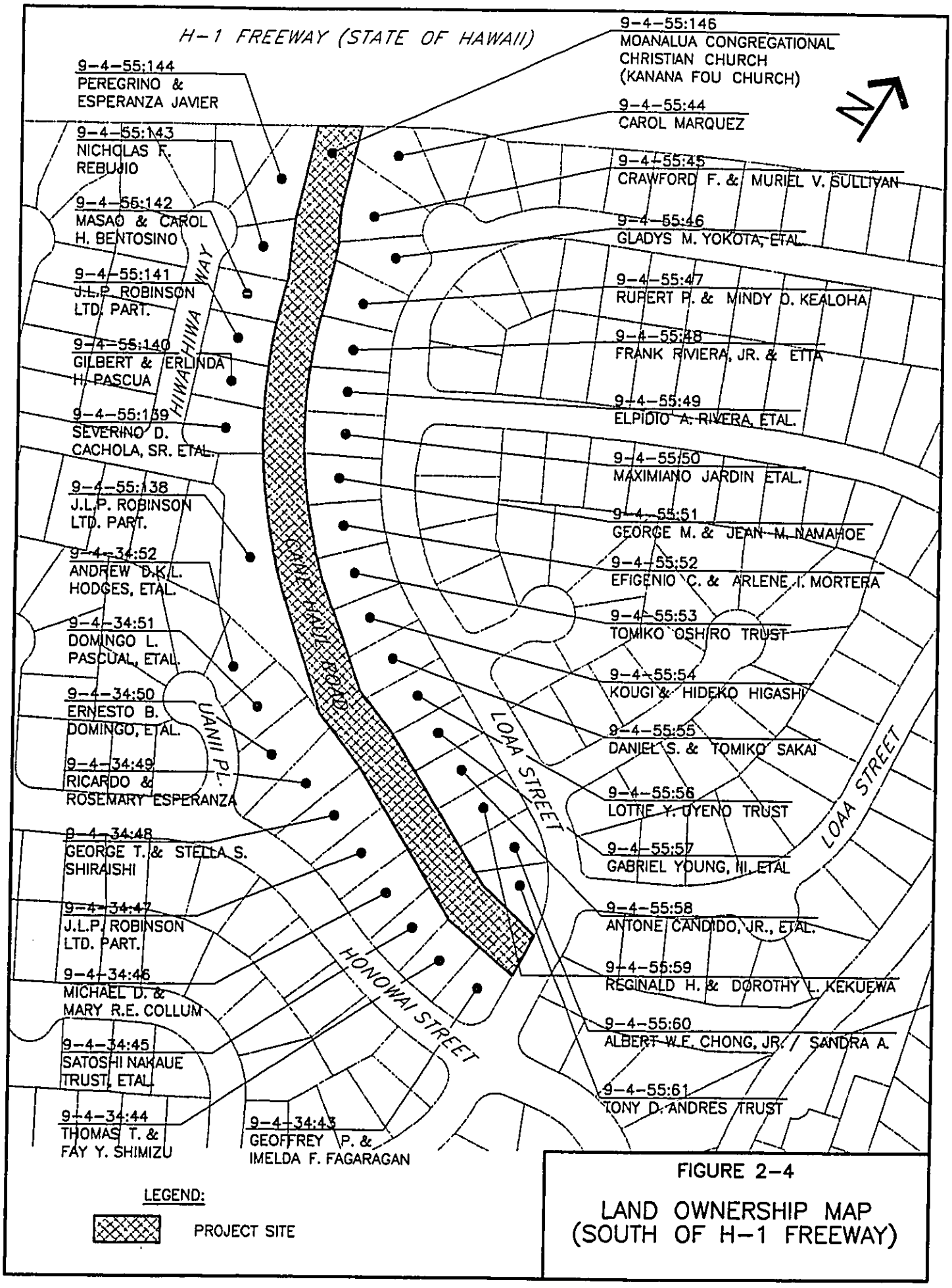


FIGURE 2-4

LAND OWNERSHIP MAP
(SOUTH OF H-1 FREEWAY)

The affected land owners and the approximate land requirement for the proposed road construction are listed in **Table 2-1.**

TABLE 2-1
LAND ACQUISITION REQUIREMENTS

TMK Parcel	Land Owner	Affected Area* (sq.ft.)
9-4-02:28	Moanalua Congregational Christian Church of American Samoa (Kanana Fou Church)	26,700
9-4-55:146	Moanalua Congregational Christian Church of American Samoa (Kanana Fou Church)	74,824
9-4-34:43	Geoffrey P. & Imelda F. Fagaragan	50
9-4-55:61	Tony D. Andres Trust	210
9-4-132:100	Taylor T. & Jennifer V. Tran	3,850

*approximate values

2.3 PROJECT SCHEDULE AND CONSTRUCTION COST

Construction is anticipated to begin in September 2002. The actual start date will be dependent on obtaining the required permits and approvals. It is anticipated that construction will take 12 months to complete. The estimated cost for design and construction of the project is $3.25 million, to be funded by the City and County of Honolulu through the Community Vision Program.

CHAPTER 3
DESCRIPTION OF THE AFFECTED ENVIRONMENT

The intent of this chapter is to describe the existing physical and social environment which is affected by the proposed action. Potential impacts which may result from development of the proposed action, and mitigation measures which will be employed to minimize negative impacts, are described in **Chapter 4.**

3.1 CLIMATE

Climatic norms, means and extremes for Honolulu are presented in **Table 3-1.** Northeast trade winds are prevalent, with low velocities (less than 10 mph) occurring frequently. From the fall to early spring, more light, variable wind conditions persist.

3.2 TOPOGRAPHY

Ground elevations range from 170 feet at Kupuna Loop in Village Park to about 97 feet at the intersection of Loaa Street and the existing cane haul road. The site slopes downhill from Kupuna Loop to Loaa Street with grades ranging from 0.5 to 8.5 percent. Retaining walls and slopes are present on both sides of the cane haul road right-of-way. Existing walls retain up to six feet in places.

3.3 SOILS

According to the *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai*, the soils in the project area are classified as Molokai silty clay loam, 3 to 7 percent slopes (MuB); Molokai silty clay loam, 7 to 15 percent slopes (MuC) and Waipahu silty clay, 6 to 12 percent slopes (WzC). The MuC soil type is prevalent along most of the proposed road alignment, with MuB identified in the vicinity of the freeway crossing. The WzC soil type is found at the Waipahu end of the alignment, near the intersection with Loaa Street.

The Molokai series consists of well-drained upland soils, developed in material weathered from basic igneous rock. Conditions may be nearly level to moderately steep, with elevations ranging from near sea level to 1,000 feet. Characteristic of the MuB soil type is slow to medium runoff potential and slight to moderate erosion hazard. The MuC soil type occurs on knolls and sharp slope breaks. Runoff is medium and the erosion hazard is moderate.

The Waipahu series consists of well-drained soils on marine terraces, developed in old alluvium derived from basic igneous rock. Conditions may be nearly level to moderately sloping, with elevations ranging from near sea level to 125 feet. Characteristic of the WzC soil type are medium runoff potential and moderate erosion hazard.

TABLE 3-1
CLIMATIC NORMALS, MEANS AND EXTREMES

Parameter	Descriptor	Value [1]
Temperature (degrees F)	Daily maximum Daily minimum Annual mean	84.4 70.0 77.2
Precipitation (inches)	Maximum monthly Minimum monthly Annual mean	20.91 trace 22.02
Humidity (%)	Normal	68
Wind Speed (mph)	Mean	11.4
Sunshine	Percent of possible	71
Sky Cover (mean no. of days)	Clear Partly cloudy Cloudy	90.0 179.8 92.0

Reference: J.W. Morrow from National Climatic Data Center

[1] Measurements taken at Honolulu International Airport

3.4 FLORA AND FAUNA

The project site is located within the right-of-way of a cane haul road in an urban area surrounded by residential neighborhoods and a freeway. Flora are limited to grasses, weeds and other species of landscape plants (due to close proximity of the residences). No unusual fauna are expected to be present due to the highly urbanized surroundings.

3.5 FLOOD AND TSUNAMI HAZARD

According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, the project site is located within Zone D, an area in which flood hazards are undetermined (see **Figure 3-1**). According to the Oahu Civil Defense Agency Tsunami Evacuation Map 18 (Ewa Beach to Airport), the project site is not located within a tsunami evacuation area.

3.6 ARCHAEOLOGICAL, HISTORIC AND CULTURAL RESOURCES

Based on review of historic reports, maps, and aerial photographs, the State Historic Preservation Division (SHPD) has stated that there are no known historic sites at the project location. Refer to correspondence in **Appendices A** and **B**. Commercial sugar cane cultivation in the area altered the land for many years. Further, the project location within the right-of-way of a cane haul road also decreases the likelihood that any archaeological, historic or cultural resources would be found.

3.7 LAND USE AND ZONING

The project site is located in the Urban district according to the State Land Use District Boundary Maps for the area (see **Figure 3-2**).

According to the City and County of Honolulu Zoning Map for the area (see **Figure 3-3**), the project site is located in lands zoned Residential (R-5).

3.8 LAND OWNERSHIP AND NEIGHBORING LANDS

The proposed collector road alignment is located within both public and private lands. The public lands are under jurisdiction of the State of Hawaii Department of Transportation, which includes an easement for the existing cane haul road under the H-1 freeway. The majority of the proposed road alignment in private lands is presently owned by Kanana Fou Congregational Christian Church / UCC.

Residential homes line both sides of the cane haul road. Robinson Tract Subdivision Units 2 and 3 (constructed in 1961), and Harbor View Subdivision Unit 7 (constructed in 1969) are located south of the H-1 freeway. The Village Park Subdivision Phases 5 and 6, and Village Park Subdivision Phase 7 are located north of the freeway. These subdivisions were constructed in 1981 and 1986, respectively.

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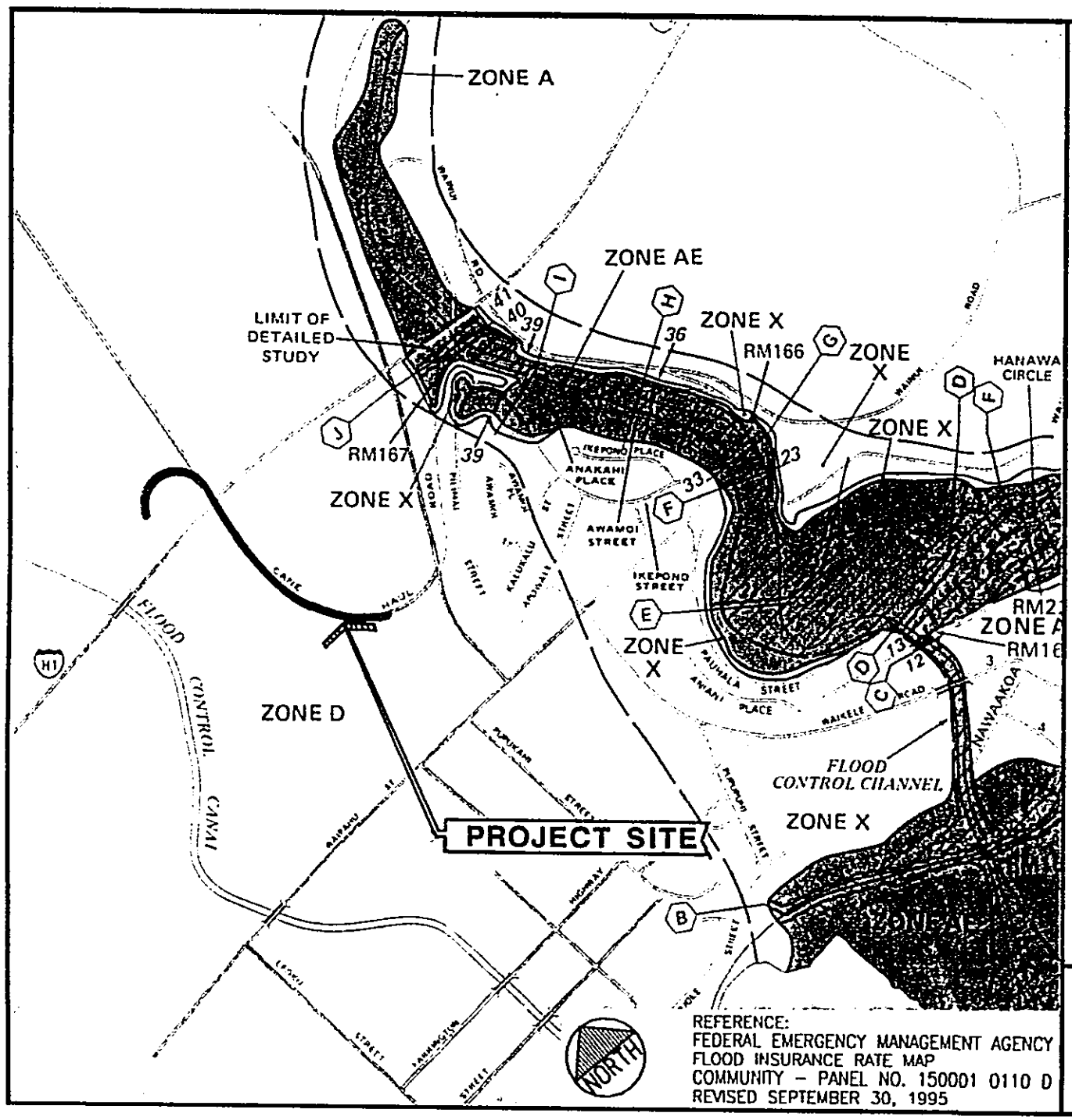


LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones

513 — Base Flood Elevation Line; Elevation in Feet*

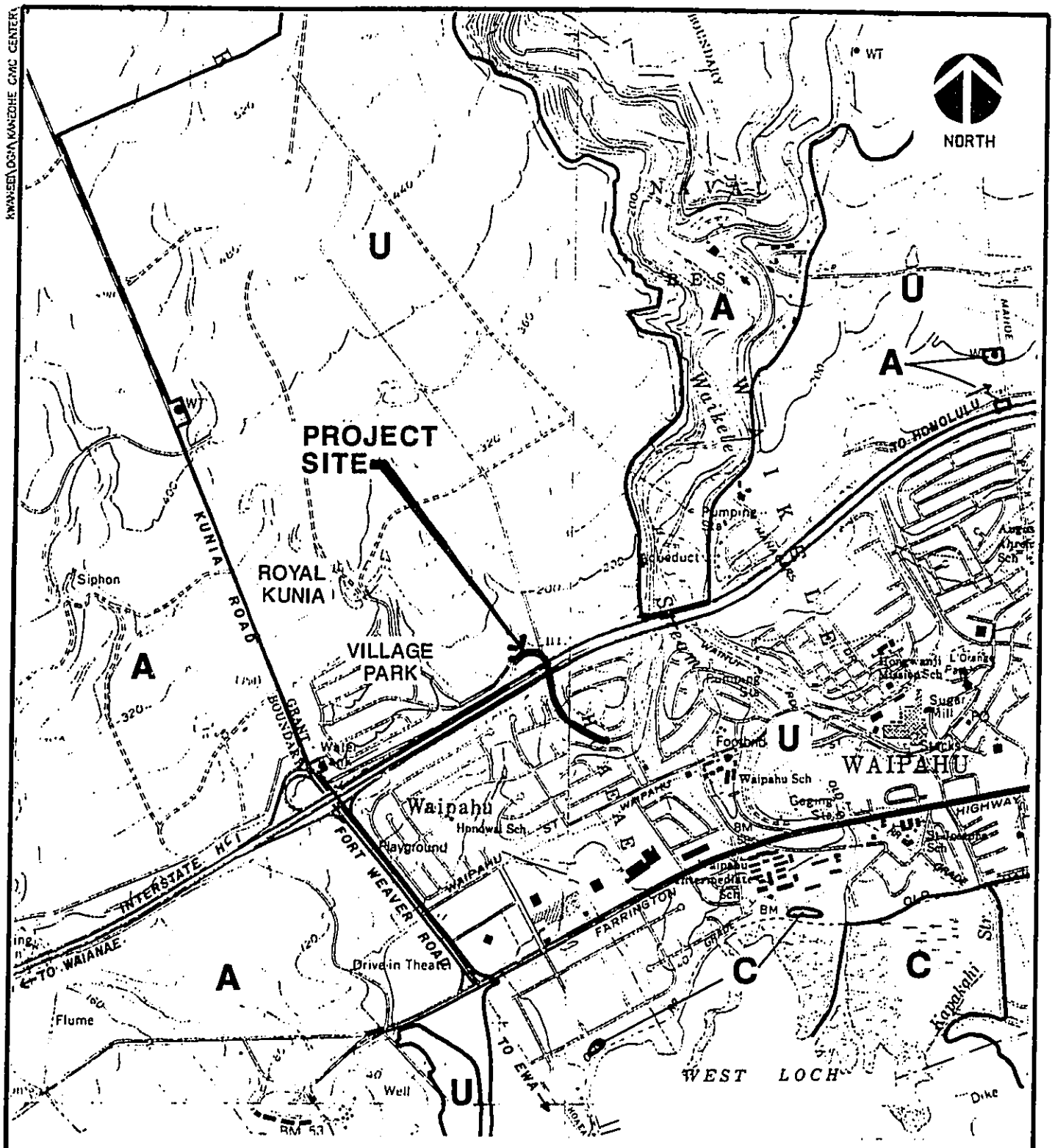
D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM17 X — Elevation Reference Mark

FIGURE 3–1

FLOOD HAZARD MAP



LEGEND:

———	STATE LAND USE DISTRICT BOUNDARY
U	URBAN DISTRICT
A	AGRICULTURAL DISTRICT
C	CONSERVATION DISTRICT

2000 1000 0 2000 4000

GRAPHIC SCALE IN FEET

REFERENCE:
STATE OF HAWAII LAND USE COMMISSION
DISTRICT MAP O-5 & O-9

FIGURE 3-2

STATE LAND USE DISTRICT BOUNDARY MAP

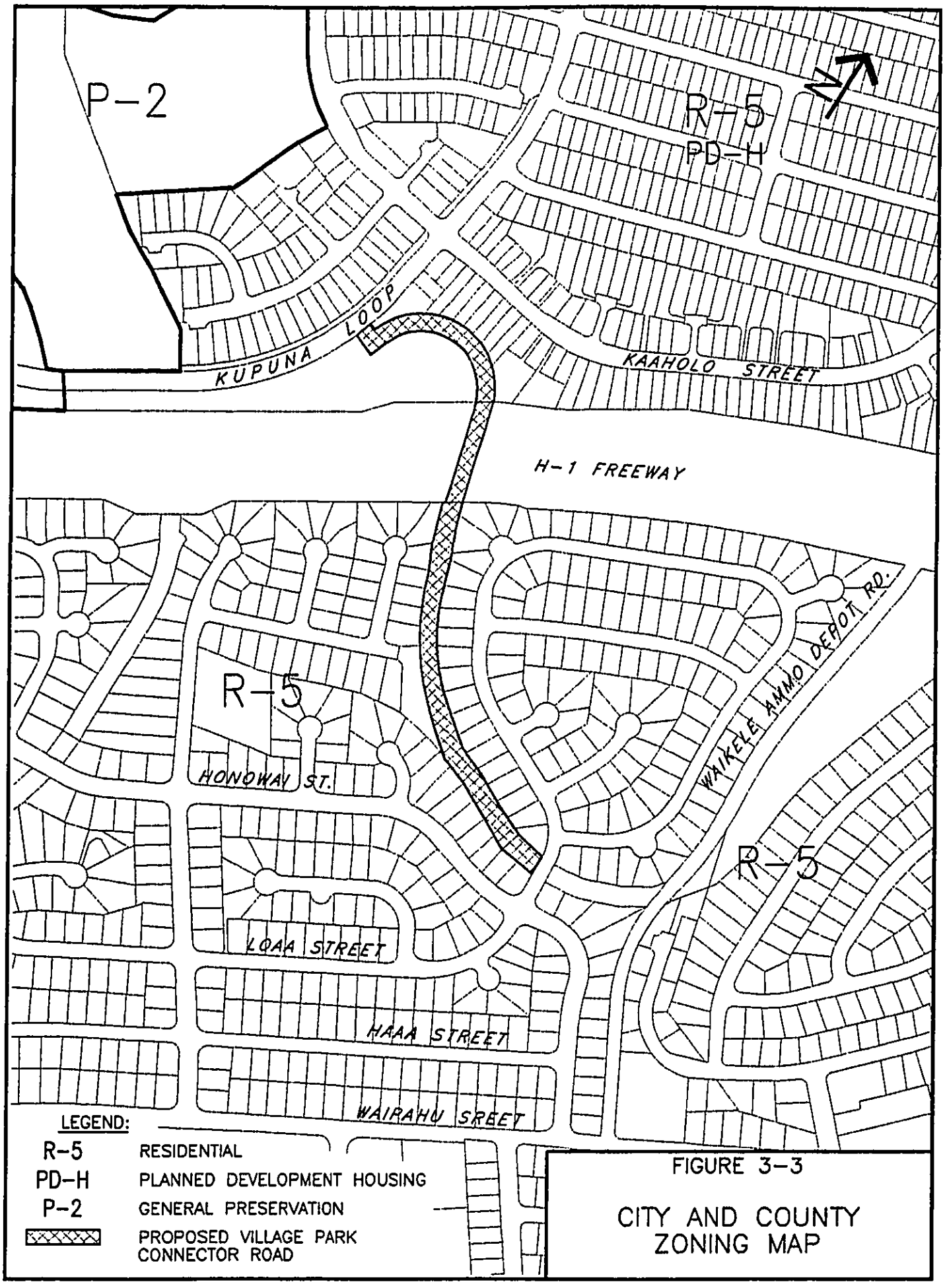


FIGURE 3-3

CITY AND COUNTY ZONING MAP

Private lands that will be directly affected by the proposed alignment are identified in **Table 2-1**. These lands and neighboring parcels abutting the project site are identified on **Figure 2-2**.

3.9 ROADS AND TRAFFIC

3.9.1 Cane Haul Road

The cane haul road was constructed in 1968 to realign existing cane haul roads as part of the H-1 freeway construction. The original pavement structure consisted of a 15-inch layer of untreated coral base with a surface coat of medium curing asphalt. The current pavement structure is 40 feet wide and has a surface layer of asphalt concrete pavement.

The existing cane haul road right-of-way varies as follows:

- Within TMK 9-4-2:28, the church has provided for a 56-foot wide right-of-way to Kupuna Loop.
- The State Department of Transportation right-of-way *map for the H-1 freeway* indicates a 50-foot wide access permitted under the grade separation structure (Hoaeae Bridge).
- TMK 9-4-55:146, located between the H-1 freeway and Loaa Street, is generally 60 feet wide and contains several kinks.

3.9.2 Project Vicinity

The following description of the existing roads and traffic in the project vicinity has been excerpted from the Traffic Analysis Report prepared by Pacific Planning & Engineering, Inc. Refer to **Appendix C** for the complete report.

Kunia Road is a north-south arterial between Waipahu and Schofield Barracks that services various residential and commercial land uses, providing direct access to the H-1 Freeway. The posted speed limit varies from 35 to 45 miles per hour (mph). Kunia Road is currently being widened from South Kupuna Loop to Anonui Street. South of the H-1 Freeway, Kunia Road becomes Fort Weaver Road, which extends from Waipahu to Ewa Beach.

Anonui Street is a four-lane collector road providing access to various residential areas within Royal Kunia. Presently, a portion of Anonui Street is closed to traffic, due to ongoing construction within the Royal Kunia development. The posted speed limit is 25 mph.

Kupuna Loop is a two-lane collector road providing access to various residential areas within Village Park. Kupuna Loop has two connections to Kunia Road, designated as North Kupuna Loop and South Kupuna Loop. Access to the existing commercial center is via North Kupuna Loop. The posted speed limit is 25 mph.

Waipahu Street is a two-lane road, essentially parallel to Farrington Highway through Waipahu, extending from Kamehameha Highway to Kunia Road. The posted speed limit is 25 mph and traffic signals are located at major intersections.

Honowai Street and Loaa Street are two-lane roads which provide access to residential areas north of Waipahu Street. Honowai Street has a direct connection to Kunia Road. The posted speed limit is 25 mph for both streets.

Manual traffic counts were taken of passenger cars and trucks at various intersections during the peak traffic hours (generally weekdays between 6:15 a.m. to 8:15 a.m. and 4:00 p.m. to 6:00 p.m.) Existing traffic volumes provide a baseline condition upon which future estimated traffic volumes can be added. The following observations were noted at the intersections:

Kunia Road / Anonui Street. Traffic flowed smoothly during both the morning and afternoon peak hours. Kunia Road traffic flow was platooned in both directions.

Kunia Road / North Kupuna Loop. The intersection is a signalized four-leg intersection. For the majority of the time, traffic flowed smoothly during both the morning and afternoon peak hours. More than 50 percent of the northbound motorists making right-turns from Kunia Road to North Kupuna Loop did so on the red phase. Downstream conditions at the intersection of Kunia Road / South Kupuna Loop occasionally caused southbound vehicles turning left from North Kupuna Loop to queue back through the intersection. However, queued vehicles were able to clear the intersection during the green phase. Currently, motorists at this intersection generally experience Level of Service (LOS) "D" or better conditions, with the exception of the southbound left-turn movement, which operates at LOS "E" during the afternoon peak.

Kunia Road / South Kupuna Loop. The intersection is a signalized T-intersection. For the majority of the time, traffic flowed smoothly during both the morning and afternoon peak hours. More than 50 percent of the northbound motorists making right-turns from Kunia Road to South Kupuna Loop did so on the red phase. Currently, motorists at this intersection generally experience LOS "D" or better during peak hours.

North Kupuna Loop / Kupuohi Street. Traffic flowed smoothly during both the morning and afternoon peak hours. The inside lane on the eastbound approach to the intersection operates essentially as an exclusive left-turn lane. Currently, motorists at this intersection generally experience LOS "C" or better during both the morning and afternoon peak hours.

South Kupuna Loop / Kupuohi Street. Traffic flowed smoothly during both the morning and afternoon peak hours. Currently, southbound motorists exiting from Kupuohi Street onto South Kupuna Loop experience LOS "B" during the morning peak hour. During the afternoon peak, northbound motorists exiting from Kupuohi Street onto South Kupuna Loop experience LOS "E".

Waipahu Street / Honowai Street. The intersection is an unsignalized T-intersection with single lane approaches. Traffic flowed smoothly during both the morning and afternoon peak hours. Currently, southbound motorists turning left from Honowai Street onto Waipahu Street experience LOS "C" during the weekday morning and afternoon peak hours.

Honowai Street / Loaa Street. The intersection is an unsignalized four-leg intersection with single lane approaches. Traffic flowed smoothly during both the morning and afternoon peak hours. Currently, motorists at this intersection experience LOS "B" conditions or better during the weekday morning and afternoon peak hours.

Existing weekday morning and weekday afternoon peak hour traffic volumes at major intersections in the project vicinity are presented on **Figures 3-4 to 3-7.**

3.10 AIR QUALITY

The following description of air quality in the vicinity of the project site has been excerpted from the *Air Quality Impact Report* by J.W. Morrow. Refer to **Appendix D** for the complete report.

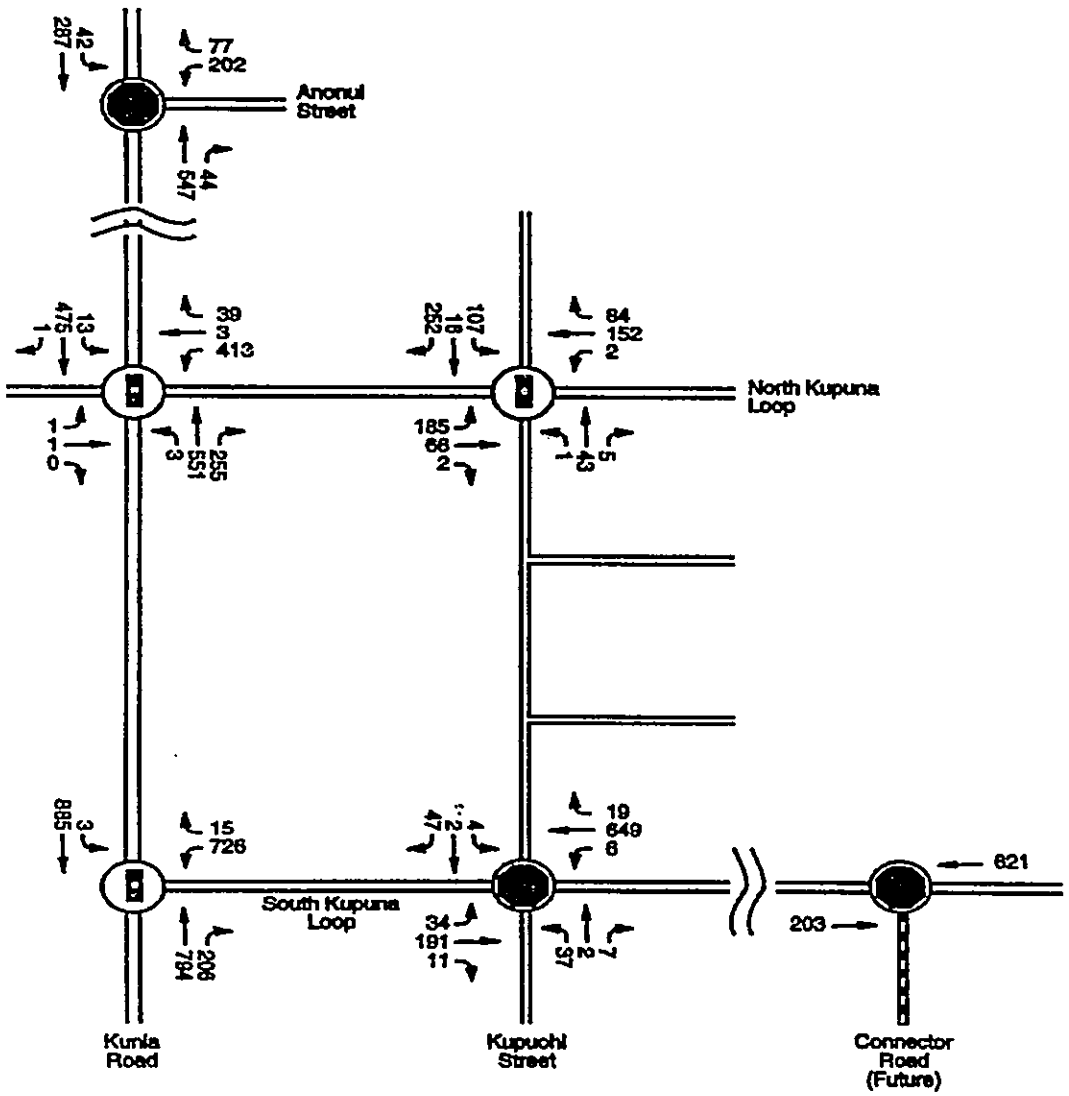
The state Department of Health (DOH) maintains a network of air monitoring stations around the state to gather data on the following regulated pollutants: particulate matter ≤10 microns (PM_{10}), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and ozone (O_3). The nearest DOH monitoring stations to the project site are located at Pearl City and Kapolei. A summary of the most recent published air quality data from those stations and Sand Island, the only ozone monitoring site, is presented in **Table 3-2.** These data are indicative of the generally good air quality in the City and County of Honolulu and may be considered reasonably representative of existing air quality in the project area.

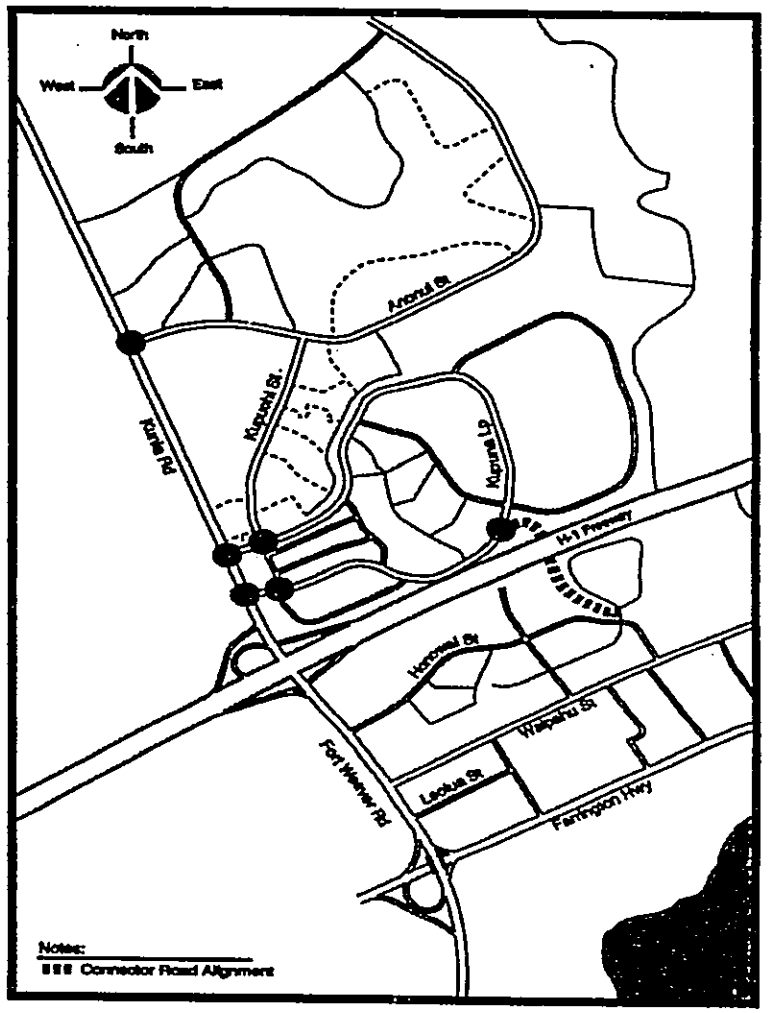
In comparison, a summary of the State of Hawaii and national ambient air quality standards (NAAQS) is presented in **Table 3-3.** Some of Hawaii's standards are clearly more stringent than their federal counterparts (i.e. CO, NO_2, O_3).

Computer modeling of carbon monoxide concentrations was performed for various intersections in the project vicinity using an EPA guideline model and Year 2000 traffic data. Results suggested that under worst case conditions of meteorology and traffic, both the federal and state 1-hour and 8-hour carbon monoxide standards would not be exceeded at receptor locations 10 meters and beyond the studied intersections.

3.11 NOISE

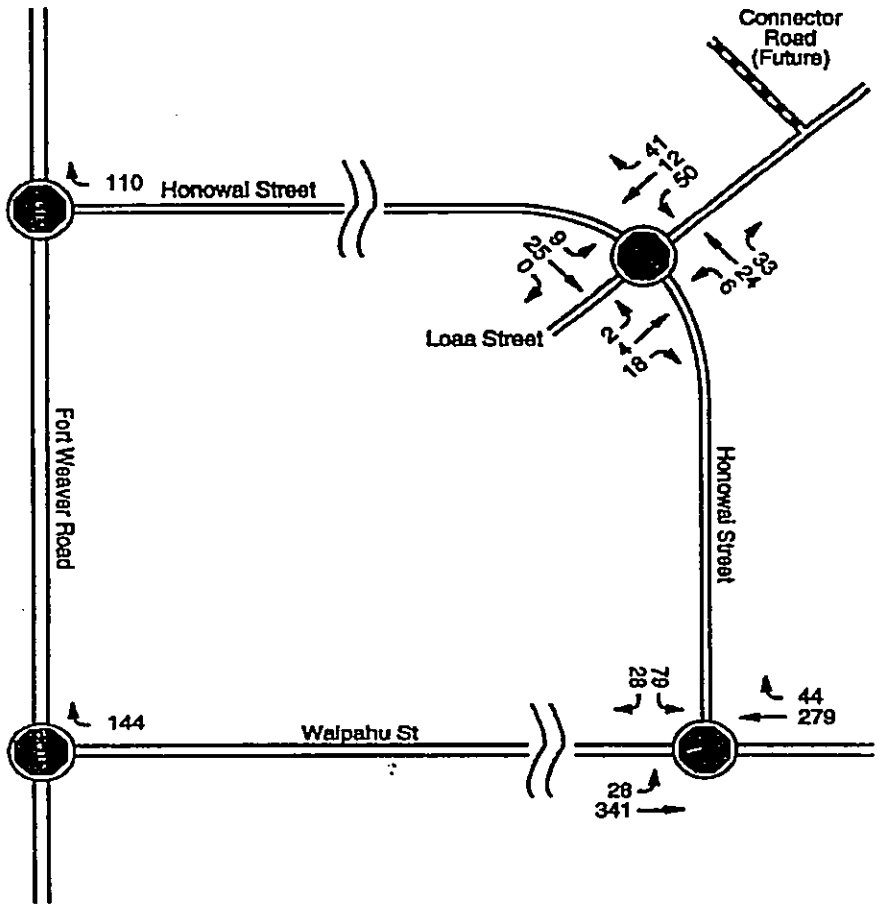
The following description of ambient noise in the vicinity of the project site has been excerpted from the *Traffic Noise Study* by Y. Ebisu & Associates. Refer to **Appendix E** for the complete report.

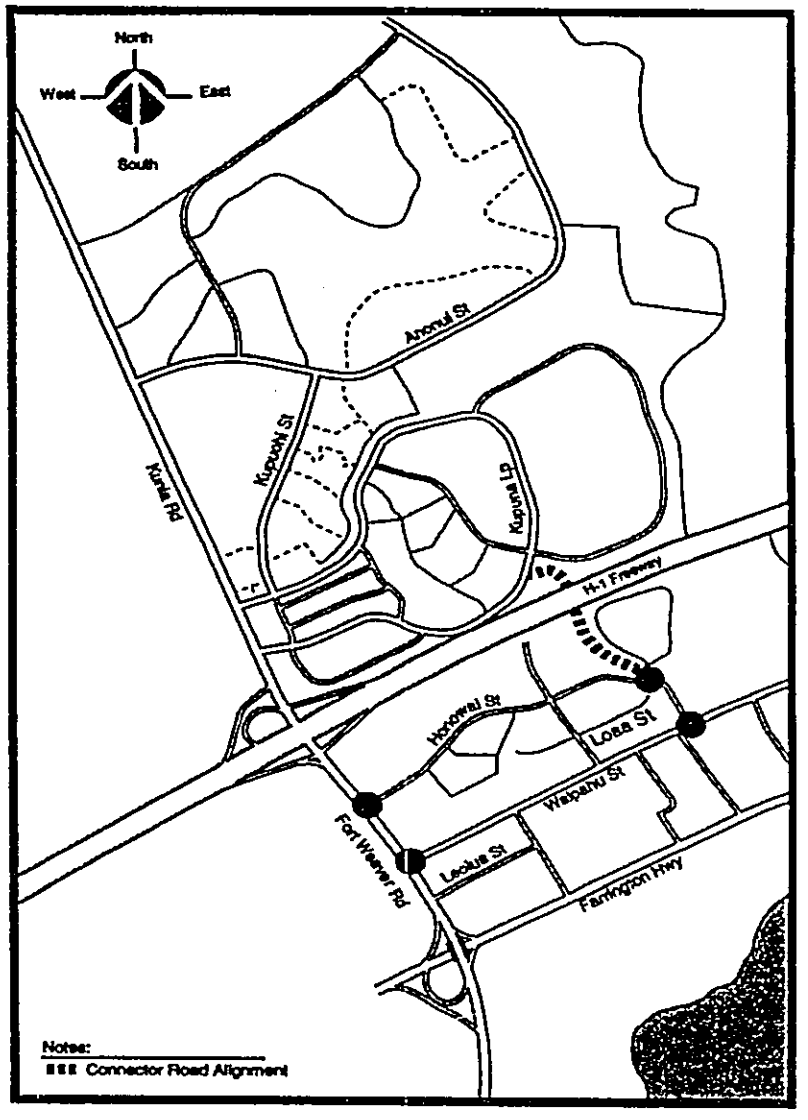




REFERENCE: PACIFIC PLANNING & ENGINEERING, INC.

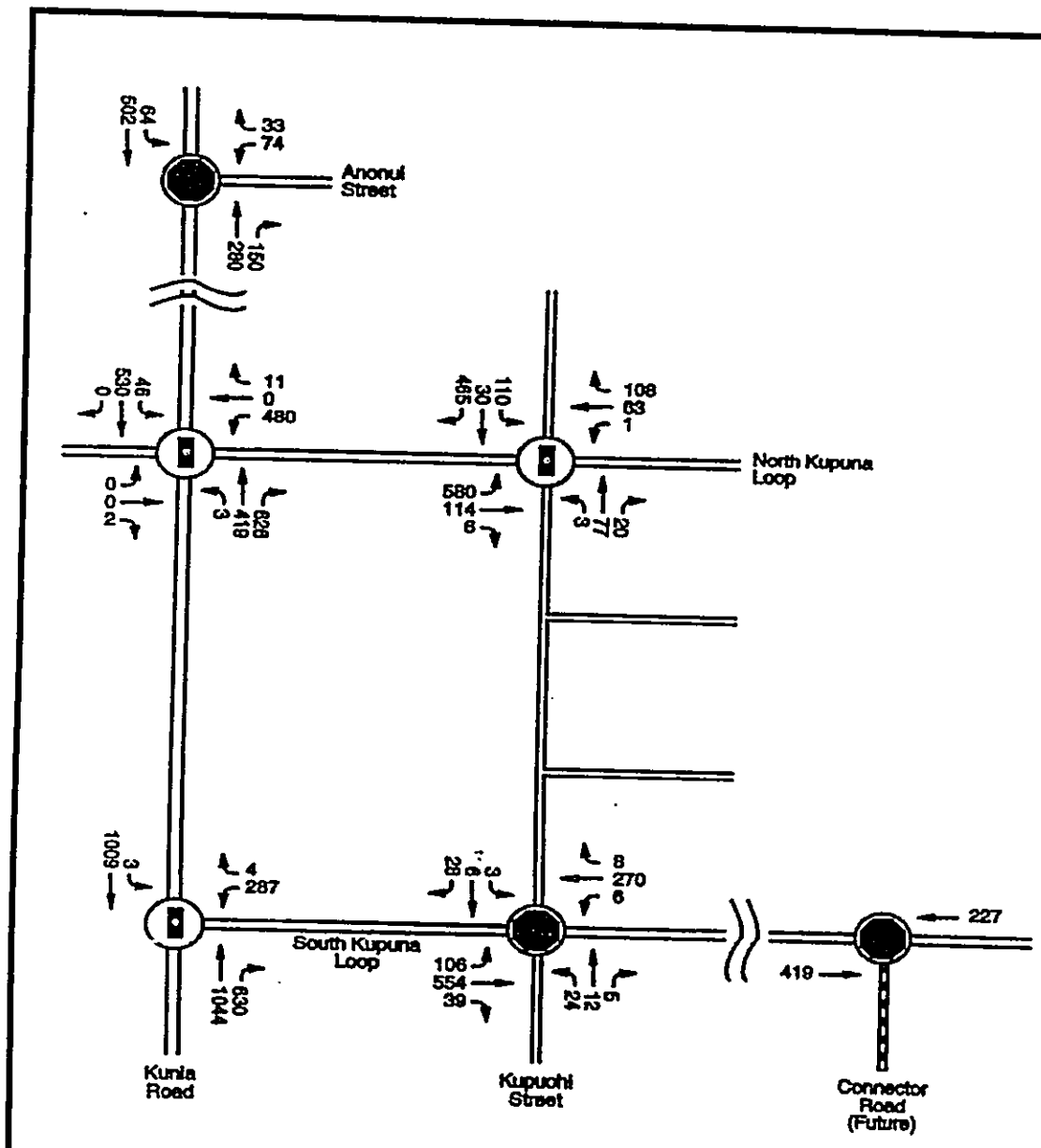
FIGURE 3-4
EXISTING (2000) WEEKDAY
MORNING PEAK HOUR TRAFFIC
VOLUMES AT ROYAL KUNIA /
VILLAGE PARK INTERSECTIONS

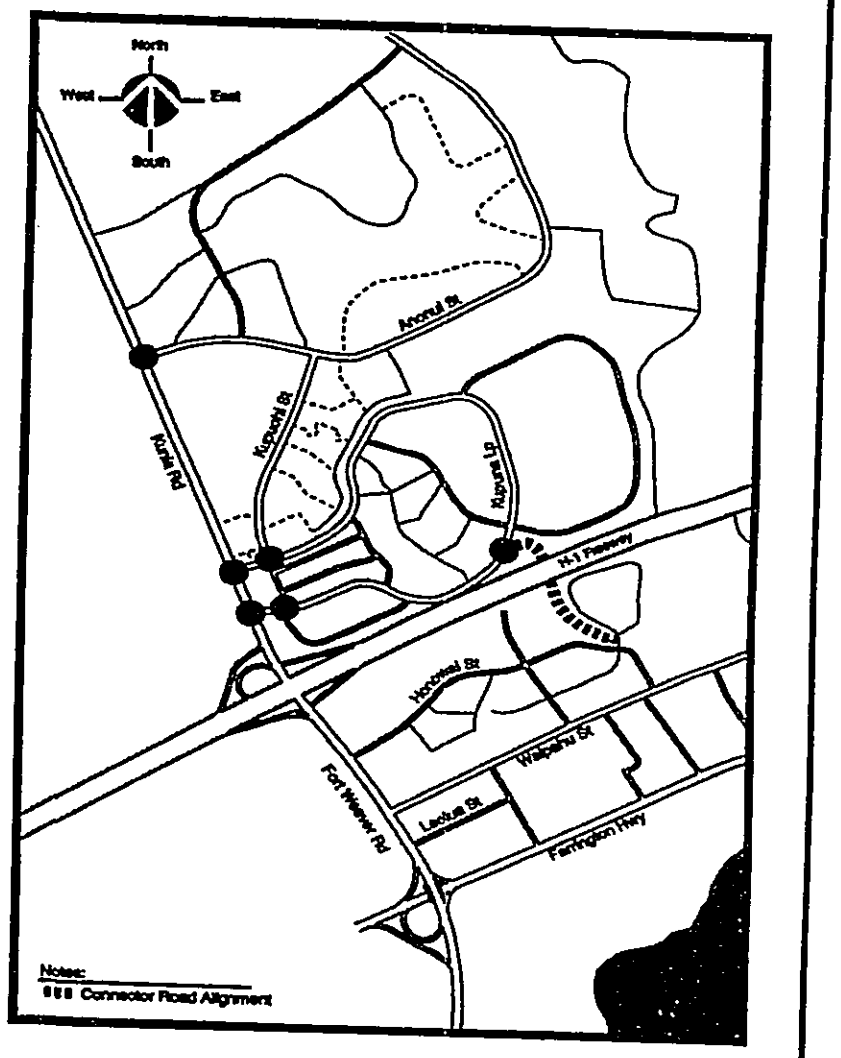




REFERENCE: PACIFIC PLANNING & ENGINEERING, INC.

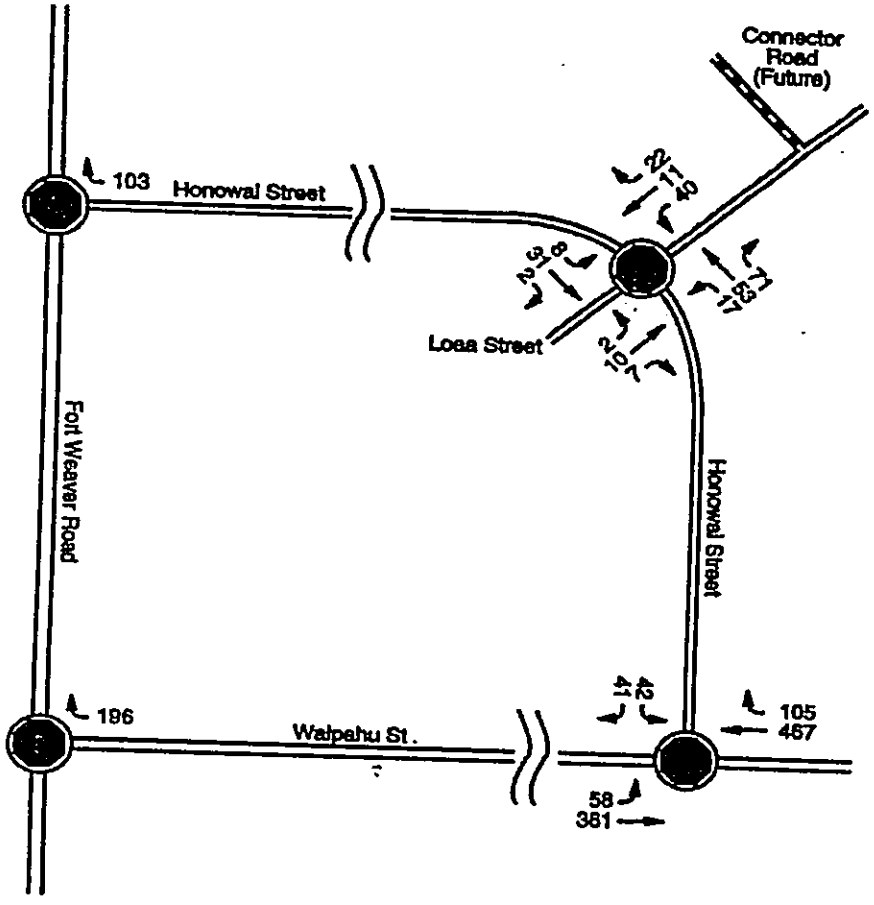
FIGURE 3-5
EXISTING (2000) WEEKDAY
MORNING PEAK HOUR TRAFFIC
VOLUMES AT WAIPAHU
INTERSECTIONS





REFERENCE: PACIFIC PLANNING & ENGINEERING, INC.

FIGURE 3-6
EXISTING (2000) WEEKDAY AFTERNOON PEAK HOUR TRAFFIC VOLUMES AT ROYAL KUNIA / VILLAGE PARK INTERSECTIONS



REFERENCE: *PACIFIC PLANNING & ENGINEERING, INC.*

FIGURE 3-7
EXISTING (2000) WEEKDAY
AFTERNOON PEAK HOUR TRAFFIC
VOLUMES AT WAIPAHU
INTERSECTIONS

TABLE 3-2
1998 AIR QUALITY DATA FROM DOH MONITORING SITES

Pollutant	Concentration	Monitoring Site
Particulate matter ≤10 microns (PM_{10}) 24-hr (max) Annual	 39 $\mu g/m^3$ 16 $\mu g/m^3$	Pearl City
Sulfur dioxide (SO2) 3-hr (max) 24-hr (max) Annual	 69 $\mu g/m^3$ 17 $\mu g/m^3$ 2 $\mu g/m^3$	Kapolei
Carbon monoxide (CO) 1-hr (max) 8-hr (max) Annual	 1.94 mg/m^3 0.66 mg/m^3 0.20 mg/m^3	Kapolei
Ozone (O3) 1-hr (max) Annual	 114 $\mu g/m^3$ 41 $\mu g/m^3$	Sand Island
Nitrogen dioxide (NO2) Annual	 8 $\mu g/m^3$	Kapolei

reference: J.W. Morrow from State of Hawaii Department of Health, *Annual Summary: Hawaii Air Quality Data - 1998.*

TABLE 3-3
SUMMARY OF STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING PERIOD	NAAQS PRIMARY[1]	NAAQS SECONDARY[2]	STATE STANDARDS
PM_{10}	Annual 24-hr	50 150	50 150	50 150
$PM_{2.5}$	Annual 24-hr	15 65	15 65	– --
SO_2	Annual 24-hr 3-hr	80 365 --	– – 1300	80 365 1300
NO_2	Annual	100	100	70
CO	8-hr 1-hr	10 40	– --	5 10
O_3	8-hr 1-hr	156 235	156 235	– 100
H_2S	1-hr	--	--	35
Pb	Calendar quarter	1.5	1.5	1.5

Reference: J.W. Morrow

Note: All concentrations in micrograms per cubic meter ($\mu g/m^3$) except CO which is in milligrams per cubic meter (mg/m^3).

[4] National ambient air quality standards. Primary standards are intended to protect public health with an adequate margin of safety.

[5] National ambient air quality standards. Secondary standards are intended to protect public welfare through the prevention of damage to soils, water, vegetation, man-made materials, animals, wildlife, visibility, climate, and economic values.

Existing traffic and background ambient noise levels were measured at 13 locations in the vicinity of the project site. The measurement site locations are identified as A through M on **Figure 3-8**. Traffic noise calculations for the existing conditions were also performed using the Federal Highway Administration (FHWA) Traffic Noise Model. Correlation between measured and predicted traffic noise levels was generally good. The existing background ambient noise levels along the cane haul road between Loaa Street and South Kupuna Loop are controlled by traffic noise from the H-1 freeway. Traffic and background noise ambient noise measurements were obtained at four locations along the cane haul road. Existing noise levels along the project site range from approximately 55 Ldn at the Loaa Street end to 64 Ldn at the South Kupuna Loop end. Traffic noise levels measured at receptor locations within approximately 450 feet of the H-1 freeway centerline, at or above the freeway elevation, currently exceed 65 Ldn, and are in the "Significant Exposure, Normally Unacceptable" category for dwelling units. Existing traffic noise levels at dwelling units along Waipahu Street, South Kupuna Loop, and Kupuohi Street north of North Kupuna Loop currently exceed 65 Ldn. Existing traffic noise levels at dwelling units along Kupuohi Street south of North Kupuna Loop, Loaa Street, Honowai Street, and portions of the existing cane haul road currently do not exceed 65 Ldn. Refer to **Table 3-4** for existing traffic noise measurements at the various monitoring sites.

3.12 HAZARDOUS MATERIALS

A Phase I Environmental Site Assessment was prepared by Edward K. Noda & Associates, Inc. for the project site. Refer to **Appendix F** for the report. The purpose of the investigation was to determine the presence of petroleum products and other environmentally hazardous substances or wastes, and to identify potential sources of any suspected contaminants within the project site and its vicinity.

A survey/inspection was conducted in November 2000. There was no direct evidence of hazardous substance/waste surface contamination at the site. However, the report concluded that there is some potential for surface petroleum hydrocarbon contamination resulting from rain runoff from the H-1 freeway, and recommended that onsite surface soil samples near the H-1 freeway be analyzed for non-volatile petroleum product.

As a result, limited sampling of near-surface soils was conducted by Edward K. Noda & Associates, Inc. on October 9, 2001. Eight samples were collected and analyzed for organic vapor concentration, total petroleum hydrocarbon (TPH) as gasoline, TPH as diesel fuel, TPH as oil and grease, and semi-volatile organic compounds. TPH as oil and grease were encountered in all samples at concentrations above the method reporting limit (MRL) but below the state Department of Health's Tier 1 Action Levels for Soil and Ground Water (ALSG). Benzo(a)pyrene and fluoranthene were present in three and five of the samples, respectively, also at levels above the MRL but below the ALSG. In conclusion, the abandoned motor vehicles and/or runoff from the H-1 freeway into the site have not caused levels of petroleum contamination of surface soils above the ALSG. Refer to **Appendix G** for the report.

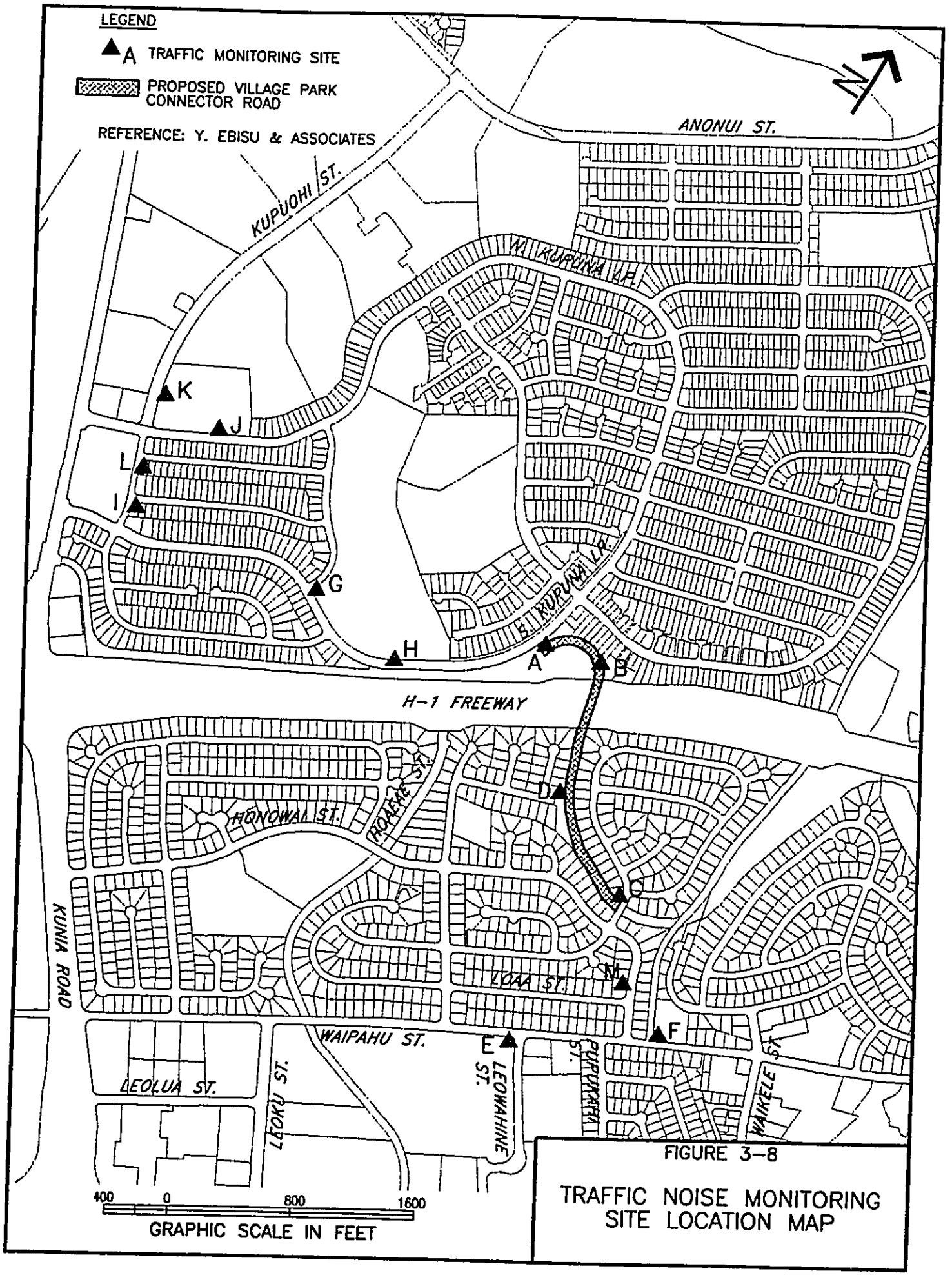


FIGURE 3-8

TRAFFIC NOISE MONITORING SITE LOCATION MAP

TABLE 3-4
EXISTING TRAFFIC NOISE MEASUREMENTS

Monitoring Site	Location	Monitoring Date & Time	Measured Leq (dB) [1]	Predicted Leq (dB) [1]
A	Cane haul road at S. Kupuna Lp.	10/6/00 (9:24 to 10:24)	60.3	N/A
B	Cane haul road, 135 ft north of H-1	10/6/00 (10:29 to 11:29)	60.6	N/A
C	Cane haul road, 50 ft from Loaa St. centerline	10/6/00 (15:25 to 17:15)	56.5	55.3
D	Cane haul road, 474 ft south of H-1	10/6/00 (11:36 to 12:23)	57.2	N/A
E	36 ft from Waipahu St. centerline	10/6/00 (12:40 to 13:39)	66.2	66.2
F	50 ft from Waipahu St. centerline	10/6/00 (12:42 to 13:42)	63.1	63.5
G	50 ft from S. Kupuna Lp. centerline	10/6/00 (14:00 to 14:59)	64.9	65.0
H	50 ft from S. Kupuna Lp. centerline	10/6/00 (14:05 to 15:00)	67.8	65.0
I	33 ft from Kupuohi St. centerline	10/6/00 (15:15 to 16:14) 10/6/00 (16:15 to 17:14)	65.4 67.0	65.4 65.2
J	50 ft from N. Kupuna Lp. centerline	10/12/00 (10:17 to 11:17)	58.9	58.8
K	50 ft from Kupuohi St. centerline	10/12/00 (11:23 to 12:23)	68.1	66.4
L	33 ft from Kupuohi St. centerline	10/12/00 (12:41 to 13:41)	64.8	64.9
M	29 ft from Honowai St. centerline	10/12/00 (12:41 to 13:41)	61.2	60.9

Reference: Y. Ebisu & Associates

[1] equivalent sound level in decibels

3.13 UTILITIES

Concrete ditches are located on each side of the cane haul road. The ditch on the east side is about 1,500 feet long, extending from the H-1 freeway to Loaa Street. The ditch on the west side extends about 450 feet in length under the H-1 freeway.

Two sewers exist within the cane haul road. A 24-inch sewer extends the length of the proposed connector road from Kupuna Loop to Loaa Street, and a 15-inch sewer crosses the road and extends a portion of its length from the Kupuna Loop end.

An existing 8-inch water line crosses the cane haul road connecting two units of the Harbor View subdivision. In conjunction with the proposed connector road, the Board of Water Supply has proposed installation of an 8-inch water main to improve the reliability of the Kunia 440' water system which serves both Village Park and the Hoaeae area of Waipahu. All costs associated with design and construction of the main would be assumed by the Board of Water Supply.

CHAPTER 4
POTENTIAL IMPACTS AND MITIGATION MEASURES

The intent of this chapter is to describe the potential impacts to the existing physical and social environment which may result from construction and operation of the proposed action. Mitigation measures to be employed to minimize negative impacts are also discussed in this chapter.

Potential impacts may be classified as "short term" or "long term". Short term impacts are generally associated with construction activities. Long term impacts are those which are lasting, resulting from the presence or operation of the project after it is constructed.

4.1 REGIONAL IMPACTS

The proposed project will have a positive long term impact on the region by improving traffic on Kunia Road and providing an alternate travel route for automobiles, bicycles, and pedestrians between the communities of Village Park / Royal Kunia and Waipahu. The proposed project is not expected to stimulate population growth in the region, and will not have a negative visual impact on the surrounding landscape.

Short term regional impacts will be associated with construction activities, including: increased traffic on regional roads; and increased dust and noise in the general vicinity of the project. These impacts and their proposed mitigation are discussed further in this chapter. The Honolulu Police Department anticipates an increase in calls for police service both during and after the construction phase of the project as a result of construction-related dust, noise, and traffic; and complaints of noise and speeding relating to increased traffic in the area.

4.2 TOPOGRAPHY

Impact to the existing topography will be minimal. The proposed connector road will be constructed within the right-of-way of an existing cane haul road, minimizing grading activities.

4.3 SOIL EROSION

It is anticipated that there will be a short term increase in soil erosion during construction. Removal of existing vegetation and grading will result in bare soil which is subject to erosion. Particularly vulnerable areas are the slopes located along the road shoulders.

Mitigative measures will be implemented during construction to minimize soil erosion and offsite sediment transport. The contractor will be required to implement control measures as shown on the construction drawings. These control measures may include:

- Installation of debris barriers at existing drainage inlets and catch basins downstream of the project site to minimize deposition of construction-related trash and sediment within the municipal storm drain system.

- Installation of silt fences or erosion control berms to protect areas downstream of graded areas.

- Installation of cut-off ditches or berms to convey offsite runoff around graded areas.

All grading work will be conducted in accordance with Chapter 14, Articles 13 through 16 as related to grading, soil erosion, and sediment control of the Revised Ordinances of Honolulu, 1990, as amended.

Areas cleared of vegetation will be replanted as soon as possible to prevent soil loss.

Upon completion of construction, the erosion potential for the project site should improve over existing conditions. The new road will be paved and the remaining area landscaped, ultimately decreasing the erodible surface area.

4.4 FLOOD AND TSUNAMI HAZARD

The project site is not located within a flood zone or tsunami innundation area. Conversely, construction of the proposed connector road will include a drainage system and will not result in increased flooding of surrounding areas.

4.5 FLORA AND FAUNA

Due to the existing urbanized surroundings, the proposed project is not expected to have a significant negative impact on flora or fauna. Further, no rare or endangered flora or fauna, or habitat is expected to be impacted. The project site has been previously disturbed by cane haul operations, and subjected to application of various pesticides and herbicides for many years.

4.6 ARCHAEOLOGICAL, HISTORIC AND CULTURAL RESOURCES

According to the State Historic Preservation Division (SHPD), the proposed project is not anticipated to impact historic resources. Refer to correspondence in **Appendices A** and **B**. However, in the unlikely event that inadvertent discoveries of human remains or other cultural deposits are made during construction, work will be halted in the immediate area and the SHPD and the Oahu Island Burial Council will be contacted for direction.

4.7 LAND OWNERSHIP AND NEIGHBORING LANDS

In order to construct the proposed project, the City and County of Honolulu will require easements or land acquisition from private landowners. Granting of easements or land acquisition may be viewed as a negative impact to land owners if they have conflicting plans for their property.

The City and County of Honolulu will need to acquire land from Kanana Fou Church for development of the proposed connector road. The church was informed of the proposed road when they purchased the parcel from the Robinson Trust in 1999. Additionally, the fate of a CRM wall (approximately 15 feet in height) that was constructed by the church and encroaches into the proposed road right-of-way will need to be resolved in conjunction with the land acquisition. Refer to correspondence from the Department of Planning and Permitting in **Appendix B.**

The three homeowners whose parcels are located at the two ends of the proposed road have been notified of the proposed project through written correspondence on two occasions. Refer to correspondence included in **Appendix A.** To date, there have been no comments or concerns expressed by these parties, or resistance to the need for land acquisition through the EA process. Should negotiations between the City and County of Honolulu and these homeowners fail, condemnation proceedings will allow the court to determine fair and just compensation for acquisition of the required land.

4.8 TRAFFIC

4.8.1 Short Term Impacts and Mitigation Measures

The proposed project will have short term impacts on traffic along the affected roadways. These short term impacts will be limited to the period of construction only, and may include the following:

- Temporary closure of one lane of Kupuna Loop in Village Park and Loaa Street in Waipahu while working in the respective intersections;
- Temporary increase in construction-related traffic along neighboring roads due to commuting workers, trucks and other construction equipment; and
- Temporary increase in on-street parking congestion on neighboring roads due to construction activities.

These short term impacts will be mitigated by implementation of the following measures:

- Traffic control plans will be prepared and submitted to the State Department of Transportation and the Department of Planning and Permitting for approval. The traffic control plans will include measures to safely route traffic around the proposed construction area.
- Construction operations will be scheduled to avoid peak traffic conditions.

- Construction-related vehicles should avoid using Honowai Street in the vicinity of Honowai Elementary School before and after school hours.

4.8.2 Long Term Impacts and Mitigation Measures

Once construction has been completed, traffic patterns along Loaa Street and Kupuna Loop will be altered as a result of the creation of T-intersections with the proposed connector road. An increase in the number of vehicles traveling north along Loaa Street to utilize the connector road is anticipated. Thus, an increase in left turns onto the connector road may result in a build-up of traffic heading northbound on Loaa Street. To ease the traffic flow along Loaa Street, a stop sign will be placed at the T-intersection for southbound traffic on Loaa Street to allow the free flow of northbound traffic on to the connector road. Mitigation of this change in the Loaa Street traffic pattern will include installation of signage to warn motorists of the upcoming stop. In addition, residents along Loaa Street will be notified by mail of the forthcoming traffic pattern change.

Speeding along Kupuna Loop is a concern conveyed by Village Park residents during the vision team meetings. High speed along this road is an existing problem and may affect the flow of traffic from the proposed connector road. Traffic calming measures will be implemented to reduce travel speeds along Kupuna Loop. These measures will include narrowing the width of Kupuna Loop both north and south of the proposed connector road intersection by striping to taper the roadway from two 20-foot wide travel lanes to two 10-foot wide lanes with a third storage/left turn lane in the proximity of the intersection. The 10-foot wide travel lanes would continue along Kupuna Loop until its intersection with Kaaholo Street.

Overall, the proposed project will have a net positive long term impact on traffic by providing a second route between the communities of Village Park / Royal Kunia and Waipahu Town. Based on traffic data projected for the year 2005, the traffic analysis report predicts the following conditions will occur as a result of the proposed project:

- *Reduced traffic volumes at the intersections of Kunia Road / North Kupuna Loop and Kunia Road / South Kupuna Loop*. Consequently, motorists making left turns onto Kunia Road will experience less delays and better Level-of-Service (LOS).

- *Increased traffic volumes on Kupuohi Street due to commercial activities such as Wal-Mart and Times Supermarket*. However, the LOS at the intersections of North Kupuna Loop / Kupuohi Street and South Kupuna Loop / Kupuohi Street are still expected to operate at satisfactory levels.

- *Increased traffic volumes at the intersection of Honowai Street / Waipahu Street*. Motorists making left turns from Honowai Street to Waipahu Street will experience long delays (LOS "F") at this intersection.

Due to the anticipated delays at the intersection of Honowai Street / Waipahu Street, a preliminary traffic signal warrant analysis was conducted using the peak hour warrant as a criterion. The analysis indicated that the peak hour warrant would be met for the afternoon peak hour in the year 2005. However, satisfaction of a warrant is not in itself justification

for a signal. After construction of the proposed connector road, the intersection will need to be monitored to determine if actual traffic volumes justify the need for signalization.

4.9 AIR QUALITY

4.9.1 Short Term Impacts and Mitigation Measures

Short term impacts can be separated into onsite and offsite impacts, which will be discussed separately in the following sections. In both cases, short term impacts are related to the construction of the connector road itself, and will terminate once construction activities are completed.

Onsite Impacts. Construction of the road will be the principal source of short term air quality impact. Construction vehicle activity may increase automotive pollutant concentrations along the existing streets as well as on the project site itself. Since the ends of the proposed new road are connected to local streets with relatively low traffic volumes, the occasional addition of construction vehicle traffic is not likely to exceed street capacity, but may at times cause a temporary reduction in average travel speeds and concomitant increase in emissions. Site preparation, earth moving, and movement of construction vehicles over unpaved onsite areas will also generate particulate emissions.

Due to the proximity of the project site to occupied residential areas, adequate dust control measures will be employed during the construction period. Dust control may be accomplished by frequent watering of unpaved roadways and areas of exposed soil.

Offsite Impacts. The project is estimated to require 1,170 cubic yards of concrete and 1,200 tons of asphalt for the new road. Short term offsite impacts are related to operation of concrete and asphalt batching plants needed for construction. Such plants routinely emit particulate matter and other gaseous pollutants. Although it is not possible to identify the specific facilities that will be providing these materials for construction, the following general statements can be made:

- Pursuant to state regulations, the operation of batch plants are subject to permits issued by the DOH Clean Air Branch. In order to obtain these permits, the batch plants must demonstrate their ability to continuously comply with both emission and ambient air quality standards.

- Under federal Title V operating permit requirements, now incorporated in Hawaii's rules, air pollution sources must regularly attest to their compliance with all applicable requirements.

- A typical concrete batch plant in Hawaii is equipped with fabric filters for particulate matter control. Similarly, a typical asphalt plant is equipped with either a wet venturi scrubber or fabric filters. The efficiency of such controls is normally greater than 90 percent.

- Using published EPA emission factors for such batch plants, particulate matter emissions are calculated to be less than 0.1 ton for each plant based on the estimated concrete and asphalt requirement for the project.

Short term air quality impacts associated with the offsite activities supporting the proposed road construction will be minimal due to the relatively small size of the project and its limited materiel requirements. In addition, batch plant emissions will be strictly regulated by the DOH permits needed for operation of the plants.

4.9.2 Long Term Impacts and Mitigation Measures

Long term impacts associated with operation of the new road may also be considered "mobile source" impacts. A mobile source impact analysis was prepared, based on existing and projected peak-hour traffic volumes reported in the Traffic Impact Analysis. Results indicated compliance with federal and state carbon monoxide standards under worst case conditions of meteorology and peak hour traffic. Therefore, no special mitigation measures are proposed.

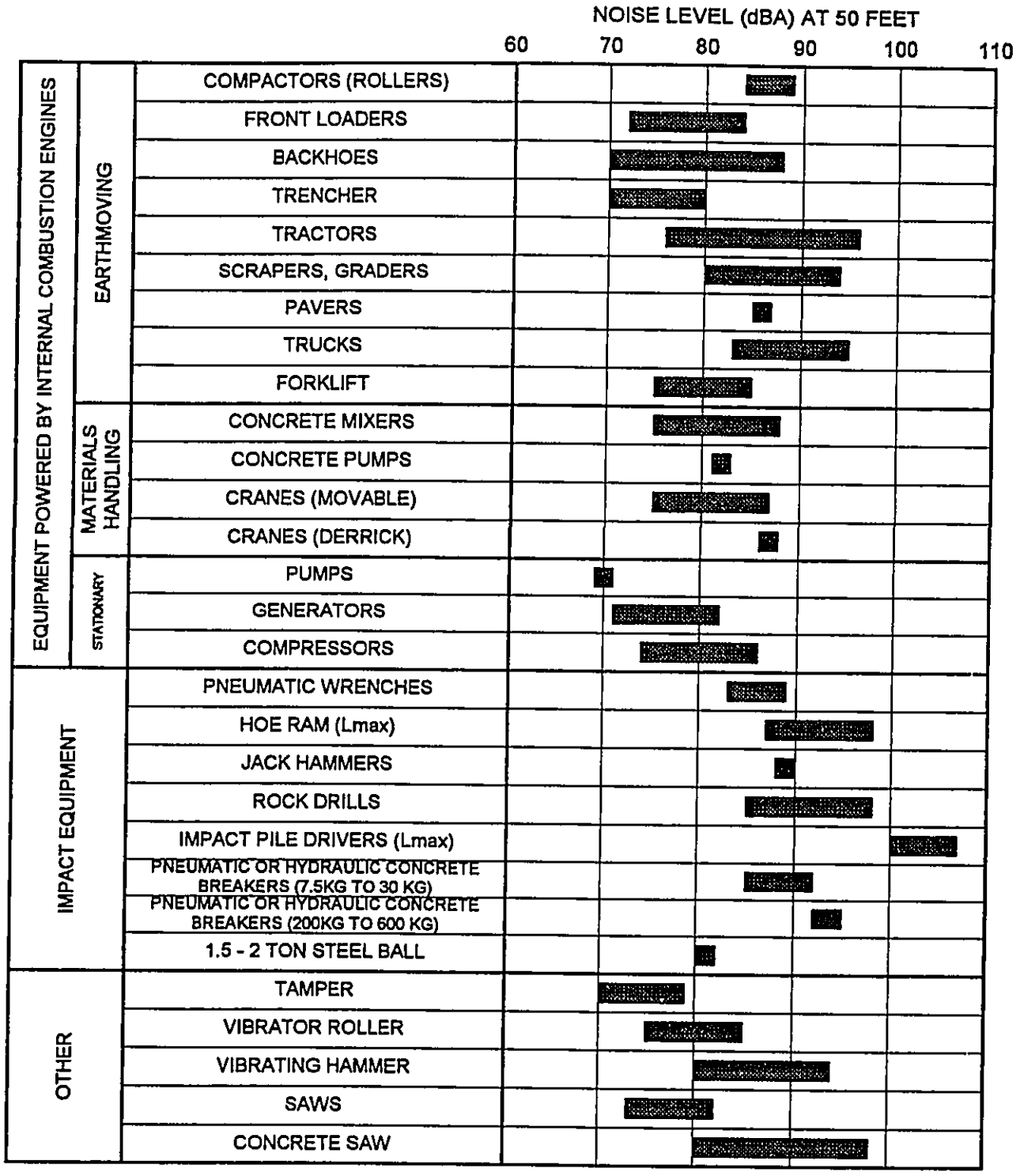
4.10 NOISE

4.10.1 Short Term Impacts and Mitigation Measures

Audible construction noise along the proposed connector road will be unavoidable during the entire construction period. The actual length of exposure to construction noise at any receptor location will be less than the total construction period for the entire project. The range of noise levels due to various types of construction equipment measured at a distance of 50 feet from the equipment is depicted on **Figure 4-1.** Typical levels of exterior noise from construction activity at various distances from the project site are illustrated on **Figure 4-2. Figure 4-2** is useful for predicting exterior noise levels at short distances (within 100 feet) from the work when a visual line of site exists between the construction equipment and the receptor. Direct line-of-sight distances from the construction equipment to existing residential buildings will range from 20 feet to 600 feet, with corresponding average noise levels of 95 to 62 dBA (plus or minus 5 dBA). Typical levels of construction noise inside naturally ventilated and air conditioned structures are approximately 10 to 20 dBA less, respectively, than the levels shown on **Figure 4-2.**

Residences along the existing cane haul road south of the freeway are predicted to experience the highest noise levels during construction due to their close proximity (within 40 to 60 feet) of the proposed connector road centerline. Interior noise levels within naturally ventilated structures (windows and doors open) are estimated to range between 85 to 52 dBA at 20- to 600-foot distances from the construction site. Closure of all windows and doors facing the construction site would generally reduce interior noise levels by 5 to 10 dBA.

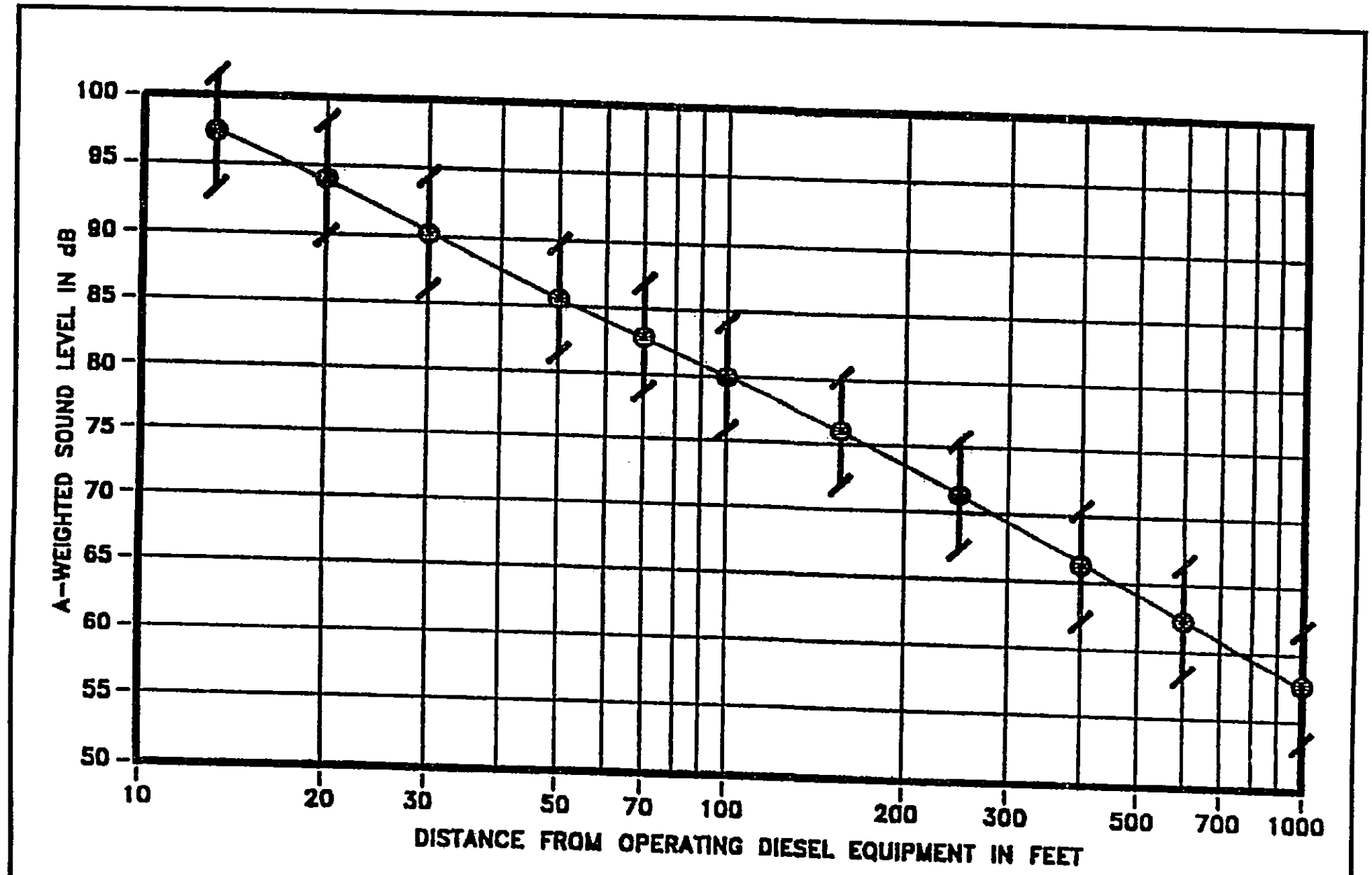
Construction noise is not expected to adversely affect public health and welfare due to the temporary nature of the work, and due to the administrative controls available for regulation of construction noise. Instead, these impacts will probably be limited to the temporary degradation of the quality of the acoustic environment in the immediate vicinity



REFERENCE: Y. EBISU & ASSOCIATES

FIGURE 4-1

CONSTRUCTION EQUIPMENT NOISE RANGES



REFERENCE: Y. EBISU & ASSOCIATES

FIGURE 4-2

ANTICIPATED RANGE OF CONSTRUCTION NOISE LEVELS VS. DISTANCE

of the project site. Mitigation of construction noise to inaudible levels will not be practical in all cases due to the intensity of construction noise sources and exterior nature of the work.

A Community Noise Permit for Construction Activities will be obtained from the state Department of Health. The permit will specify the allowable conditions under which noise-producing operations can occur (i.e. restricted time periods of the day, restricted days, etc.) Noisy construction activities will not be allowed on Sundays, holidays, during the early morning, and during the late evening and nighttime periods. Additionally, construction equipment that emit exhaust gas or air, and roadway transit vehicles, will be equipped with mufflers to minimize construction noise.

4.10.2 Long Term Impacts and Mitigation Measures

Predictions of future traffic noise levels were made using the traffic volume assignments for year 2005 from the Traffic Analysis Report with and without the proposed project (see **Table 4-1**). After construction, traffic noise levels along the connector road right-of-way are anticipated to range from 63 to 64 Ldn south of the H-1 freeway. North of the freeway, where homes are shielded from the project site by sound attenuating walls, the freeway noise will continue to be the dominant noise source at 67 to 64 Ldn. The greatest increase in ambient noise levels will occur at residences at the Loaa Street end of the new connector road, where background noise levels are predicted to increase from approximately 55 Ldn to 64 Ldn.

Relatively large increases (from 1.9 to 5.2 dB) in project-related traffic noise levels are expected to occur along the short section of Loaa Street between the new connector road and Honowai Street, along Honowai Street between Waipahu and Loaa Streets, and along Kupuohi Street between North and South Kupuna Loops. Other feeder streets are not expected to experience large increases in traffic noise levels from traffic traveling to and from the new connector road. Future traffic noise levels along Waipahu Street, South Kupuna Loop, and Kupuohi Street north of North Kupuna Loop will continue to exceed 65 Ldn. Additionally, future traffic noise at dwellings along Kupuohi Street between North Kupuna Loop and South Kupuna Loop will also exceed 65 Ldn.

Predicted noise levels were also projected to the year 2020. Results indicated that traffic noise levels should not exceed 65 Ldn along the proposed connector road; therefore, traffic noise mitigation measures should not be required. As traffic volumes increase, traffic noise mitigation measures may be implemented to minimize risks of traffic noise impacts along the proposed connector road. Mitigation measures include use of a low posted speed limit of 25 mph or less. In addition, construction of a sound attenuating wall which is six feet above the grade of the existing house lots or connector road (whichever is higher), to screen existing dwellings from traffic noise is another possible mitigation measure by individual property owners.

Along roadways where existing traffic noise levels exceed 65 Ldn, traffic noise impacts may continue to occur. Along these feeder streets, traffic noise mitigation measures are normally implemented by individual property owners, or by public agencies in conjunction with a future roadway widening or realignment project. These mitigation measures

TABLE 4-1
FUTURE (YEAR 2005) TRAFFIC NOISE LEVELS
ALONG ROADWAYS IN PROJECT AREA [1]

Location	No Action		With Project	
	50' Leq[2]	100' Leq[3]	50' Leq[2]	100' Leq[3]
Connector Road	N/A	N/A	61.9	59.0
Loaa St. east of Honowai St.	56.3	53.5	61.5	58.6
Loaa St. west of Honowai St.	51.6	48.8	53.0	50.2
Honowai St. north of Loaa St.	57.8	54.9	58.2	55.3
Honowai St. south of Loaa St.	60.1	57.3	64.0	61.1
Waipahu St. east of Honowai St.	65.6	62.7	66.2	63.3
Waipahu St. west of Honowai St.	66.8	63.9	67.3	64.3
S. Kupuna Lp. east of Connector Rd.	66.2	63.2	66.6	63.7
S. Kupuna Lp. west of Connector Rd.	66.2	63.2	66.2	63.2
S. Kupuna Lp. east of Kupuohi St.	67.3	64.4	67.2	64.3
S. Kupuna Lp. west of Kupuohi St.	68.1	65.2	67.6	64.6
Kupuohi St. north of S. Kupuna Lp.	61.4	58.5	63.3	60.3
Kupuohi St. south of N. Kupuna Lp.	60.6	57.7	62.8	59.8
Kupuohi St. north of N. Kupuna Lp.	68.5	65.6	68.5	65.6
N. Kupuna Lp. east of Kupuohi St.	63.5	60.6	63.5	60.6
N. Kupuna Lp. west of Kupuohi St.	68.7	65.8	68.7	65.8

Reference: Y. Ebisu & Associates

Notes:

(1) Based on afternoon peak hour traffic volumes
(2) Equivalent sound level at 50 ft from road centerline
(3) Equivalent sound level at 100 ft from road centerline

normally involve the construction of sound attenuating walls or closure and air conditioning of the noise sensitive structures.

4.11 HAZARDOUS MATERIALS

Onsite surface soil samples near the H-1 freeway were analyzed for non-volatile petroleum product as recommended in the Phase I Environmental Site Assessment. Analytical results indicated that petroleum contamination levels were less than the state Department of Health's Tier 1 Action Levels for Soil and Ground Water. Therefore, no special measures need be taken for removal and/or remediation.

4.12 UTILITIES

As planning and design proceeds, the proposed project will be coordinated with appropriate agencies within the City and County of Honolulu, Hawaiian Electric Company, Verizon Hawaii, The Gas Company and Oceanic Cable to minimize impacts on existing utilities. The Gas Company has confirmed that underground utility gas mains are located in the project vicinity (see correspondence in **Appendix B**). The contractor will be required to verify the location of all existing utilities prior to excavation, and will be responsible for protecting existing utilities during construction. Any resulting damage to existing utilities will be repaired and paid for by the contractor.

CHAPTER 5
ALTERNATIVES TO THE PROPOSED ACTION

This chapter discusses alternatives against which the proposed action was evaluated. The alternatives were rejected for their inability to meet the project objectives or attainment of the objectives at a higher cost (financially or environmentally).

To restate, the objectives for this project are:

- To provide a more direct link between Village Park / Royal Kunia and the Waipahu Town core area;
- To provide pedestrian and bikeway facilities in association with vehicular travel lanes; and
- To foster a sense of one community.

A total of five alternatives were considered, including the proposed action and "no action". Each rejected alternative is discussed in this chapter.

5.1 NO ACTION

Under the "no action" scenario, accessibility between the communities of Village Park / Royal Kunia and Waipahu Town would continue to be limited to Kunia Road or Paiwa Street via the H-1 freeway. This scenario fails to meet the project objective of providing a more direct link between the communities with associated pedestrian and bikeway facilities.

5.2 STANDARD CITY AND COUNTY ROAD ALTERNATIVE

Ideally, the proposed connector road would be designed and constructed in conformance with City and County of Honolulu design standards. However, this did not meet the needs and preferences of the Waipahu Vision Team and the community it represents. In addition, the project area is limited due to its location amidst previously developed residential areas and the H-1 freeway. The proposed road alignment is generally fixed within the existing 50- to 60-foot wide cane haul road right-of-way and therefore, does not meet all current design standards for a 56-foot collector road. In order to construct a standard road, existing retaining walls within residential lots may need to be reconstructed or supported by new retaining walls. Further, construction of a standard drainage system would also increase costs. Construction of a standard road would result in significant impact to adjacent house lots, future church facilities and increase construction cost. Additional funding for the project would need to be secured by the Waipahu Vision Team in order for this alternative to be implemented.

5.3 BIKE PATH ALTERNATIVE

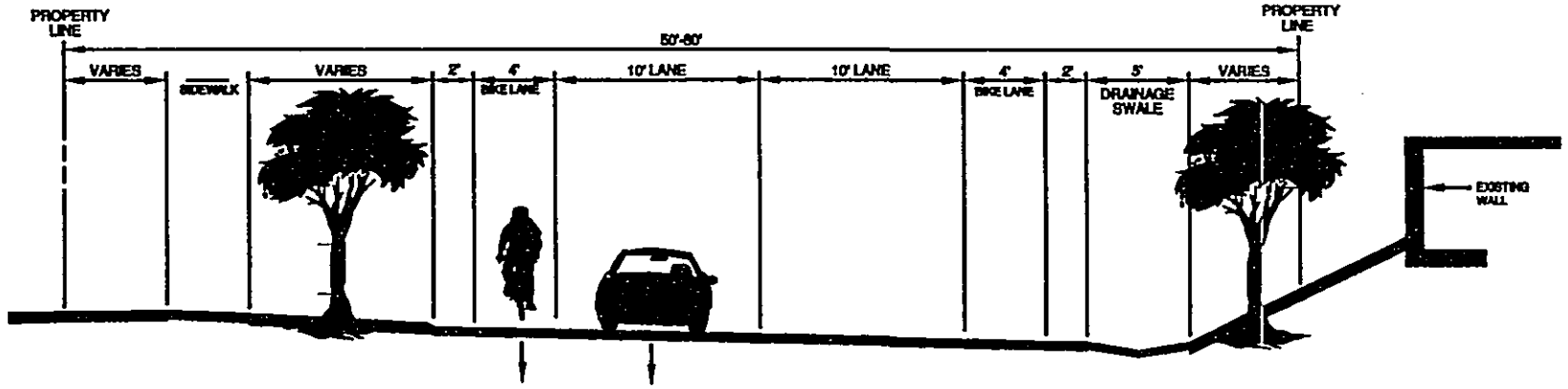
Construction of two 4-foot wide bike lanes on each side of the connector road with a 4-foot wide sidewalk on one side (see **Figure 5-1**) was considered as an alternative to the multi-use path configuration shown on **Figure 2-2** in **Chapter 2.** The bike path alternative would otherwise be identical to the proposed action, including environmental impacts and estimated construction cost. This alternative was not selected since the Waipahu Vision Team preferred the multi-use path configuration.

5.4 ALTERNATIVE ALIGNMENT

A potential alternative alignment for a connector road between Village Park and Waipahu Town is identified on **Figure 5-2.** This alternative alignment would require acquisition of a military road (Waikele Ammunition Depot Road) which is located along the edge of Waikele Gulch in Village Park and traverses over the H-1 freeway in Waipahu. Waikele Ammunition Depot Road intersects Waipahu Street, enabling termination of the connector road at essentially the same location as the proposed alignment. A major disadvantage of this alternative is access to the military road from existing municipal streets in Village Park. Presently, *residential homes are situated between* Kaaholo Street (the nearest public street) and the military road. Displacement of one or two residences and acquisition of private lands would be needed in order to connect the military road with Kaaholo Street. Other disadvantages with this alternative include:

- acquisition of the road right-of-way from the military;
- less central terminus within Village Park; and
- undesirable intersection conditions at Waipahu Street (less than 150 feet from the Honowai Street intersection).

Implementation of this alternative would likely exceed the cost of the proposed action. Additionally, the impact of displacing residences is undesirable. The inferior location of this alternative within Village Park (compared to the proposed action) would also fail to justify its added expense and public impact.



TYPICAL SECTION ~ 4-FT BIKE LANES

FIGURE 5-1

ALTERNATIVE BIKE PATH SECTION

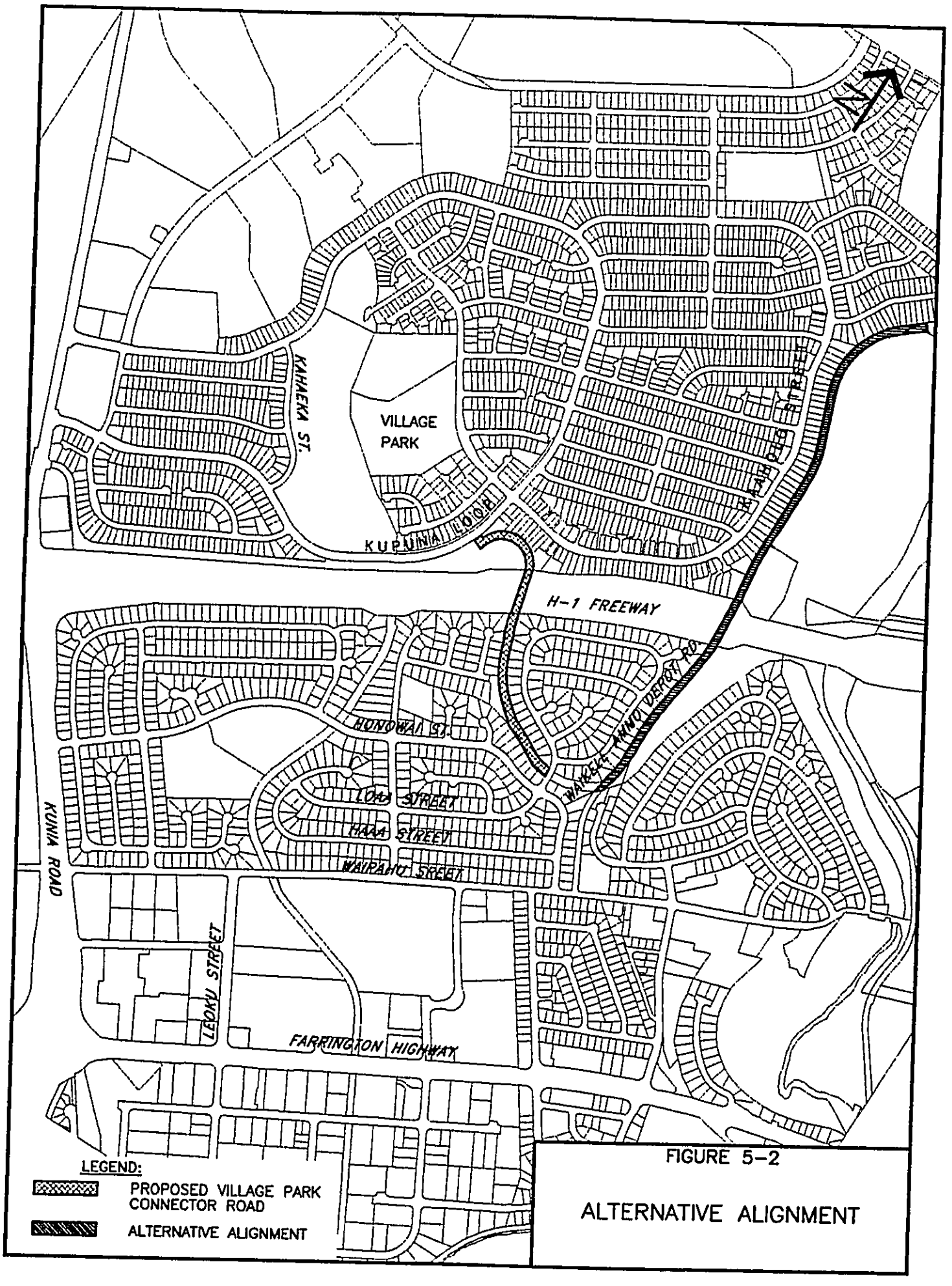


FIGURE 5-2

ALTERNATIVE ALIGNMENT

CHAPTER 6
FINDINGS AND DETERMINATION

6.1 DETERMINATION

The City and County of Honolulu Department of Design and Construction (DDC) has concluded that the proposed project does not have the potential to generate significant environmental impacts and the need to prepare an environmental impact statement is not evident. Therefore, this Final Environmental Assessment has been submitted with a Finding of No Significant Impact (FONSI) determination.

6.2 FINDINGS AND REASONS SUPPORTING DETERMINATION

The overall and cumulative impacts of the proposed action were evaluated with respect to Hawaii Administrative Rules (HAR) Title 11, Department of Health, Chapter 200, Environmental Impact Statement Rules, Section 11-200-12 "Significance Criteria". The following findings and conclusions can be made in support of the FONSI determination:

(1) *The proposed action will not involve an irrevocable commitment to loss or destruction of any natural or cultural resource.*

The alignment of the proposed connector road is located within the right-of-way of an existing cane haul road. The project site and surrounding area have been previously developed. No natural or cultural resources have been identified along the proposed road alignment or in the immediate vicinity of the project site.

(2) *The proposed action will not curtail the range of beneficial uses of the environment.*

Much of the proposed connector road alignment is located within privately-owned lands. Development of the road will require land acquisition by the City and County which may curtail the landowner's plans for their property. The major landowner (Kanana Fou Church) was aware of the proposed road plan when they purchased their parcels. Land acquisition from the other affected properties will also need to be negotiated.

(3) *The proposed action will not conflict with the state's long term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.*

Construction of the proposed connector road will comply with the environmental policies, goals and guidelines of Chapter 344, HRS.

(4) *The proposed action will not have a substantial negative effect on the economic or social welfare of the community or state.*

Construction of the proposed connector road will have a positive effect on the residential and commercial communities in Waipahu and Village Park / Royal Kunia. The proposed action will provide Village Park and Royal Kunia residents with improved access to stores and businesses in Waipahu Town. Conversely, Waipahu residents would have an alternate route to access the commercial area in Royal Kunia.

(5) *The proposed action will not have a substantial negative effect on public health.*

While increased noise, dust, and vehicular air emissions are likely to result from construction and actual use of the proposed connector road, no long term negative impact on public health is foreseen.

(6) *The proposed action will not involve substantial secondary impacts, such as population changes or effects on public facilities.*

The proposed connector road is not anticipated to incite population growth or changes. The project will have a positive impact on other roads (such as Kunia Road) by decreasing traffic congestion.

(7) *The proposed action does not involve substantial degradation of environmental quality.*

Construction activities will temporarily increase dust, noise and traffic. Upon completion of construction, these impacts will cease. Mitigation measures to minimize these construction-related impacts have been described in **Chapter 4.**

(8) *The proposed action will not have a considerable cumulative effect upon the environment or involve a commitment for larger actions.*

The proposed action is limited to construction of a new public road in place of an existing cane haul road.

(9) *The proposed action will not substantially affect a rare, threatened, or endangered species or its habitat.*

There were no indications of rare, threatened or endangered species present at the project site. Due to use of the site as a cane haul road, existing conditions would not provide suitable habitat for rare, threatened or endangered species of flora or fauna.

(10) *The proposed action will not affect air or water quality or ambient noise levels.*

Construction activities will have a short-term impact on air quality, water quality and ambient noise levels. However, these impacts will be mitigated as described in **Chapter 4.** No significant long term impacts are foreseen.

(11) *The proposed action will not affect, nor is it likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal water.*

The project site is not located in an environmentally sensitive area. Upon completion of construction, the entire project site will be paved or landscaped, minimizing soil erosion potential. Refer to **Chapter 4** for more information on minimizing soil erosion.

(12) *The proposed action will not substantially affect scenic vistas or viewplanes identified in county or state plans or studies.*

The proposed connector road will not have a negative effect on scenic vistas or viewplanes since it is located in a corridor between residential homes.

(13) *The proposed action will not require substantial energy consumption.*

Although the proposed road will be illuminated, no impact on existing electrical service is foreseen.

CHAPTER 7
CONSULTATION

7.1 PARTICIPANTS

This environmental assessment (EA) was prepared for the City and County of Honolulu Department of Design and Construction by Engineering Concepts, Inc. The following consultants were also involved in preparation of this document:

Consultant	Area of Expertise
Pacific Planning & Engineering, Inc.	Traffic Engineering
J.W. Morrow	Air Quality
Y. Ebisu & Associates	Acoustical Engineering
Edward K. Noda & Associates, Inc.	Hazardous Materials Assessment

7.2 PARTIES CONSULTED DURING PREPARATION OF THE DRAFT EA

Preliminary consultation with agencies and other interested parties was conducted during preparation of the Draft EA and during the project planning prior to preparation of the EA. Selected correspondence is included in **Appendix A.** The following parties were consulted:

State of Hawaii, Department of Transportation
State Historic Preservation Division
City and County of Honolulu, Department of Transportation Services
City and County of Honolulu, Department of Planning and Permitting
Waipahu Neighborhood Board No. 22
Village Park Community Association
Moanalua Congregational Christian Church of American Samoa (Kanana Fou Church)
Tony D. Andres Trust
Geoffrey P. & Imelda F. Fagaragan
Taylor T. & Jennifer V. Tran

7.3 PARTIES CONSULTED DURING PREPARATION OF THE FINAL EA

Sixty (60) copies of the Draft EA were distributed to agencies, organizations and other interested parties. A complete list of these consulted parties is presented in **Table 7-1.** In addition, letters were mailed to the neighboring landowners identified on **Figures 2-3** and **2-4,** providing a project summary and notification of availability of the Draft EA at various locations for public review. A copy of this letter is included in **Appendix A.**

Availability of the Draft EA was published in the July 23, 2001 edition of *The Environmental Notice* by the Office of Environmental Quality Control. A total of 23 comment letters were received as of October 29, 2001 (the public review period officially ended on August 22, 2001). Agencies, organizations and other interested parties

responding to the request for comments are indicated with a "C" in **Table 7-1.** Those parties responding with "no comments" are labeled with an "NC".

7.4 COMMENTS ON THE DRAFT EA

Comment letters received as a result of public review of the Draft EA and responses prepared by the Department of Design and Construction are included in **Appendix B.**

TABLE 7-1
DRAFT EA DISTRIBUTION LIST

	FEDERAL GOVERNMENT
C	U.S. Army Engineer District, Honolulu
NC	U.S. Department of the Navy: Commander, Navy Region Hawaii
	U.S. Fish and Wildlife Service, Pacific Islands Ecoregion
	U.S. Natural Resources Conservation Service
	STATE GOVERNMENT
	Senator Brian Kanno, 20th District
	Senator Cal Kawamoto, 19th District
	Representative Mark Moses, 42nd District
	Dept. of Agriculture
	Dept. of Business, Economic Development & Tourism: Director Office of Planning
	Dept. of Health, Environmental Planning Office
C	Dept. of Land and Natural Resources: Chairperson State Historic Preservation Division
C	Dept. of Transportation
C	Office of Environmental Quality Control
C	Office of Hawaiian Affairs
	University of Hawaii Environmental Center
	CITY AND COUNTY GOVERNMENT
	Councilmember Rene Mansho, District I
C	Councilmember Gary Okino, District VIII
C	Board of Water Supply
	Dept. of Environmental Services
C	Dept. of Facility Maintenance
C	Dept. of Parks and Recreation
C	Dept. of Planning and Permitting
C	Dept. of Transportation Services
C	Honolulu Fire Department
C	Honolulu Police Department

TABLE 7-1 (continued)

	OTHER INTERESTED PARTIES
NC	Hawaiian Electric Company, Inc.
C	Verizon Hawaii, Inc.
	Oceanic Cable
C	The Gas Company
	Waipahu Vision Community No. 19
	Waipahu Neighborhood Board No. 22
	Village Park Community Association
C	Kanana Fou Congregational Christian Church / UCC
	Tony D. Andres Trust
	Geoffrey P. & Imelda F. Fagaragan
	Taylor T. & Jennifer V. Tran
C	Wayne Acosta
C	George Elerick
C	M/M Andrew Hodges
C	Norman Nakamoto
C	Carol Shimizu
	LIBRARIES
	State Main Library
	Waipahu Public Library

REFERENCES

Engineering Concepts, Inc., prepared for the City and County of Honolulu Department of Design and Construction, *Preliminary Engineering Report for the Village Park Connector Road, Waipahu, Hawaii*, April 3, 2001.

Hawaii State, Department of Business, Economic Development and Tourism, *The State of Hawaii Data Book 1998*.

Hawaii State, Department of Health, Title 11, *Department of Health Administrative Rules*, "Chapter 200 - Environmental Impact Statement Rules", August 20, 1996.

Hawaii State, Department of Health, *Title 11, Department of Health Administrative Rules*, "Chapter 46 - Community Noise Control", September 23, 1996.

Hawaii State, Department of Health, *Title 11, Department of Health Administrative Rules*, "Chapter 60.1 - Air Pollution Control", October 29, 1993.

Hawaii State, Department of Land and Natural Resources, Division of Water and Land Development, Report R76, *Rainfall Atlas of Hawaii*, June 1986.

Honolulu, City and County of, Department of Land Utilization, *Land Use Ordinance*, 1997.

Honolulu, City and County of, Department of Public Works, Division of Land Survey and Acquisition, *Street Index, Island of Oahu*, January 1996.

U.S. Department of Agriculture Soil Conservation Service, *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*, August 1972.

University of Hawaii, Department of Geology, *Atlas of Hawaii*, Second Edition, 1983.

Wilson Okamoto & Associates, Inc., prepared for the City and County of Honolulu Planning Department, *Waipahu Livable Communities Initiative*, May 1998.

APPENDIX A

MISCELLANEOUS CORRESPONDENCE

ENGINEERING CONCEPTS INC.
Consulting Engineers

August 2, 2000

Dear Sir or Madam,

Subject: Village Park Connector Road

Over the past two years, citizens from all over the island have been participating in an island-wide community vision process to provide input and ideas in shaping the future of their neighborhoods. The City and County of Honolulu has appropriated two million dollars per year to each Vision Team to implement their ideas.

Vision Team 19 represents the Waipahu and Village Park communities. The citizens of this team have decided to fund the construction a connector road between Waipahu and Village Park. The proposed road would follow the alignment of the existing cane haul road and connect Kupuna Loop with Loaa Street. We have enclosed a figure that shows the project limits.

The subject project is currently in the planning stage. Our firm Engineering Concepts, Inc. has been retained by the City to conduct the planning work. The design of the project is expected to begin by the end of this year and construction could begin by the end of year 2001. A consultant for the design work has not been selected.

To construct the subject project, a portion of your property may need to be acquired by the City and County of Honolulu. This is necessary to provide a safe road and meet requirements set by law such as the Americans with Disabilities Act.

The Vision Team has requested that we inform you of the subject project and its possible affect on your property. This project will be discussed at the next Vision Team 19 meeting to be held at the Waipahu Cultural Garden Park on August 9, 2000 at 6:30 p.m. Please call Kay Muranaka or Conrad Higashionna of Engineering Concepts at 591-8820, if you have any questions and to confirm that you have received this notice.

ENGINEERING CONCEPTS, INC.
Consulting Engineers

October 3, 2000

Moanalua Congregational Christian Church American Samoa
P.O. Box 29817
Honolulu, Hawaii 96820

Subject: Proposed Village Park Connector Road
Waipahu, Oahu, Hawaii
TMK: 9-4-02:28 and 9-4-55:146

The City and County of Honolulu Department of Design and Construction has proposed to construct a new public road under its Community Vision Program which would cross under Interstate H-1 to connect the communities of Village Park and Waipahu. The alignment of the proposed connector road will be located primarily within the right-of-way of an existing cane haul road, currently within your property, extending from Kupuna Loop in Village Park to Loaa Street in Waipahu. The project site is adjacent to your future church site. Refer to the enclosed location map, proposed road layout and typical section for more information.

An environmental assessment (EA) is presently being prepared to address potential impacts associated with the project and methods to mitigate these impacts. As a landowner directly affected by the proposed road alignment, we are soliciting your comments and/or concerns. If you have any concerns that should be addressed in the EA, please submit them in writing to Engineering Concepts, Inc. by November 15, 2000. A copy of the Draft EA will be furnished for your review early next year.

Should you have any questions or require additional information, please call me at 591-8820.

Very truly yours,

Kay Muranaka

Kay Muranaka, P.E.
Vice President

enclosures

1150 South King Street, Suite 700 Honolulu, Hawaii 96814
Tel: (808) 591-8820 Fax: (808) 591-9010 E-Mail Address: eci@gte.net

ENGINEERING CONCEPTS, INC.
Consulting Engineers

October 3, 2000

Tony D. Andres Trust
94-418 Loaa Street
Waipahu, Hawaii 96797

Subject: Proposed Village Park Connector Road
Waipahu, Oahu, Hawaii
TMK: 9-4-02:28 and 9-4-55:146

The City and County of Honolulu Department of Design and Construction has proposed to construct a new public road under its Community Vision Program which would cross under Interstate H-1 to connect the communities of Village Park and Waipahu. The alignment of the proposed connector road will be located primarily within the right-of-way of an existing cane haul road, extending from Kupuna Loop in Village Park to Loaa Street in Waipahu. However, in order to connect to the existing streets at both ends, land may need to be acquired from several residential parcels. Your parcel (TMK: 9-4-55:61) has been identified as one of the affected lots. Refer to the enclosed location map, proposed road layout and typical section for more information.

An environmental assessment (EA) is presently being prepared to address potential impacts associated with the project and methods to mitigate these impacts. As a landowner directly affected by the proposed road alignment, we are soliciting your comments and/or concerns. If you have any concerns that should be addressed in the EA, please submit them in writing to Engineering Concepts, Inc. by November 15, 2000. A copy of the Draft EA will be furnished for your review early next year.

Should you have any questions or require additional information, please call me at 591-8820.

Very truly yours,

Kay Muranaka

Kay Muranaka, P.E.
Vice President

enclosures

1150 South King Street, Suite 700 Honolulu, Hawaii 96814
Tel: (808) 591-8820 Fax: (808) 591-9010 E-Mail Address: eci@gte.net

ENGINEERING CONCEPTS, INC.
Consulting Engineers

October 3, 2000

Mr. & Mrs. Geoffrey Fagaragan
94-385 Honowai Street
Waipahu, Hawaii 96797

Subject: Proposed Village Park Connector Road
Waipahu, Oahu, Hawaii
TMK: 9-4-02:28 and 9-4-55:146

The City and County of Honolulu Department of Design and Construction has proposed to construct a new public road under its Community Vision Program which would cross under Interstate H-1 to connect the communities of Village Park and Waipahu. The alignment of the proposed connector road will be located primarily within the right-of-way of an existing cane haul road, extending from Kupuna Loop in Village Park to Loaa Street in Waipahu. However, in order to connect to the existing streets at both ends, land may need to be acquired from several residential parcels. Your parcel (TMK: 9-4-34:43) has been identified as one of the lots that may be affected. Refer to the enclosed location map, proposed road layout and typical section for more information.

An environmental assessment (EA) is presently being prepared to address potential impacts associated with the project and methods to mitigate these impacts. As a landowner directly affected by the proposed road alignment, we are soliciting your comments and/or concerns. If you have any concerns that should be addressed in the EA, please submit them in writing to Engineering Concepts, Inc. by November 15, 2000. A copy of the Draft EA will be furnished for your review early next year.

Should you have any questions or require additional information, please call me at 591-8820.

Very truly yours,

Kay Muranaka, P.E.
Vice President

enclosures

1150 South King Street, Suite 700 Honolulu, Hawaii 96814
Tel: (808) 591-8820 Fax: (808) 591-9010 E-Mail Address: eci@gte.net

ENGINEERING CONCEPTS, INC.
Consulting Engineers

October 3, 2000

Mr. & Mrs. Taylor Tran
94-347 Kupuna Loop
Waipahu, Hawaii 96797

Subject: Proposed Village Park Connector Road
Waipahu, Oahu, Hawaii
TMK: 9-4-02:28 and 9-4-55:146

The City and County of Honolulu Department of Design and Construction has proposed to construct a new public road under its Community Vision Program which would cross under Interstate H-1 to connect the communities of Village Park and Waipahu. The alignment of the proposed connector road will be located primarily within the right-of-way of an existing cane haul road, extending from Kupuna Loop in Village Park to Loaa Street in Waipahu. However, in order to connect to the existing streets at both ends, land may need to be acquired from several residential parcels. Your parcel (TMK: 9-4-132:100) has been identified as one of the affected lots. Refer to the enclosed location map, proposed road layout and typical section for more information.

An environmental assessment (EA) is presently being prepared to address potential impacts associated with the project and methods to mitigate these impacts. As a landowner directly affected by the proposed road alignment, we are soliciting your comments and/or concerns. If you have any concerns that should be addressed in the EA, please submit them in writing to Engineering Concepts, Inc. by November 15, 2000. A copy of the Draft EA will be furnished for your review early next year.

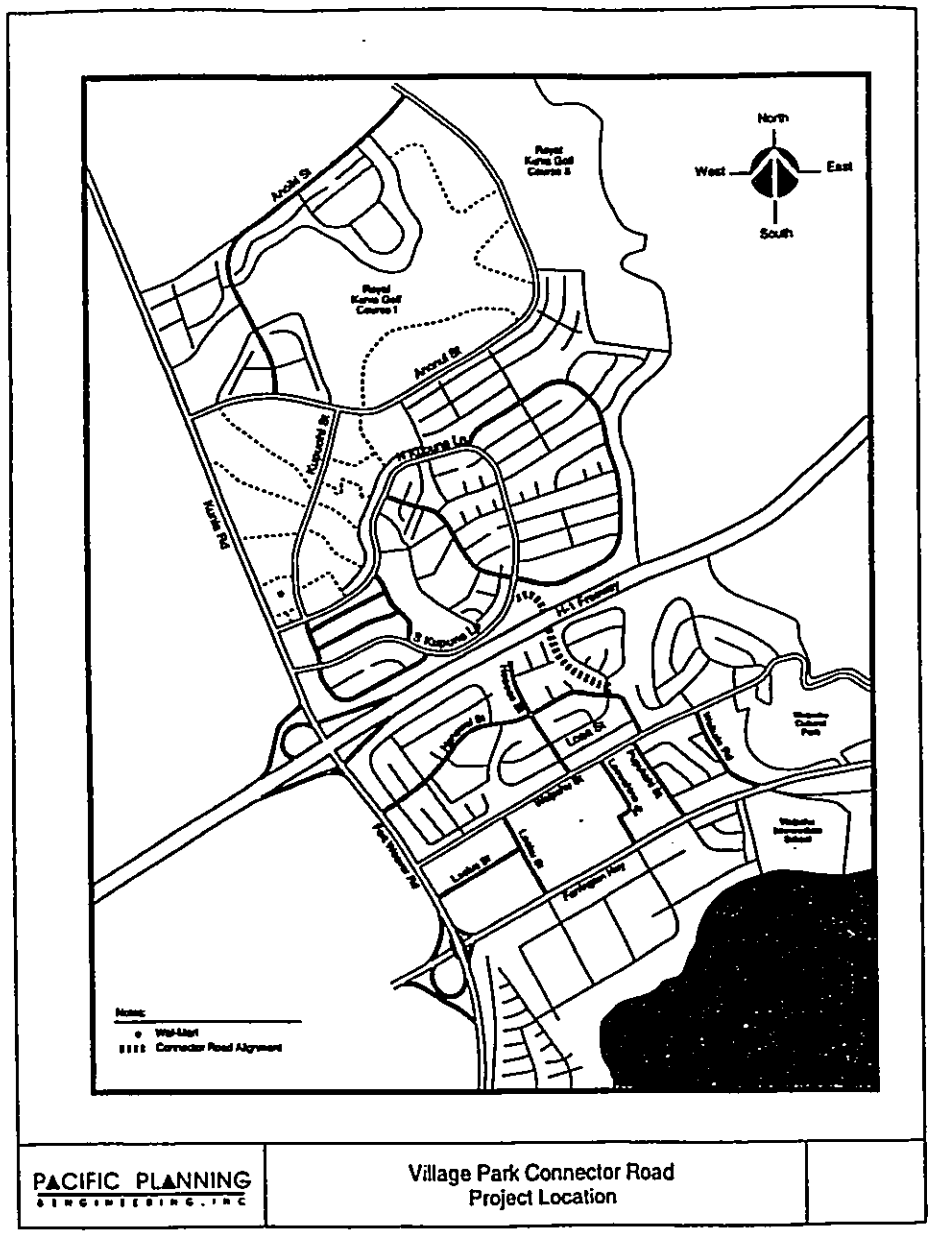
Should you have any questions or require additional information, please call me at 591-8820.

Very truly yours,

Kay Muranaka, P.E.
Vice President

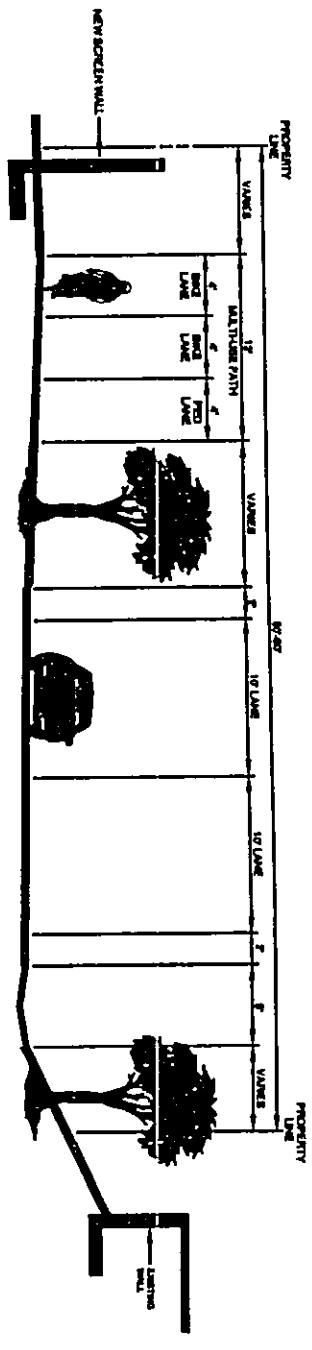
enclosures

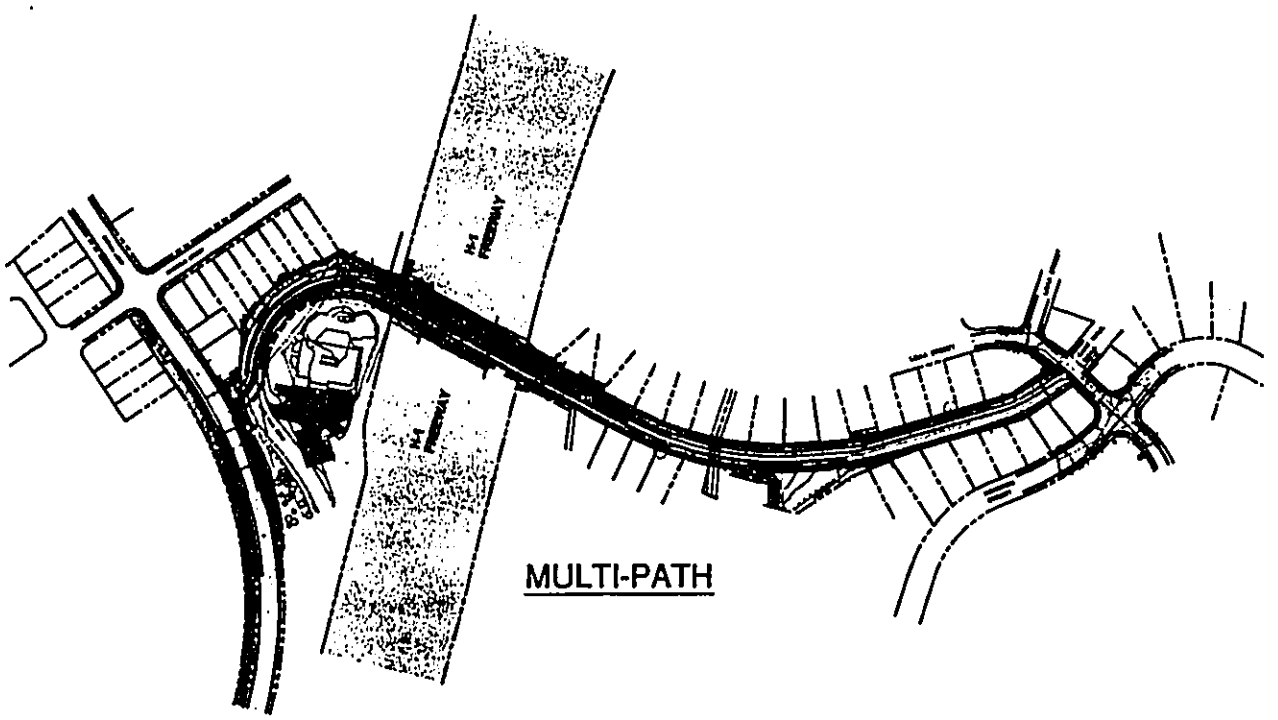
1150 South King Street, Suite 700 Honolulu, Hawaii 96814
Tel: (808) 591-8820 Fax: (808) 591-9010 E-Mail Address: eci@gte.net



PACIFIC PLANNING & ENGINEERING, INC

Village Park Connector Road
Project Location





MULTI-PATH

ENGINEERING CONCEPTS, INC.
Consulting Engineers

October 3, 2000

Mr. Kazu Hayashida, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation
Village Park Connector Road, Waipahu, Oahu, Hawaii
TMK: 9-4-02:28 and 9-4-55:146

The City and County of Honolulu Department of Design and Construction has proposed to construct a new public road under its Community Vision Program which would cross under the Interstate H-1 freeway to connect the communities of Village Park and Waipahu in central Oahu. The alignment of the proposed connector road will be located primarily within the right-of-way of an existing cane haul road, extending from Kupuna Loop in Village Park to Loaa Street in Waipahu. All work will be contained within the existing cane haul road easement at the freeway crossing. Refer to the enclosed location map and proposed road layout for more information.

An environmental assessment (EA) is presently being prepared. We are soliciting your concerns in advance so they may be addressed in the Draft EA.

Should you have any questions or require additional information, please call me or Dana Arakaki at 591-8820.

Very truly yours,

Kay Muranaka, P.E.
Vice President

enclosures

1150 South King Street, Suite 700 Honolulu, Hawaii 96814
Tel: (808) 591-8820 Fax: (808) 591-9010 E-Mail Address: eci@gte.net

BENJAMIN J. CAYETANO
GOVERNOR

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

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OCT 31 2000
ENGINEERING CONCEPTS

OCT 30 2000

LEADING HAWAII INTO THE NEW MILLENNIUM
1959 2000

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:
HWY-PS
2.0582

Mr. Kay Muranaka, P. E.
Engineering Concepts, Inc.
1150 South King Street, Suite 700
Honolulu, Hawaii 96814

Dear Mr. Muranaka:

Subject: Pre-assessment Consultation, Village Park - Waipahu Connector Road, Waipahu, TMK: 9-4-02: 28, 9-4-55: 146

The proposed connector road is not anticipated to have a significant impact to Interstate H-1, Kunia Road, or Fort Weaver Road, our State highway facilities. However, we would like to review a traffic assessment evaluating the expected traffic on the connector road and possible diversion of traffic from Kunia Road and Fort Weaver Road onto the connector road. Security measures should be proposed to prevent access to the interstate highway right-of-way, outside of the existing easement.

If there are any questions regarding these comments, please call Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

BENJAMIN J CAYETANO
GOVERNOR

RECEIVED
MAY 0 8 2001
ENGINEERING CONCEPTS

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

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

IN REPLY REFER TO:
HWY-PS
2.2750

MAY 7 2001

Mr. Conrad Higashionna
Engineering Concepts, Inc.
1150 South King Street, Suite 700
Honolulu, Hawaii 96814

Dear Mr. Higashionna:

Subject: Traffic Assessment, Village Park, Waipahu Connector Road, Waipahu,
TMK: 9-4-02:28,: 9-4-55: 146

Thank you for supplying the requested impact assessment for the road. The traffic report satisfies our concerns.

Very truly yours,

RONALD F. TSUZUKI
Head Planning Engineer

ENGINEERING CONCEPTS, INC.
Consulting Engineers

October 3, 2000

Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Subject: Pre-Assessment Consultation
Village Park Connector Road, Waipahu, Oahu, Hawaii
TMK: 9-4-02:28 and 9-4-55:146

The City and County of Honolulu Department of Design and Construction has proposed to construct a new public road under its Community Vision Program which would cross under Interstate H-1 to connect the communities of Village Park and Waipahu in central Oahu. The alignment of the proposed connector road will be located primarily within the right-of-way of an existing cane haul road, extending from Kupuna Loop in Village Park to Loaa Street in Waipahu. In addition, land will need to be acquired from three residential parcels to facilitate connection to existing streets at both ends of the road. Refer to the enclosed location map, proposed road layout and typical section for more information.

An environmental assessment (EA) is presently being prepared. Given the previous development at the site (cane haul road, freeway and residential homes), the need for an archaeological study was not foreseen. However, we would appreciate your official determination on the need for a study by November 15, 2000. Your concerns related to archaeology and historic sites will be addressed in the environmental assessment.

Should you have any questions or require additional information, please call me or Dana Arakaki at 591-8820.

Very truly yours,

Kay Muranaka, P.E.
Vice President

enclosures

1150 South King Street, Suite 700 Honolulu, Hawaii 96814
Tel: (808) 591-8820 Fax: (808) 591-9010 E-Mail Address: eci@gte.net

---

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

RECEIVED
OCT 26 2000
ENGINEERING

October 16, 2000

LOG NO: 26316
DOC NO: 0010EJ06

Kay Muranaka, P. E.
Vice President
Engineering Concepts, Inc.
1150 South King Street, Suite 700
Honolulu, Hawaii 96814

Dear Ms. Muranaka:

SUBJECT: Chapter 6E-8 Historic Preservation Review – Pre Assessment Consultation Village Park Connector Road
Waipahu, 'Ewa, O'ahu
TMK: 9-4-02:028, 9-4-55:0146

Thank you for the opportunity to comment during the pre-assessment consultation phase for the construction of a new public road connecting Village Park and Waipahu. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the project areas.

A review of our records shows that there are no known historic sites at the project location. This action is located in an area that was commercially cultivated with sugar cane, which altered the land for many years. The depth of cane cultivation exceeded the expected depth of historic sites in the area, based on site patterns in similar environmental contexts. The proposed corridor also follows the route of a previous cane hauling road. Because it is unlikely that any other significant historic sites will be found in the area, we believe that this action will have "no effect" on any historic sites.

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

EJ:an

[redacted] ENGINEERING CONCEPTS, INC.
Consulting Engineers

October 31, 2000

Mr. Colin C. Kippen, Jr.
Deputy Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation
Village Park Connector Road, Waipahu, Oahu, Hawaii
TMK: 9-4-02:28 and 9-4-55:146

The City and County of Honolulu Department of Design and Construction has proposed to construct a new public road under its Community Vision Program which would cross under Interstate H-1 to connect the communities of Village Park and Waipahu in central Oahu. An environmental assessment (EA) is presently being prepared.

The alignment of the proposed connector road will be located primarily within the right-of-way of an existing cane haul road, extending from Kupuna Loop in Village Park to Loaa Street in Waipahu. In addition, land will need to be acquired from three residential parcels to facilitate connection to existing streets at both ends of the road. Refer to the enclosed location map, proposed road layout and typical section for more information.

The State Historic Preservation Division stated in their letter of October 16, 2000 that there are no known historic sites at the project location and believe that the proposed action will have "no effect" on any historic sites (copy enclosed). Based on the absence of historic sites and the existence of urban development (cane haul road, freeway and residential homes), the need for a cultural impact assessment was not foreseen. However, we would appreciate an official opinion from your office on this matter. If you have any concerns regarding cultural practices or impacts associated with the proposed project, we would appreciate hearing from you by December 1, 2000 in order to address your concerns in the Draft EA.

Should you have any questions or require additional information, please call me or Dana Arakaki at 591-8820.

Very truly yours,

Kay Muranaka

Kay Muranaka, P.E.
Vice President

enclosures

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPIOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

November 24, 2000

Ms. Kay Muranaka, P.E.
Vice President
Engineering Concepts, Inc.
1150 S. King Street, Suite 700
Honolulu, HI 96814

Subject: Pre-Assessment Consultation
Village Park Connector Road, Waipahu, O'ahu, Hawai'i
TMK: 9-4-02:28 and 9-4-55:146

Dear Ms. Muranaka:

Thank you for the opportunity to comment on the above referenced project. At this time, the Office of Hawaiian Affairs has no comments to the proposed project. We anticipate the Draft Environmental Assessments and will comment following our thorough review. If you have any questions, please contact Mark A. Mararagan, policy analyst at 594-1945.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

cc: OHA Board of Trustees

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR
GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR
ERIC D. CRISPIN, AIA
ASSISTANT DIRECTOR

July 23, 2001

CDED-B 01-0297

Dear Neighbor:

Subject: Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132: 100 (por.)

The City and County of Honolulu, Department of Design and Construction, proposes to construct a new public road to connect the community of Village Park with Waipahu Town. The proposed Village Park Connector Road would traverse under the H-1 Freeway along the alignment of an existing cane haul road from Kupuna Loop in Village Park to Loaa Street in the Harbor View Subdivision (see Figure 1). The road design will include two 10-foot wide travel lanes for automobile traffic and a 12-foot wide multi-use path, consisting of two 4-foot wide bike lanes and a 4-foot wide pedestrian lane (see Figure 2). The proposed road will improve traffic conditions by providing an alternate travel route for automobile, bicycle, and pedestrian traffic between the two communities. Construction is anticipated to begin in March 2002 (pending receipt of the required permits and approvals) and is estimated to last 12 months. Increased dust, noise, traffic, and soil erosion are expected during the construction period. The estimated cost of design and construction of the project is $3.25 million, to be funded by the City and County of Honolulu through the Community Vision Program.

A Draft Environmental Assessment (EA) entitled *Village Park Connector Road, Waipahu, Ewa, Oahu, Hawaii,* dated June 2001 has been prepared for the project and is currently available for public review at the following locations:

Office of Environmental Quality Control
235 South Beretania Street, Suite 702
(Phone: 586-4185)

Hawaii Documents Center
Hawaii State Library
478 South King Street

Waipahu Public Library
94-275 Mokuola Street

We encourage you to review the Draft EA and submit your comments and/or concerns in writing. Written comments on the Draft EA will be accepted during the 30-day public comment period which ends on August 22, 2001. Please address your comment letter to:

Ms. Rae M. Loui, P.E., Director
Department of Design and Construction
650 South King Street, 11th Floor
Honolulu, Hawaii 96813
Attention: Mr. Harold Sato

Copies of your letter should also be furnished to the other parties listed below:

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Mr. Kay Muranaka, President
Engineering Concepts, Inc.
1150 South King Street, Suite 700
Honolulu, Hawaii 96814

Thank you for your participation in the environmental review process.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

Attachments

cc: Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Kay Muranaka, Engineering Concepts, Inc.

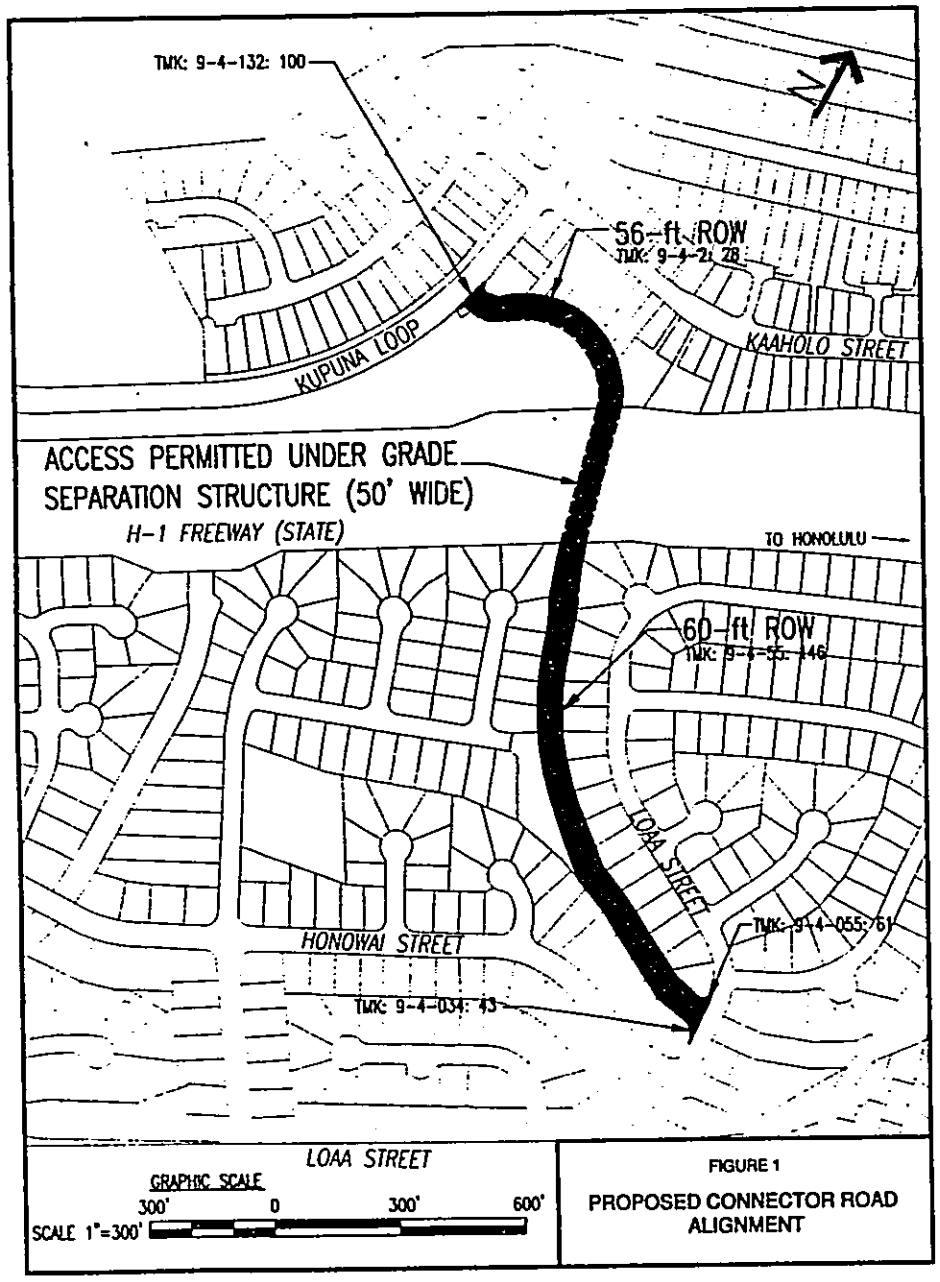

FIGURE 1

PROPOSED CONNECTOR ROAD ALIGNMENT

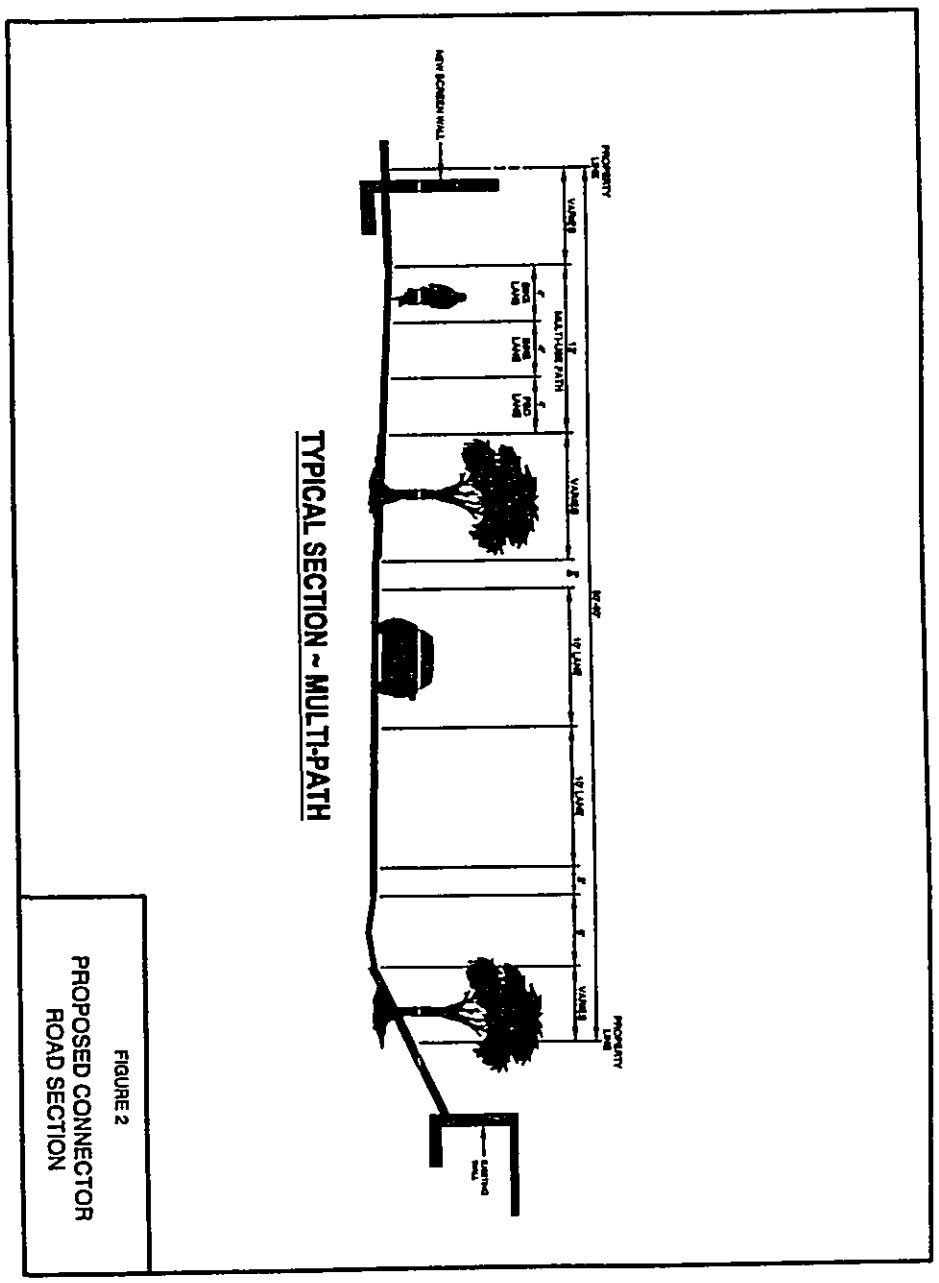

FIGURE 2

PROPOSED CONNECTOR ROAD SECTION

APPENDIX B

DRAFT EA COMMENTS AND RESPONSES

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

REPLY TO ATTENTION OF

August 21, 2001

C
01-01792

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Aug 22 3 23 PM '01

DEO
Received
AUG 28 2001
CDED

Civil Works Technical Branch

Ms. Rae M. Loui, Director
City and County of Honolulu
Department of Design and Construction
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Ms. Loui:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Village Park Connector Road Project, Ewa, Oahu (TMKs 9-4-55: 146; 9-4-2: 28; 9-4-34: 43; 9-4-55: 61; and, 9-4-132: 100). The following comments are provided in accordance with Corps of Engineers authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

a. Based on the information provided, the proposed project will not require a DA permit at this time.

b. The flood hazard information provided on page 4-2 of the DEA is correct.

Should you require additional information, please contact Ms. Jessie Dobinchick of my staff at (808) 438-8876.

Sincerely,

James Pennaz

James Pennaz, P.E.
Chief, Civil Works
Technical Branch

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

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JAN 0 4 2002
ENGINEERING CONCEPTS

RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

January 3, 2002

CDED-B 01-0506

Mr. James Pennaz, P.E., Chief
Civil Works Technical Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Pennaz:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132: 100 (por.)

Thank you for your letter dated August 21, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge that the proposed project will not require Department of the Army (DA) permits and that the flood hazard information provided in the DEA is correct.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

DEPARTMENT OF THE NAVY
COMMANDER
NAVY REGION HAWAII
517 RUSSELL AVENUE, SUITE 110
PEARL HARBOR, HAWAII 96860-4884

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SEP 10 2001
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5090
Ser N465/ 12984
15 AUG 2001

CERTIFIED MAIL NO. 7099 3220 0003 8911 9535
Ms. Rae M. Loui, P. E., Director
Department of Design and Construction
650 South King Street, 11th Floor
Honolulu, Hawaii 96813
Attn: Mr. Harold Sato

Dear Mr. Harold Sato:

We would like to thank you for an opportunity to review and comment on the Draft Environmental Assessment (EA) for Village Park Connector Road, Waipahu, Ewa, Oahu, Hawaii.

We have no comments at this time. Our point of contact is Ms. Amanda Manoi, at 471-1171, extension 218.

Sincerely,

C. K. YOKOTA
REC Engineer
Regional Environmental Department
By direction of
Commander, Navy Region Hawaii

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RECEIVED
JAN 16 2002
ENGINEERING CONCEPTS

RAE M. LOUI, P.E.
DIRECTOR
GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR
ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

January 10, 2002

CDED-B 01-0502

Mr. C. K. Yokota, REC Engineer
Regional Environmental Department
Department of the Navy
Commander, Navy Region Hawaii
517 Russell Avenue, Suite 110
Pearl Harbor, Hawaii 96860-4884

Dear Mr. Yokota:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132:100 (por.)

Thank you for your letter dated August 15, 2001 (reference: 5090 Ser N465/12984) regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge that you have no comments at this time.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

AUG 17 2001

DEPUTIES
JANET E. KAWELO
LINNEL NISHIOKA

ENGINEERING CONCEPTS

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

August 10, 2001

Rae M. Loui, P. E.
Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

LOG NO: 27979
DOC NO: 0108EJ09

Dear Ms. Loui:

SUBJECT: Chapter 6E-8 Historic Preservation Review – Draft Environmental Assessment (DEA) for the Village Park Connector Road, Waipahu, O`ahu
Waipahu, `Ewa, O`ahu
TMK: 9-4-055;146, 9-4-002:28 por.; 9-4-034:43 por.; 9-4-055:061 por.; and 9-4-132: 100 por.

Thank you for the opportunity to comment on the DEA for the Waipahu Village Park Connector Road. Our comments that we believe that this project will have "no effect" on significant historic sites is included in Section 3.6 Archaeological, Historic and Cultural Resources, of the DEA and in it's entirety in Appendix A.

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

EJ:jk

c: Ms. Genevieve Salmonson, Director. OEQC, 235 S. Beretania St. Suite 702, Honolulu, HI 96813
Mr. Kay Muranaka, Engineering Concepts, Inc. 1150 s. King St., Suite 700, Honolulu, HI 96814

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

JAN 16 2002

ENGINEERING CONCEPTS

RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. YAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC O. CRISPIN, AIA
ASSISTANT DIRECTOR

January 11, 2002

CDED-B 01-0499

Mr. Don Hibbard, Administrator
Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Hibbard:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132:100 (por.)

Thank you for your letter dated August 10, 2001 (reference: LOG NO: 27979, DOC NO: 0108EJ09) regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge that the project will have "no effect" on significant historic sites.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

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

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

Received
SEP 27 2001
CDED

IN REPLY REFER TO:
HWY-PS
2.4240

01407096

SEP 24 2001

RECEIVED
Sep 26 12 53 PM '01

Ms. Rae M. Loui
Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Attn: Mr. Harold Sato

Dear Ms. Loui:

Subject: Draft Environmental Assessment, Village Park Connector Road, Waipahu, Ewa, TMK: 9-4-55; 9-4-34; 9-4-132

Thank you for requesting our review of the Draft Environmental Assessment for the proposed connector road.

1. Security measures to prevent unauthorized access to the Interstate right-of-way and to ensure the integrity of Interstate structural elements should be provided.

2. Plans for construction work done within the Interstate H-1 right-of-way must be submitted for our review and approval.

If there are any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

Brian K. Minaai
BRIAN K. MINAAI
Director of Transportation

JEREMY HARRIS
MAYOR

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

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Dec 26 2001
ENGINEERING

RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

December 26, 2001

CDED-B 01-0511

Mr. Brian K. Minaai, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Minaai:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.); 9-4-55: 61 (por.); and 9-4-132: 100 (por.)

Thank you for your letter dated September 24, 2001 (reference: HWY-PS 2.4240) regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and offer the following response to your comments:

1. *Security measures to prevent unauthorized access to the Interstate right-of-way and to ensure the integrity of Interstate structural elements should be provided.*

   The proposed connector road alignment will be contained within the existing cane haul road easement under the Interstate H-1 freeway. The only means of access from the proposed connector road to the freeway are the side slopes located on both sides of the freeway. The side slopes are not easily accessible due to the 1:1 slope on either side of the freeway. This should act as an adequate deterrent against unauthorized access to the Interstate right-of-way. In addition, more accessible routes exist along adjacent parcels to the freeway that are outside of the proposed connector road alignment.

2. *Plans for construction work done within the Interstate H-1 right-of-way must be submitted for our review and approval.*

   A copy of the plans will be submitted to the State of Hawaii Department of Transportation for review and approval.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

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AUG 23 2001
ENGINEERING CONCEPTS

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

August 22, 2001

Ms. Rae M. Loui, Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawai'i 96813

Dear Ms. Loui:

Subject: Draft Environmental Assessment for the Village Park Connector Road, O'ahu

Thank you for the opportunity to review the subject document. We have the following comments.

1. Please describe whether the screen wall shown in figure 2-2 will be constructed along the entire length of the Village Park Connector Road. What is the purpose of the screen wall?

2. Please illustrate the visual impacts of the proposed screen wall. Photos of existing conditions taken from public viewpoints are helpful in evaluating visual impacts. Renderings of the proposed screen wall superimposed on photos of existing views should be provided. We recommend constructing and painting the wall with materials and colors that blend with the surroundings.

3. We recommend that the City consult with all the affected landowners listed in figure 2-4.

4. Please state whether any rare, threatened or endangered species will be affected by the project.

5. We recommend that soil samples form the site be analyzed for pesticides and herbicides that may have been used previously for agricultural purposes.

6. This project should comply with sections 103D-407 and 408 of Hawaii Revised Statutes concerning the use of indigenous plants and recycled glass.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185. Mahalo.

Sincerely,

Genevieve Salmonson
Director

c: ~~DPP~~
~~AKTA~~
Engineering Concepts.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC D. CRISPIN, AIA
ASSISTANT DIRECTOR

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JAN 2 2002
ENVIRONMENTAL QUALITY

December 27, 2001

CDED-B 01-0509

Ms. Genevieve Salmonson, Director
State of Hawaii
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.); 9-4-55: 61 (por.);
and 9-4-132: 100 (por.)

Thank you for your letter dated August 22, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and offer the following response to your comments:

1. *Please describe whether the screen wall shown in figure 2-2 will be constructed along the entire length of the Village Park Connector Road. What is the purpose of the screen wall?*

   The screen wall shown in figure 2-2 was intended to act as a sound barrier between the proposed connector road and the adjacent properties. However, based on a traffic noise study conducted for the project site using predicted future traffic noise levels projected to the year 2020, the noise level along the proposed connector road should not exceed 65 Ldn. Therefore, traffic noise mitigation measures, such as the screen wall, will not be required at this time.

2. *Please illustrate the visual impacts of the proposed screen wall. Photos of existing conditions taken from public viewpoints are helpful in evaluating visual impacts. Renderings of the proposed screen wall superimposed on photos of existing views should*

be provided. We recommend constructing and painting the wall with materials and colors that blend with the surroundings.

Based on the traffic noise study conducted for the project site, the proposed screen wall indicated in the Draft EA will not be included in the design of the Village Park Connector Road. This screen wall may be constructed in the future if noise levels become a problem for the neighboring properties. However, landscaping between the connector road and the adjacent properties proposed in this project will alter the existing appearance of the area. Superimposing the screen wall on photos of existing views will not accurately portray the visual impact of the screen wall if one should be necessary in the future. If a screen wall is necessary in the future, the Waipahu Vision Team will be consulted so that the needs and preferences of the community it represents will be reflected in its design. The screen wall design will also incorporate mitigative measures to blend in the structure with the existing surroundings.

3. *We recommend that the City consult with all the affected landowners listed in figure 2-4.*

   A letter has been sent to all affected landowners listed in figure 2-4. Information contained in this letter includes a brief description of the project site, proposed work covered under this project, anticipated commencement date and duration of the construction, figures detailing the proposed alignment and road section, and information on the availability of the Draft Environmental Assessment prepared for this project. A copy of this letter will appear in the appendix in the Final EA.

4. *Please state whether any rare, threatened or endangered species will be affected by the project.*

   This project is not anticipated to impact rare or endangered flora or fauna, or habitat due to location within the right-of-way of an existing cane haul road and the urbanized surroundings. This information is presented in section 1.6 Summary of Potential Impacts and Mitigation Measures, under Flora and Fauna (page 1-4).

5. *We recommend that soil samples from the site be analyzed for pesticides and herbicides that may have been used previously for agricultural purposes.*

   Soil sampling for pesticides and herbicides for a roadway project constructed on top of land formerly used for agriculture is not required based on consultation with the State Department of Health Office of Hazard Evaluation and Emergency Response. Since the proposed project consists of the construction of a roadway, associated pedestrian and bike paths, and landscaping, the majority of the soil will be covered

with asphalt, concrete, or greenery. Therefore, soil analysis of pesticides and herbicides will not be necessary due to the minimal amount of exposed soil upon completion of the project.

6. *This project should comply with sections 103D-407 and 408 of Hawaii Revised Statues concerning the use of indigenous plants and recycled glass.*

Where practicable, indigenous plants will be incorporated in the landscaping plans for the project. Recycled glass will be used in the construction of the proposed connector road when available at a cost equal to or lower than the equivalent aggregate. This is consistent with sections 103D-407 and 408 of the Hawaii Revised Statues concerning the use of indigenous plants and recycled glass.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

PHONE (808) 594-1888

STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPIOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

FAX (808) 594-1865

#01-01689
• Harold
• Construction

DDC
Received
AUG - 9 2001
CCSD

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Aug 9 7 51 AM '01

August 2, 2001

Ms. Rae M. Loui
Director
Department of Design and Construction
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Subject: Village Park Connector Road

Dear Ms. Loui:

Thank you for the opportunity to comment on the above referenced project which will construct a new public road under H-1 freeway between Village Park and Waipahu Town.

Under Archaeological, Historic and Cultural Resources (page 1-4) please amend the section to indicate that the State Historic Preservation Division and the Oahu Island Burial Council should be informed if inadvertent discoveries are made during construction.

If you have any questions, please contact Jerry B. Norris at 594-1847.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

cc: OHA Board of Trustees
Clyde W. Namu'o, OHA Administrator

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

RE[illegible]
JAN 16 [illegible]

January 14, 2002

CDED-B 01-0496

Mr. Colin C. Kippen, Jr., Deputy Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Kippen:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.); 9-4-55: 61 (por.); and 9-4-132:100 (por.)

Thank you for your letter dated August 2, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and offer the following response to your comment:

Comment: *"Under Archaeological, Historic and Cultural Resources (page 1-4) please amend the section to indicate that the State Historic Preservation Division and the Oahu Island Burial Council should be informed if inadvertent discoveries are made during construction."*

Response: We will comply and revise the section accordingly.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto
cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

CITY COUNCIL

CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII 96813-3065 • TELEPHONE 547-7000

GARY H. OKINO
COUNCILMEMBER, DISTRICT VIII
CHAIR, PARKS & PUBLIC WORKS COMMITTEE
TELEPHONE (808) 547-7008
FACSIMILE (808) 523-4220

August 15, 2001

Ms. Rae M. Loui, Director
Department of Design and Construction
650 South King Street
Honolulu, Hawaii 96813

Dear Ms. Loui:

RE: Draft Environmental Assessment

We have reviewed the Draft Environmental Assessment and find that a Finding Of No Significant Impact (FONSI) is appropriate.

Sincerely,

Gary H. Okino
Councilmember, District VIII

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

January 10, 2002

CDED-B 01-0503

The Honorable Gary Okino
Councilmember
City Council
City and County of Honolulu
Honolulu, Hawaii 96813

Dear Councilmember Okino:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132:100 (por.)

Thank you for your letter dated August 15, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge that you find that a Finding Of No Significant Impact (FONSI) is appropriate.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call me at 523-4564.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

FORWARDED:

BENJAMIN B. LEE, FAIA
Managing Director

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

RECEIVED
AUG 30 2001
ENGINEERING

August 28, 2001

TO: MS. RAE M. LOUI, DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR TRANSMITTAL OF JULY 23, 2001 OF THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE VILLAGE PARK CONNECTOR ROAD, WAIPAHU, OAHU, TMK: 9-4-55: PORTION 61, 146; 9-4-02: PORTION 28; 9-4-34: PORTION 43; 9-4-132: PORTION 100

Thank you for the opportunity to review the subject document for the proposed connector road between Village Park and the Hoaeae subdivision of Waipahu.

We have no objections to the proposed project. However, we would like to propose the installation of an 8-inch water main in conjunction with the roadway project to improve the reliability of the Kunia 440' water system that serves both Village Park and the Hoaeae area of Waipahu. All costs associated with the design and construction of the main would be assumed by the Board of Water Supply. We request a more detailed project schedule for coordination purposes and your assessment of the feasibility of including the water main project.

If you have any questions, please contact Scot Muraoka at 527-5221.

cc: Office of Environmental Quality Control
Engineering Concepts, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

RECEIVED
OCT 4 2001
ENGINEERING

October 1, 2001

CDED-B 01-0393

MEMORANDUM

TO: MR. CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR
VILLAGE PARK CONNECTOR ROAD
WAIPAHU, EWA, OAHU, HAWAII
TMK: 9-4-55: 146; 9-4-02: 28 (POR.); 9-4-34: 43 (POR.); 9-4-55: 61 (POR.);
AND 9-4-132: 100 (POR.)

Thank you for your memorandum dated August 28, 2001, regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge that you have no objections to the proposed connector road between Village Park and the Hoaeae subdivision of Waipahu.

The Board of Water Supply's (BWS) proposal for the installation of an 8-inch water main in conjunction with the roadway project can be accommodated with the understanding that the costs associated with the design and construction of the water main are to be paid for by the BWS. The authority to transfer funds to the City for construction of the BWS improvements will require a City Council resolution. Please submit your construction plans and specifications by mid-October 2001 for our design consultant to coordinate the work for bid opening and award before the end of 2001.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

HSS:LC:pto

cc: Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Kay Muranaka, Engineering Concepts, Inc.

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4341 FAX: (808) 527-5857

JEREMY HARRIS
MAYOR

ROSS S. SASAMURA, P.E.
DIRECTOR AND CHIEF ENGINEER
ALVIN K. C. AU
DEPUTY DIRECTOR

RECEIVED
AUG 28 2001
ENGINEERING CONCEPTS

IN REPLY REFER TO:
M01-595

August 10, 2001

MEMORANDUM

TO MS. RAE LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: ROSS S. SASAMURA, P.E., DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF FACILITY MAINTENANCE

SUBJECT: **VILLAGE PARK CONNECTOR ROAD**
DRAFT ENVIRONMENTAL ASSESSMENT REPORT, JUNE 2001

As indicated in the subject report, the proposed connector road should be designed and constructed to City and County standards. Right-of-way constraints and lack of adequate funding should not be used as reasons to construct an unimproved roadway as recommended in the report. The new roadway should be constructed with concrete curbs and a storm drain system to ensure flooding, ponding or storm water problems will not develop.

The maintenance of the multi-use path, screen walls, landscaped and grassed areas within the connector road right-of-way would require a Memorandum of Understanding outlining maintenance responsibilities by various City and private agencies and should be developed in the planning or design stages of the project.

Should there be any questions, please contact Larry Leopardi, Chief of Road Maintenance, at 523-4472.

cc: Engineering Concepts, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR
GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR
ERIC O. CRISPIN, AIA
ASSISTANT DIRECTOR

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JAN 25 2002
ENGINEERING CONCEPTS

January 17, 2002

CDED-B 01-0525

MEMORANDUM

TO: MR. ROSS S. SASAMURA, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF FACILITY MAINTENANCE

FROM: RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR
VILLAGE PARK CONNECTOR ROAD
WAIPAHU, EWA, OAHU, HAWAII
TMK: 9-4-55: 146; 9-4-02: 28 (POR.); 9-4-34: 43 (POR.); 9-4-55: 61 (POR.);
AND 9-4-132: 100 (POR.)

Thank you for your memorandum dated August 10, 2001 (reference: M01-595) regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and offer the following response to your comments:

1. *"As indicated in the subject report, the proposed connector road should be designed and constructed to City and County standards. Right-of-way constraints and lack of adequate funding should not be used as reasons to construct an unimproved roadway as recommended in the report. The new roadway should be constructed with concrete curbs and a storm drain system to ensure flooding, ponding or storm water problems will not develop."*

   The design of the Village Park Connector Road is the product of the joint effort between the City and County of Honolulu Department of Design and Construction and the Waipahu Vision Team. Although designing the proposed connector road in accordance with the City and County standards was considered an alternative in the preliminary design phase of the project, this alternative was eliminated because it did not meet the needs and preferences of the Waipahu Vision Team. Therefore, to satisfy the needs and preferences of the community, strict adherence to the City and County Subdivision Street Standards have been waived. The design will meet current standards of "A Policy on Geometric Design of Highways and Streets" by the American Association of State Highway and Transportation Officials, "Manual

on Uniform Traffic Control Devices for Streets and Highways" by the Federal Highways Administration, and "Traffic Standards Manual" by the City and County of Honolulu Department of Transportation Services.

2. *The new roadway should be constructed with concrete curbs and a storm drain system to ensure flooding, ponding or storm water problems will not develop."*

Drainage improvements will be included in the design of the connector road. A concrete curb and 5-foot wide drainage swale will be located along one side of the road and will be designed to adequately handle the storm water to prevent flooding or ponding problems.

3. *"The maintenance of the multi-use path, screen walls, landscaped and grassed areas within the connector road right-of-way would require a Memorandum of Understanding outlining maintenance responsibilities by various City and private agencies and should be developed in the planning or design stages of the project."*

We believe that a Memorandum of Understanding is not necessary for this project. Facilities proposed for this project include the connector road, multi-use path, and landscape and grassed areas. Based on the traffic noise study conducted for the project site, the proposed screen wall indicated in the Draft EA will not be included in the design of the Village Park Connector Road. The new facilities proposed under this project are not uncommon and therefore maintenance responsibilities will not be outside the normal responsibilities of the various City agencies. Since the project will be located within the City's right-of-way, we do not anticipate private agencies to assist in the maintenance of these facilities.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 10TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4182 • FAX: 527-5725 • INTERNET: www.co.honolulu.hi.us

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OCT 3 2001
ENGINEERING CONCEPTS

JEREMY HARRIS
MAYOR

WILLIAM D. BALFOUR, JR.
DIRECTOR

EDWARD T. "SKIPPA" DIAZ
DEPUTY DIRECTOR

October 1, 2001

MEMORANDUM

TO: RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: WILLIAM D. BALFOUR, JR., DIRECTOR

SUBJECT: VILLAGE PARK CONNECTOR ROAD
WAIPAHU, EWA, OAHU, HAWAII
TMK: 9-4-55: 146; 9-4-02:28 (POR.); 9-4-34:43 (POR.);
9-4-55:61 (POR.); AND 9-4-132: 100 (POR.)

Thank you for the opportunity to review and comment on the Draft Environmental Assessment relating to the Village Park Connector Road.

The Department of Parks and Recreation supports the proposed improvement.

Should you have any questions, please contact Mr. John Reid, Planner, at 547-7396.

Edward T. Skippa Diaz

WILLIAM D. BALFOUR, JR.
Director

WDB:cu (2743)

cc: Ms. Genevieve Salmonson, Director, OEQC
Mr. Kay Muranaka, Engineering Concepts, Inc.
Mr. Don Griffin, Department of Design and Construction

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
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DEC 26 2001
ENGINEERING CONCEPTS

JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

December 26, 2001

CDED-B 01-0512

MEMORANDUM

TO: MR. WILLIAM D. BALFOUR, JR., DIRECTOR
DEPARTMENT OF PARKS AND RECREATION

FROM: RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR
VILLAGE PARK CONNECTOR ROAD
WAIPAHU, EWA, OAHU, HAWAII
TMK: 9-4-55: 146; 9-4-02: 28 (POR.); 9-4-34: 43 (POR.); 9-4-55: 61 (POR.);
AND 9-4-132: 100 (POR.)

Thank you for your memorandum dated October 1, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge that the Department of Parks and Recreation supports the proposed improvement.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE (808) 523-4414 • FAX (808) 527-6743 • INTERNET www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RANDALL K. FUJIKI, AIA
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

RECEIVED
AUG 28 2001
ENGINEERING CONCEPTS

2001/CLOG-3195(RY)

August 23, 2001

TO: RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: RANDALL K. FUJIKI, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR VILLAGE PARK CONNECTOR ROAD, WAIPAHU, CENTRAL OAHU, TAX MAP KEY 9-4-55: 146, 9-4-2: PORTION 28, 9-4-34: PORTION 43, 9-4-55: PORTION 61, AND 9-4-132: PORTION 100

We have reviewed the document and have the following comments:

Central Oahu Development Plan and Local Area Plans

The project is consistent with the Central Oahu Development Plan (DP) and is shown on the DP Public Facilities Map as a new roadway to be funded within 6 years (2000/CO-1001). In addition, a roadway connection, similar to the alignment of the proposed project, between Village Park and Waipahu is also envisioned and advocated in the "Waipahu Town Plan, A Special Area Plan of the Central Oahu Development Plan" and in the "Waipahu Livable Communities Initiative."

Encroachments and Related Approvals

For your information, a portion of the right-of-way (ROW), Tax Map Key 9-4-2: 28 parcel, contains an unauthorized 15-foot high CRM wall. A portion of the unauthorized CRM wall encroaches into the future roadway ROW. The parcel is currently owned by the Moanalua Congregational Christian Church, but will be conveyed to the City. The unauthorized wall in its current location may interfere with the design of the roadway. The DPP has issued a Notice of Violation/Stop Work Order (No. 2001/NOV-06-238) to the Moanalua Congregational Christian Church, for the construction of the wall without a building permit.

On August 2, 2001, the Director denied a request for minor modification of 1999/SPR-4, for a 15-foot high retaining wall which encroaches into the required yard and exceeds the maximum height. [Note: This wall, a proposal, was to be set back 5 feet from the future roadway property line.] The denial specified that the height and bulk of the proposed wall would have a negative visual impact on users of the pedestrian/bicycle path, as well as motorists traveling along the Village Park Connector Road.

If you have any questions, please call Raymond Young of our staff at extension 5839.

RKF:lh
doc: 111285

cc: Engineering Concepts, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR
GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR
ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

January 2, 2002

CDED-B 01-0510

MEMORANDUM

TO: MR. RANDALL K. FUJIKI, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: for RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR
VILLAGE PARK CONNECTOR ROAD
WAIPAHU, EWA, OAHU, HAWAII
TMK: 9-4-55: 146; 9-4-02: 28 (POR.); 9-4-34: 43 (POR.); 9-4-55: 61 (POR.);
AND 9-4-132: 100 (POR.)

Thank you for your memorandum dated August 23, 2001 (reference: 2001/CLOG-3195 (RY)) regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge your comments as follows:

1. The project is consistent with the Central Oahu Development Plan and was also envisioned and advocated in the "Waipahu Town Plan, A Special Area Plan of the Central Oahu Development Plan" and in the "Waipahu Livable Communities Initiative."

2. An unauthorized 15-foot high CRM wall encroaches into the future roadway ROW which may interfere with the design of the connector road and that a Notice of Violation/Stop Work Order (No. 2001/NOV-06-238) has been issued by the Department of Planning and Permitting for the construction of the wall without a building permit. A request for minor modification of 1999/SPR-4, for a 15-foot high retaining wall which encroaches into the required yard and exceeds the maximum height was denied. [Note: This wall, a proposal, was to be set back 5 feet from the future roadway property line.] The denial specified that the height and bulk of the proposed wall would have a negative visual impact on users of the pedestrian/bicycle path, as well as motorists traveling along the Village Park Connector Road.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE (808) 523-4529 • FAX (808) 523-4730 • INTERNET www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

RECEIVED
NOV 1 2001
ENGINEERING CONCEPTS

October 29, 2001

TP7/01-03230R

MEMORANDUM

TO: RAE M. LOUI, P. E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

ATTN: HAROLD SATO

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: VILLAGE PARK CONNECTOR ROAD

In response to your July 23, 2001 letter, the draft environmental assessment for the subject project was reviewed. The following comments are the result of this review:

1. In addition to the proposed road, the *Waipahu Livable Communities Initiative* suggested the restructuring/reconfiguration of West Waipahu bus service. The use of the connector road would facilitate service to the Royal Kunia area and the connection to the proposed bus rapid transit system. Continuing coordination between our departments is essential.

2. On Page 2-4, Figure 2-2, Proposed Connector Road Section, should indicate the direction of the view.

3. Once the subject road is completed, motorists may choose to go to Honolulu via Kupuna Loop, Village Park Connector Road, Honowai Street, Kunia Road and the H-1 Freeway. The level of service at the intersection of Kunia Road and Honowai Street should be determined to assess the likelihood of this route being used.

4. Traffic calming measures along the proposed road and other potential shorter travel time routes to Honolulu should be considered for implementation as part of this project to slow motorists who may otherwise speed through these residential routes.

5. On Page 4-3, Section 4.8.1 **Short Term Impacts and Mitigation Measures** states that construction operations will be scheduled to avoid peak traffic conditions. Of special concern is the use of Honowai Street in the vicinity of Honowai Elementary School. Large construction vehicles should avoid using this roadway during the times before and after school when pedestrian and vehicular traffic are at their peak.

6. Page 4-4 discusses the preliminary traffic signal warrant analysis that was conducted for the intersection of Honowai Street and Waipahu Street. The installation of traffic signals should be made a conditional mitigation measure to be implemented as part of the subject project.

7. The first sentence in Section **5.3 Bike Path Alternative** (Page 5-2) should be clarified to indicate that the bike path alternative is shown in Figure 5-1 and the multi-use path configuration is shown in Figure 2-2.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at Local 6976.

CHERYL D. SOON

cc: Ms. Genevieve Salmonson
Office of Environmental Quality Control

Mr. Kay Muranaka
Engineering Concepts, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
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JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR
GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR
ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

DEC 6 2001

CDED-B 01-0513

December 26, 2001

MEMORANDUM

TO: MS. CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR
VILLAGE PARK CONNECTOR ROAD
WAIPAHU, EWA, OAHU, HAWAII
TMK: 9-4-55: 146; 9-4-02: 28 (POR.); 9-4-34: 43 (POR.); 9-4-55: 61 (POR.);
AND 9-4-132: 100 (POR.)

Thank you for your memorandum dated October 29, 2001 (reference: TP7/01-03230R) regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and offer the following responses to your comments:

1. *In addition to the proposed road, the "Waipahu Livable Communities Initiative" suggested restructuring/reconfiguring the West Waipahu bus service. Using the connector road would facilitate service to the Royal Kunia area and the connection to the proposed bus rapid transit system. Continued coordination between our departments is essential.*

   The community feels that buses and large vehicles should not be allowed on the proposed road. This restriction, however, would require a City Council Resolution. It is our understanding that a resolution is being prepared by Councilmember Gary Okino.

2. *Figure 2-2 (Proposed Connector Road Section) on page 2-4 should indicate the direction of the view.*

   The Final EA will include section arrows on Figure 2-1 to indicate direction on Figure 2-2.

3. *Once the subject road is completed, motorists may choose to go to Honolulu via Kupuna Loop, Village Park Connector Road, Honowai Street, Kunia Road, and the H-1 Freeway. The level of service at the intersection of Kunia Road and Honowai Street should be determined to assess the likelihood of this route being used.*

   The traffic analysis was based on Waipahu / Village Park / Kunia traffic only. H-1 traffic was not considered because this is an indirect route and the level of service would be unpredictable.

4. *Traffic calming measures along the proposed road and other potential shorter routes to Honolulu should be considered for implementation as part of this project to slow motorists who may otherwise speed through these residential routes.*

   The proposed roadway is a Vision Project selected by the community, and funding resources are limited. The Department of Transportation Services has conducted community meetings in this area to prioritize traffic calming projects. As a result of these meetings, traffic calming measures on Kupuna Loop are being planned by the Department.

5. *Section 4.8-1 (Short-Term Impacts and Mitigation Measures) on page 4-3 states that construction operations will be scheduled to avoid peak traffic conditions. Of special concern is the use of Honowai Street in the vicinity of Honowai Elementary School. Large construction vehicles should avoid using this roadway before and after school hours when pedestrian and vehicular traffic are at their peak.*

   The Final EA will include the following statement: "Construction-related vehicles should avoid using Honowai Street in the vicinity of Honowai Elementary School before and after school hours."

6. *Page 4-4 discusses the preliminary traffic signal warrant analysis conducted for the intersection of Honowai and Waipahu Streets. The installation of traffic signals should be made a conditional mitigation measure to be implemented as part of the project.*

   The traffic study did not recommend traffic signals at the intersection of Honowai and Waipahu Streets at this time. After this project is completed, the intersection(s) could be monitored by the Department of Transportation Services to determine if traffic signals are warranted. The addition of traffic signals at this intersection may increase traffic on the proposed connector road, which is not desired by residents of Village Park subdivision.

7. *The first sentence in Section 5.3 (Bike Path Alternative) on page 5-2 should be clarified to indicate the bike path alternative is shown on Figure 5-1 and the multi-use path on Figure 2-2.*

   The Final EA will include the following clarification: "Construction of two 4-foot wide bike lanes on each side of the connector road with a 4-foot wide walkway on one side (see Figure 5-1) was considered as an alternative to the multi-use path configuration shown on Figure 2-2 in Chapter 2."

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425 • HONOLULU, HAWAII 96819-1849
TELEPHONE: (808) 831-7761 • FAX: (808) 831-7750 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

August 14, 2001

TO: RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

ATTENTION: HAROLD SATO

FROM: ATTILIO K. LEONARDI, FIRE CHIEF

SUBJECT: VILLAGE PARK CONNECTOR ROAD
WAIPAHU, EWA, OAHU, HAWAII
TMK: 9-4-055: 146; 9-4-002: 028 (POR.); 9-4-034: 043 (POR.);
9-4-055: 061 (POR.); AND 9-4-132: 100 (POR.)

We received your memorandum dated July 23, 2001, regarding the Draft Environmental Assessment for the above-mentioned project.

The Honolulu Fire Department (HFD) requests that the following be complied with:

1. Provide a fire department access road to within 150 feet of the first floor of the most remote structure. Such access shall have a minimum vertical clearance of 13 feet 6 inches, be constructed of an all-weather driving surface complying with Department of Transportation Services (DTS) standards, capable of supporting the minimum 60,000 pound weight of our fire apparatus, and with a gradient not to exceed 20%. The unobstructed width of the fire apparatus access road shall meet the requirements of the appropriate county jurisdiction. All dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround having a radius complying with DTS standards.

2. Submit civil drawings to the HFD for review and approval.

Should you have any questions, please call Battalion Chief Kenneth Silva of our Fire Prevention Bureau at 831-7778.

Attilio K. Leonardi

ATTILIO K. LEONARDI
Fire Chief

AKL/DL:jo

cc: Genevieve Salmonson, Director, Office of Environmental Quality Control
Kay Muranaka, Engineering Concepts, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
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JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR
GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR
ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

JAN 16 2002

ENGINEERING CONCEPTS

January 11 2002

CDED-B 01-0501

MEMORANDUM

TO: MR. ATTILIO K. LEONARDI, FIRE CHIEF
FIRE DEPARTMENT

FROM: RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR
VILLAGE PARK CONNECTOR ROAD
WAIPAHU, EWA, OAHU, HAWAII
TMK: 9-4-55: 146; 9-4-02: 28 (POR.); 9-4-34: 43 (POR.); 9-4-55: 61 (POR.);
AND 9-4-132: 100 (POR.)

Thank you for your memorandum dated August 14, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and offer the following response to your comments:

1. *"Provide a fire department access road to within 150 feet of the first floor of the most remote structure. Such access shall have a minimum vertical clearance of 13 feet 6 inches, be constructed of an all-weather driving surface complying with Department of Transportation Services (DTS) standards, capable of supporting the minimum 60,000 pound weight of our fire apparatus, and with a gradient not to exceed 20%. The unobstructed width of the fire apparatus access road shall meet the requirements of the appropriate county jurisdiction. All dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround having a radius complying with DTS standards."*

   The Village Park Connector Road will be located along the backside of all adjacent properties. Existing roads located along the frontage provide primary access to these properties. The vertical clearance along the connector road is in excess of 20 feet and will be constructed of an all-weather driving surface complying with the Department of Transportation Services (DTS) standards. The road will also be adequate to support the weight of the fire apparatus with a gradient not exceeding 20%. There are no dead-end roads proposed in this project.

2. *"Submit civil drawings to the HFD for review and approval."*

   A copy of the civil drawings will be submitted to the HFD for review and approval.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honolulupd.org
www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

OUR REFERENCE CS-KP

August 13, 2001

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LEE D. DONOHUE
CHIEF

MICHAEL CARVALHO
ROBERT AU
DEPUTY CHIEFS

TO: RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: VILLAGE PARK CONNECTOR ROAD
WAIPAHU, EWA, OAHU, HAWAII
TMK: 9-4-55: 146; 9-4-02: 28 (POR.); 9-4-34: 43 (POR.); 9-4-55: 61 (POR.); AND 9-4-132: 100 (POR.)

Thank you for the opportunity to review and comment on the subject project.

We have no objection to this proposal. However, we anticipate an increase in calls for police service both during and after the construction phase as a result of construction-related dust, noise, and traffic.

As we stated previously, we believe that the increased traffic flow through the area may generate speeding and noise complaints. This will also have a negative impact on calls for police service.

If there are any questions, please call Ms. Carol Sodetani of the Support Services Bureau at 529-3658.

LEE D. DONOHUE
Chief of Police

By
EUGENE UEMURA
Assistant Chief of Police
Support Services Bureau

cc: Ms. Geneveleve Salmonson, Director
Office of Environmental Quality Control

Mr. Kay Muranaka
Engineering Concepts, Inc.

Serving and Protecting with Aloha

DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

January 11, 2002

CDED-B 01-0500

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RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC O. CRISPIN, AIA
ASSISTANT DIRECTOR

MEMORANDUM

TO: MR. LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

FROM: RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR
VILLAGE PARK CONNECTOR ROAD
WAIPAHU, EWA, OAHU, HAWAII
TMK: 9-4-55: 146; 9-4-02: 28 (POR.); 9-4-34: 43 (POR.); 9-4-55: 61 (POR.); AND 9-4-132: 100 (POR.)

Thank you for your memorandum dated August 13, 2001 (reference: CS-KP) regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge that you have no objections to this project. Your comment regarding the anticipated increase in calls for police service both during and after the construction phase as a result of construction-related dust, noise, and traffic will be included in the Final EA. Mitigative measures to minimize the dust and noise associated with the short- and long-term impacts of the project are included in the report and applicable State Department of Health permits will be obtained during the construction phase of the project. Traffic calming measures will also be incorporated in the design to promote reduced travel speeds along this road.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

GEN-6 (EIS/EA)

September 17, 2001

Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Attention: Ms. Rae M. Loui, P.E.

Subject: **Village Park Connector Road**

Thank you for the opportunity to comment on the July 2001 Draft EA for the Village Park Connector Road, as proposed by the City and County of Honolulu Department of Design and Construction. We have reviewed the subject document and have no comments at this time.

HECO shall reserve further comments pertaining to the protection of existing powerlines bordering the project area until construction plans are finalized. Again, thank you for the opportunity to comment on this draft EA.

Sincerely,

Kirk Tomita
Senior Environmental Scientist

cc: Mr. Kay Muranaka (Engineering Concepts)
Ms. Genevieve Salmonson (OEQC)

JEREMY HARRIS
MAYOR

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

RAE M. LOUI, P.E.
DIRECTOR
GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR
ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

January 10, 2002

CDED-B 01-0504

Mr. Kirk Tomita, Senior Environmental Scientist
Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840-0001

Dear Mr. Tomita:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132:100 (por.)

Thank you for your letter dated September 17, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge that you have no comments at this time.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

RECEIVED
AUG 1 4 2001
ENGINEERING CONCEPTS

verizon

Verizon Hawaii Inc.
P.O. Box 2200
Honolulu, HI 96841

August 9, 2001

Ms. Kay Muranaka
Engineering Concepts, Inc.
1150 South King Street, Suite 700
Honolulu, Hawaii 96814

Dear Ms. Kay Muranaka

Subject: **DRAFT ENVIRONMENTAL ASSESSMENT**
VILLAGE PARK CONNECTOR ROAD
WAIPAHU, EWA, OAHU, HAWAII

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the Village Park Connector Road. We have completed our review of the description of the proposed project and maps sent to us with your letter that we received on July 26, 2001. At this time, we have determined that Verizon Hawaii Inc. has no conflict with the proposed construction of the planned roadway within the area of the project site.

Verizon Hawaii Inc. wishes to be a consulted party during the preparation of any future electrical / telecommunication design plans that are produced for this proposed project.

If there are any questions or you require assistance in the future on this project, please call Mahi Tsugawa at 840-5857.

Sincerely,

Llewellyn M. Tsugawa
Sr. Engineer
OSP Engineering
Infrastructure Provisioning

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

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RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

January 11, 2002

CDED-B 01-0498

Mr. Llewellyn M. Tsugawa, Sr. Engineer
Verizon Hawaii, Inc.
P.O. Box 2200
Honolulu, HI 96841

Dear Mr. Tsugawa:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132:100 (por.)

Thank you for your letter dated August 9, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge that Verizon Hawaii, Inc. has no conflict with the proposed project. We also acknowledge that Verizon Hawaii, Inc. wishes to be a consulted party during the preparation of any future electrical/telecommunication design plans that are produced for this proposed project.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

515 Kamakee Street Honolulu, Hawaii 96814
P.O. Box 3000 Honolulu, Hawaii 96802-3000
Telephone 808.535.5900 Facsimile 808.594.5630 Sales

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ENGINEERING

THE GAS COMPANY
Clean Energy Servant

August 22, 2001

Ms. Rae M. Loui, P.E., Director
Attention: Mr. Harold Sato
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Mr. Sato:

Subject: Draft Environmental Assessment
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii

Please be advised that The Gas Company maintains underground utility gas mains in the project vicinity, which serves commercial and residential customers in the area and is interconnected with the utility network in Waipahu. We would appreciate your consideration during the project planning and design process to minimize any potential conflicts with the existing gas facilities in the project area.

Thank you for the opportunity to comment on the Draft Environmental Assessment. Should there be any questions, or if additional information is desired, please contact Chris Anderson at 594-5564.

Very truly yours,

The Gas Company

Charles E. Calvet, P.E.
Manager, Engineering

CEC:krs
01-181

cc: Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Kay Muranaka, Engineering Concepts, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
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JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR
GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR
ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

RECEIVED
JAN - 2 2002

December 28, 2001

CDED-B 01-0508

Mr. Charles E. Calvet, P.E.
Manager, Engineering
The Gas Company
515 Kamakee Street
Honolulu, Hawaii 96814

Dear Mr. Calvet:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132: 100 (por.)

Thank you for your letter dated August 22, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge that The Gas Company maintains underground utility gas mains in the project vicinity. We will coordinate with The Gas Company as required to minimize any potential conflicts with the existing gas facilities in the project area.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

for RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

KANANA FOU

Kanana Fou Congregational Christian Church / UCC
P.O. Box 29817
Honolulu, HI 96820

Phone (808) 456-3444
E-mail Lafitaga@aol.com

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ENGINEERING

Ms. Rae M. Loui, P.E., Director
Department of Design and Construction
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Attn: Mr. Harold Sato

Dear Ms. Rae M. Loui

Greetings to you and the Department of Design and Construction from Kanana Fou Church formerly known as Moanalua Congregational Church.

This letter is designed to serve two purposes: first to refute statements in Draft Environmental Assessment Report and secondly to raise concerns of the church.

1. Refutation of statements as appear on p. 2-2, (first line of second paragraph of 2.2.3 Land Acquisition...) "has agreed to convey land to the City and County of Honolulu for the proposed connector road." Same statement appeared on Advertiser article: Village Park road plan ready for scrutiny. The above mentioned article by Scott Ishikawa, however, added these words, "the needed land."

Intent of Refutation: When the assessment report and Scott's article used the words "needed land," we assumed that the Vision Team must have in mind extra land from the Church property other than the existing 40 ft. road. This has been the case, it will deny our right of ownership as laid out in our Real Estate Contract with the Robinson. Be it known to the Vision Team that needed land (land other than the road) needs to be condemned by the city by means of negotiations with the Church. The City cannot take it for granted that they can have all the needed land they want on our poor Church's expense. (See contract p. 4 para. 11 and 15.) We believe that the Church and the City should engage in a formal negotiation before they declare any use of our land.

2. To raise our concerns: We strongly object to the accommodation of 10 feet bike lanes. This is violation of privacy of our property. We have suffered vandalism and littering. Allowance of bikers and motorists will surely make our property vulnerable to drug dealings and trashiness. We treasure our service hours and medidations as highly significant. We consider bike riding especially on Sundays as a form of disrespect.

We are saddened by the fact that the Vision Team resorts to use our property as the only solution to the congested traveling at Kunia area. Though we are foreigners, we are people. We are less fortunate people, but we serve for the best of our neighbors and the state of Hawaii by enhancing quality of life and promoting peace. We would like to reserve our rights on our Church property. We believe that the existing 40 feet road is enough space for the city road way.

Your favorable consideration on this matter is highly appreciated.

Sincerely,

Pastor [illegible] Lafitaga
Kanana Fou Church

cc. Mr Kay Muranaka

its agents' entry on the Property and if requested by Seller, Purchaser shall execute an entry agreement containing said indemnities.

On or before November 30, 1998, Seller shall provide Purchaser with all documents referred to in the last sentence of paragraph 9.

11. **Further Condition and Agreement after Closing.** Purchaser covenants and agrees not to convey TMK 9-4-055-146 or grant any rights over TMK 9-4-055-146 for a period of 5 years following Closing, except as provided herein. Purchaser agrees that TMK 9-4-055-146 shall be conveyed to the City and County of Honolulu for roadway purposes, in "As Is" condition (provided Purchaser does not need to incur expenses for improving TMK 9-4-055-146), subject to Purchaser's reservation of an easement for access purposes to TMK 9-4-002-028 (until such time, if ever, such road becomes a public roadway), if Seller shall request conveyance of TMK 9-4-055-146 to the City and County of Honolulu and the City and County of Honolulu accepts such conveyance, all within 5 years from Closing. During said 5-year period after Closing, Purchaser shall also cooperate with the City and County of Honolulu to provide access over TMK 9-4-002-028 as may be necessary to allow the City and County of Honolulu to construct a connector road between TMK 9-4-055-146 and Kapuna Loop, provided such cooperation does not unreasonably interfere with Purchaser's proposed use of TMK 9-4-002-028.

12. **Time of the Essence:** Time is of the essence in the performance by the parties of their respective obligations to this Contract, but any defaulting party shall have ten (10) days after receipt of written notice of a default to cure before the other party may terminate or exercise other remedies under this Contract.

13. **Trustees Not Personally Liable:** In accordance with Section 560:7-306(a), Hawaii Revised Statutes, as amended, said Bank of Hawaii, and said HERMAN G. P. LEMKE, WILLIAM RHETT TABER, and WILLIAM W. PATY, are executing this document solely in their capacities as Trustees as aforesaid, and are not assuming any personal liability in their corporate and/or individual capacities hereunder. Any recovery against Hawaiian Trust Company, Ltd., Trustee as aforesaid, and HERMAN G. P. LEMKE, WILLIAM RHETT TABER, and WILLIAM W. PATY, Trustees as aforesaid, based on this document shall be limited to the assets of the Trusts referred to above.

14. **Construction:** All provisions of this Contract have been negotiated by the parties at arm's length and with the opportunity for full representation of their respective legal counsel and neither party shall be deemed to be the drafter of this Contract. If this Contract is ever construed by a court of law, such court shall not construe this Contract or any provision of this Contract against either party as the drafter of this Contract.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
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JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

RECEIVED
JAN 2 2002
ENGINEERING CLERKS

December 28, 2001

CDED-B 01-0507

Pastor Falelua Lafitaga
Kanana Fou Congregational
Christian Church
P.O. Box 29817
Honolulu, Hawaii 96820

Dear Pastor Lafitaga:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132: 100 (por.)

Thank you for your letter regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and offer the following response to your comments:

1. *"Refutation of statements as appear on p. 2-2, (first line of second paragraph of 2.2.3 Land Acquisition...) "has agreed to convey land to the City and County of Honolulu for the proposed connector road." Same statement appeared on Advertiser article: Village Park road plan ready for scrutiny. The above mentioned article by Scott Ishikawa, however, added these words, "the needed land."*

   The City's acquisition of the cane haul road (Parcel 3, Tax Map Key: 9-4-055-146) under the ownership of Kanana Fou Congregational Christian Church American Samoa-UCC for the proposed connector road is in accordance with the terms of agreement between the Church, Mark Robinson Trusts (Testamentary and Inter Vivos), Caroline J. Robinson Ltd., Partnership and J. L. P. Robinson, for roadway purposes for nominal value. The City proposes to acquire Parcel 2 (Fee) and Parcel S-1 (Slope Easement) identified as (Tax Map Key: 9-4-002-028) by negotiating a sale price based on the appraised value of the property.

2. "To raise our concerns: We strongly object to the accommodation of 10 feet bike lanes. This is a violation of privacy of our property. We have suffered vandalism and littering.

Allowance of bikers and motorists will surely make our property vulnerable to drug dealings and trashiness. We treasure our service hours and meditations as highly significant. We consider bike riding especially on Sundays as a form of disrespect.

The connector road will be constructed within the 50-foot to 60-foot right-of-way of an existing cane haul road. The Waipahu Livable Communities Initiative Report and the Waipahu Vision Team both recommended a more direct vehicular link between the Village Park / Royal Kunia Subdivisions and the Waipahu Town area with provision of pedestrian and bikeway facilities to foster a sense of one community. Vandalism, littering, and criminal activity should be reported to the Honolulu Police Department.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

for RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

DOE Rec'd

AUG 16 2001

RECEIVED

Aug 15 12 48 PM '01 8 Aug 01 01-749

TO: Harold Sato
FR: Wayne Acosta, 94-1155 Heahea St Waipahu, 96797
RE: Draft EA, Village Park Connector Road

I support the design and construction of the Village Park Connector Road. As a resident of Royal Kunia, I frequently drive into Waipahu for business & personal actions. The Connector Road will enhance ~~my~~ by shortening my drive to and from Waipahu. It is logical that traffic will increase near the Connector Road as more ~~no~~ people find the convienence of it.

Wayne Acosta

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4384 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

JAN 16 2002

RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

January 14, 2002

CDED-B 01-0197

Mr. Wayne Acosta
94-455 Heahea Street
Waipahu, HI 96797

Dear Mr. Acosta:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132:100 (por.)

Thank you for your facsimile dated August 8, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge that you support the design and construction of the proposed Village Park connector road.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

Dsign

DOC
Received
AUG 23 2001
CLED

George F. Elerick
94-776 Kaiao St
Waipahu, HI 96797
Tel: (808) 676-5075
Fax: (808) 671-5259
Email: gelerick@aol.com

RECEIVED
Aug 22 2 59 PM '01

August 22, 2001

Ms. Rae M. Loui, P. E. Director
Department of Design and Construction
650 S. King Street 11th Floor
Honolulu, HI 96813

Attn: Harold Sato

This letter is in response to the draft environmental assessment report regarding the "Village Park Connector Road".

I was first alerted to the report at a Waipahu Neighborhood Board meeting on July 16, 2001. Mr. Kay Muranaka said the report was not completed yet but that it would be shortly. Mr. Muranaka did not make it clear where this report could be reviewed except there would be limited copies.

On August 14, 2001, I read an article in the Honolulu Advertiser by Scott Ishikawa regarding the Village Park Connector road. Scott Ishikawa stated the city was seeking public comment on the draft report and that the deadline to submit public comments was August 22. The viewing places for the report was limited to the main library at 478 S. King Street, the Waipahu Public Library at 275 Mokuola St., and the Office of Environmental Quality Control at 235 S. Beretania St. Suite 202.

First of all, I believe the city did not give the concerned citizens adequate notice or enough time to review the report. For a project of such a magnitude that would be spending over three million dollars of taxpayers money, it seems it would have been prudent to make report copies available to those concerned, at least in the Village Park area, i.e., Times, Walmart, or Hoaeae Community Center. I would have rather paid for reproduction costs of the report instead of paying parking meter rates while I was reviewing the report in the library.

The following comments pertain directly to the report itself:

1. Re "1.2 Background".
   The reports state that the construction would improve traffic conditions by providing an alternate travel route for automobiles, bicycles, and pedestrians between the two communities.

   Yes, I believe it would improve traffic conditions on Kunia Road, but with more automobile traffic using the connector road which leads into residential areas in Village Park and Waipahu Town. I also fail to see the advantage of more pedestrian traffic. Since the proposed connector road is basically a closed conduit from Kupuna Loop in Village Park to Honowai and Losa Street in Waipahu, it would present quite a strenuous walk just from one end to the other. It would be a longer walk yet to any commercial area.

2. Re "1.6 Long term impact"
   Again, the report states the long term regional impact is reduced traffic on Kunia Road and improved access between Village Park and Waipahu Town for automobiles, bicycles, and pedestrians. It goes on to state that in the long term, the project will have a net positive long term impact on traffic. Maybe for Kunia Road, but how can increased traffic in residential areas be construed as "net positive?"

   Paragraph 1.6 goes on to say there is no long-term air quality impact anticipation. It is my opinion and experience that increased traffic means air pollution. As you know, in Hawaii, there are no laws against vehicles polluting the air. Perhaps because we have been blessed with pleasant trade winds, most of the time.

   Paragraph 1.6 also boldly predicts that noise levels should not exceed 65 LDN (I am not familiar with what a LDN is supposed to represent), and therefore traffic noise mitigation measures should not be required. I pity the residents who have their backyard bordering on the connector road, e.g., cars with "boom box" radio speakers and maybe an occasional Motorcycle Club out for a Sunday afternoon ride.

3. Re 3.2 Topography.
   I do not pretend to understand all of the physics behind this, but if Kupuna Loop is at 170 ft. elevation and Losa Street is at 97 ft. elevation, it would seem that in a heavy rainstorm water is going to deluge Waipahu Town. Kupuna Loop would act just like a big funnel, directing the water right down the connector road.

4. Re 3.9.2.
   Pedestrian traffic does not appear to have been assessed at all. My most important concern regarding this project was the safety of the children that walk to and from Kaleiopuu Elementary School. There is already a present danger for the children at the corner of Kaaholo St. and Kupuna Loop as cars go speeding through that intersection. The proposed connector road would intersect Kupuna Loop just a few yards from the Kaaholo St. and Kupuna Loop intersection. Although there were traffic count studies made for other routes to Times and Walmart via Kupuohi St., I could not find any in the report regarding Kaaholo Street which is the closest street to the connector road in Village Park that would lead to the commercial area of Times and Walmart.

After reading Scott Ishikawa's article in the Honolulu Advertiser, I realized that the connector road could also be endangering the children at Honowai Elementary School through increased traffic. It seems to me that the safety of our children should take precedent over a small group of people that want to shorten their transit time between Village Park and Waipahu Town and vice-versa.

I respectfully request that you consider the comments that I have presented regarding this project, and perhaps lengthen the time for reviewing this report so other citizens would have time to submit some of their comments and considerations.

Sincerely,

George Elerick

George Elerick

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR
GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR
ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

January 15, 2002

CDED-B 02-0012

Mr. George F. Elerick
94-776 Kaiao Street
Waipahu, HI 96797

Dear Mr. Elerick:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55; 61 (por.); and 9-4-132:100 (por.)

Thank you for your letter dated August 22, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and offer the following response to your comments:

A. *Re "1.2 Background"- The report state that the construction would improve traffic conditions by providing an alternate travel route for automobiles, bicycles, and pedestrians between the two communities.*

1. *Although traffic conditions will improve on Kunia Road, more automobile traffic will be using the connector road which leads into residential areas in Village Park and Waipahu Town.*

The objective of the proposed connector road project as identified by the Waipahu Vision Team is to provide a more direct link between Village Park / Royal Kunia and the Waipahu Town core area; to provide pedestrian and bikeway facilities in association with vehicular travel lanes; and to foster a sense of one community. It is the goal to increase community interaction which will lead to an increase in traffic along this proposed connector road and existing adjacent streets. The project impacts were evaluated and are included in the Draft EA. The proposed connector road was identified in the Waipahu Livable Communities Initiative, a document which focused on improving the quality of transportation facilities and promoting the

economic revitalization of Waipahu. The document identified specific projects to aid in implementing the Waipahu Town Plan, a community-based plan prepared to economically revitalize and enhance the land use, circulation, and urban design aspects of Waipahu which was adopted by the Honolulu City Council.

2. *Since the proposed connector road is basically a closed conduit from Kupuna Loop in Village Park to Honowai and Loaa Street in Waipahu, there is not an apparent advantage of more pedestrian traffic.*

As previously stated in our response to comment 1a, one of the objectives of the proposed connector road project is to provide pedestrian and bikeway facilities in association with vehicular travel lanes. Although the proposed connector road may be considered strenuous to walk, it may be utilized by joggers or those wishing to use it as a scenic exercise route.

B. *Re "1.6 Long term impact"*

3. *The report states the long term regional impact is reduced traffic on Kunia Road and improved access between Village Park and Waipahu Town for automobiles, bicycles, and pedestrians and that the project will have a net positive long term impact on traffic. Maybe for Kunia Road, but how can increased traffic in residential areas be construed as "net positive?"*

As previously stated in our response to comment 1a, the objectives of the proposed connector road project as identified by the Waipahu Vision Team is to provide a more direct link between Village Park / Royal Kunia and the Waipahu Town core area; to provide pedestrian and bikeway facilities in association with vehicular travel lanes; and to foster a sense of one community. It is the goal to increase community interaction which will lead to an increase in traffic along this proposed connector road and existing adjacent streets.

4. *"Paragraph 1.6 goes on to say there is no long-term air quality impact anticipation. It is my opinion and experience that increased traffic means air pollution."*

It is anticipated that emissions in the air will increase due to the increase in traffic along the proposed connector road. Therefore, an Air Quality Impact Report was prepared for the proposed project to determine the long term impacts on air quality due to the increased traffic in the area. Anticipated

automotive emissions were modeled using EPA's Mobile Source Emissions Model (MOBILE-5B) and anticipated future traffic data. Results of the model indicate compliance with federal and state carbon monoxide standards under worst case conditions of meteorology and peak hour traffic. A copy of this report can be found in the appendix of the Environmental Assessment.

5. *Paragraph 1.6 also boldly predicts that noise levels should not exceed 65 LDN, and therefore traffic noise mitigation measures should not be required. I pity the residents who have their backyard bordering on the connector road, e.g., cars with "boom box" radio speakers and maybe an occasional Motorcycle Club out for a Sunday afternoon ride."*

The unit Ldn is defined as the Day-Night Average Sound Level which is the noise descriptor currently used by federal agencies to assess environmental noise. This descriptor incorporates a 24-hour average of instantaneous A-Weighted Sound Levels as read on a standard sound level meter. Therefore, this unit of measure will reflect typical noise levels generated by traffic along the proposed connector road. Moderate exposure to noise is between 55 Ldn and 65 Ldn and is acceptable under Federal Standards. We acknowledge your concerns with increased noise resulting from the proposed connector road. However, we believe that the occasional occurrence of noise generated by "boom box" radio speakers and motorcycle clubs is inevitable with any property adjacent to a public access way. Excessive noise attributed to individuals that are outside the typical traffic noises should be reported to the Honolulu Police Department.

C. *Re "3.2 Topography" - "...Kupuna Loop is at 170 ft. elevation and Loaa Street is at 97 ft. elevation, it would seem that in a heavy rainstorm water is going to deluge Waipahu Town. Kupuna Loop would act just like a big funnel, directing the water right down the connector road."*

Existing drainage patterns and tributary areas will remain the same. The profile (elevations) of the proposed connector road will be similar to the existing cane haul road. The proposed connector road will be narrower than the existing cane haul road and will have additional landscaping area which will help mitigate the impact of a rainstorm event. Reducing the amount of impervious area (i.e. paved road) and increasing the grassed landscape area will reduce the overland flow of storm water. Drainage improvements will also be included in the design of the connector road to minimize adverse effects due to heavy rainstorm events. This includes adding a drainage inlet on Kupuna Loop upstream of the proposed T-intersection with the

connector road. The purpose of this drainage inlet is to intercept storm water collected along Kupuna Loop and divert it away from the proposed connector road through an underground drain line. The drain line will connect to the existing drainage system along Kupuna Loop which currently handles the storm water flow upstream of the proposed T-intersection. Therefore, there will not be a significant increase in the storm water flow along either the proposed connector road or Kupuna Loop.

D. *Re 3.9.2 - "Pedestrian traffic does not appear to have been assessed at all. My most important concern regarding this project was the safety of the children that walk to and from Kaleiopuu Elementary School. There is already a present danger for the children at the corner of Kaaholo St. and Kupuna Loop as cars go speeding through that intersection. The proposed connector road would intersect Kupuna Loop just a few yards from the Kaaholo St. and Lupuna Loop intersection. Although there were traffic count studies made for other routes to Times and Walmart via Kupuohi St., I could not find any in the report regarding Kaaholo Street which is the closest street to the connector road in Village Park that would lead to the commercial area of Times and Walmart."*

To reduce travel speeds along Kupuna Loop, traffic calming measures have been included in the design of the connector road. This involves narrowing the width of the roadway both north and south of the proposed intersection of Kupuna Loop and the connector road. Approximately 215 feet south of the proposed intersection, striping will be used to taper the roadway from two 20-foot wide travel lanes to two 10-foot wide travel lanes with a third storage/left turn lane near the proximity of the proposed intersection. The 10-foot wide travel lanes will continue along Kupuna Loop until it intersects with Kaaholo Street.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto
cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

Mr. & Mrs. Andrew D. K. L. Hodges
94-415 Uanii Place
Waipahu, Hi. 96797
(808)6710081
alohahodges @msn.com

July 26, 2001

Re: Ms. Genevieve Salmonson, Director

I am writing in response to the letter regarding the Village Park Connector Road. This road plan and design is of great interest to both my husband and I. Seeing that the Cane Road was not in use, it could have been a wasted piece of land.

Our home is located directly behind this Connect Road (cane road), and by reviewing the Draft EA, it will definite have an enormous impact on us, considering where our property boundaries end. So indeed, we do have a lot of questions we want answered.

They are several questions we want to ask you that were not mentioned in your letter. We've noticed there's gap of land between where our property boundary ends to where the markings were made. Will the property owners gain access to that land? Also, under constructing this road, I'm sure there is going to be a great deal of dust and dirt that will effect allot of the residences. Will there be some sort of wall that will be set up to prevent the dust from encircling us? And what will the height of the wall be? And will it be a permanent wall? We would also like to know about its streetlights? And will there be any type of private access or gate from our property to the Connect Road?

Well we are looking forward to attend any discussion meetings concerning the Village Park Connector Road. So please keep us inform about this subject.

Sincerely,

Mr. & Mrs. Andrew D Hodges

c: Engineering Concepts

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
850 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

CDED-B 01-0495

January 14, 2002

Mr. and Mrs. Andrew D.K.L. Hodges
94-415 Uanii Place
Waipahu, Hawaii 96797

Dear Mr. and Mrs. Hodges:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132:100 (por.)

Thank you for your letter dated July 26, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and offer the following response to your comments:

1. "We've noticed there's gap of land between where our property boundary ends to where the markings were made. Will the property owners gain access to that land?"

   The gap of land between your property and the proposed connector road is a privately owned parcel and will not be accessible to the adjacent property owners.

2. *"Also, under constructing this road, I'm sure there is going to be a great deal of dust and dirt that will effect a lot of the residences. Will there be some sort of wall that will be set up to prevent the dust from encircling us? And what will the height of the wall be? And will it be a permanent wall?"*

   The contractor will be required to implement an effective dust control plan and minimize construction vehicle exhaust emissions in compliance with the state Department of Health (DOH) regulations. This may include implementation of a program to water down exposed surfaces and the construction of a temporary wall around the project site during the construction period. The height of the wall will be adequate to sufficiently reduce fugitive dust and dirt from entering adjacent properties in accordance with the DOH regulations.

3. *"We would also like to know about its streetlights? "*

Streetlighting will be incorporated in the design of the connector road in accordance with City and County of Honolulu standards.

4. *"And will there be any type of private access or gate from our property to the Connector Road? "*

No. There will be no private access or gates from adjacent properties to the connector road proposed in the project.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

RECEIVED

Aug 21 12 55 PM '01

AUG 21 2001

CDED

01401787

Norman M. Nakamoto
94-520 Honowai Street
Waipahu, HI 96797

Rae Loui, P.E. Director
Dept. of Design and Construction
650 S. King Street, 11th Floor
Honolulu, HI 96813

Re: Access Road from Village Park to Waipahu

Dear Director Loui:

I support plans for an access road from Village Park to Honowai Street. I see this as a first step in correcting a terrible situation for residents of Harbor View and Robinson Heights who, when traveling from Village Park to Honowai Street, must traverse via Kunia Road then loop around to Farrington Highway to Leoku Street, Waipahu Street then either Hoaeae or Hene Street to reach Honowai Street. I believe there should be a left hand turn with signal at Kunia and Honowai Streets.

The same route is necessary when a person exits the freeway and heads to Honowai Street or any street in the Robinson Heights area. Until Kunia Road was widened, it was possible to turn left from Kunia Road into Honowai Street. I believe we should be able to do this.

In the meantime, as a resident of Honowai Street, I support the use of the former cane haul road.

Sincerely,

Norman M. Nakamoto

JEREMY HARRIS
MAYOR

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

RECEIVED

JAN 0 4 2002

ENGINEERING CONCEPTS

RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. TAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

January 3, 2002

CDED-B 01-0505

Mr. Norman M. Nakamoto
94-520 Honowai Street
Waipahu, HI 96797

Dear Mr. Nakamoto:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132: 100 (por.)

Thank you for your letter regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and acknowledge that you support the plans for the proposed Village Park Connector Road.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

EDC
Received

AUG 23 2001

CDED

D14 01795

PATRICK K. SHIMIZU
CAROL M. SHIMIZU
94-393 HONOWAI STREET
WAIPAHU, HI 96797

RECEIVED
Aug 22 3 28 PM '01

AUGUST 21, 2001

RAE LOUI
P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION
ATTN: HAROLD SATO
650 S. KING STREET
HONOLULU, HI 96813

RE: ACCESS ROAD FROM KUNIA TO LOAA STREET

Dear Mr. Harold Sato:

This letter is to let my concern be known among you and other individuals involved in the construction of the new access road from Kunia to Loaa Street. I am against the idea to implement this access road for the following reasons:

1. Our property is not at the same level as the access road. Our property as well as other neighbors, lives below this new road. This will cause health and safety risk.

2. Being a mother of 2 children raises a concern with their health and safety.

   - HEALTH: The unavoidable dust; dirt; and exhaust cannot be controlled. My children will not be able to enjoy their home, as they should be throughout the years of growing up. No one can tell me that it's healthy for my family and I to inhale the exhaust from oncoming cars on a daily basis without affecting our health. Both my children have sinus problems and it bothers me to envision the danger that they will face if this road is implemented.

   - SAFETY: My family will be at risk with oncoming cars. With so much accidents appearing on the news lately, can anyone guarantee the safety of my family? Our home is considered to be one of the safest place we know.

3. My children room is the closest to the access road. Continuous noise will contribute to disruption with their studies for school and receiving the best grades possible throughout their school years. If you are a parent like I am you value the education that your children receives.

4. Unnecessary litter thrown from any type of vehicle will be impossible to live with. I am proud of Hawaii's beauty, as it is known today.

I ask that you hear my concerns and revisit your plans to implement this access road. Listen to the PROS and CONS of the people that will be impacted by this plan. Due diligence on your part will make this a WIN-WIN situation for everyone.

Thank you for taking the time out of your busy schedule to read this letter. I pray and hope that something can be done.

Aloha,

Carol M. Shimizu

Carol M. Shimizu

JEREMY HARRIS
MAYOR

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

RECEIVED
JAN 25 2002
ENGINEERING CONCEPTS

RAE M. LOUI, P.E.
DIRECTOR

GEORGE T. YAMASHIRO, P.E.
DEPUTY DIRECTOR

ERIC G. CRISPIN, AIA
ASSISTANT DIRECTOR

January 22, 2002

CDED-B 01-0523

Ms. Carol M. Shimizu
94-393 Honowai Street
Waipahu, HI 96797

Dear Ms. Shimizu:

Subject: Draft Environmental Assessment for
Village Park Connector Road
Waipahu, Ewa, Oahu, Hawaii
TMK: 9-4-55: 146; 9-4-02: 28 (por.); 9-4-34: 43 (por.);
9-4-55: 61 (por.); and 9-4-132:100 (por.)

Thank you for your letter dated August 21, 2001 regarding the Draft EA for the subject project. We appreciate your effort in reviewing the document and offer the following response to your comments:

1. *"Our property is not at the same level as the access road. Our property as well as other neighbors, lives below this new road. This will cause health and safety risk."*

   See responses to health and safety concerns below.

2. *Health and Safety Concerns*

   a. *"HEALTH: The unavoidable dust; dirt; and exhaust cannot be controlled. My children will not be able to enjoy their home, as they should be throughout the years of growing up. No one can tell me that it's healthy for my family and I to inhale the exhaust from oncoming cars on a daily basis without affecting our health. Both my children have sinus problems and it bothers me to envision the danger that they will face if this road is implemented."*

   During the construction of the proposed connector road, it is anticipated that there may be a short-term increase in particulate air emissions of dust and dirt due to construction activities such as site preparation, earth moving, and movement of construction vehicles over unpaved onsite areas. To mitigate

these emissions, dust control measures will be implemented during construction such as frequent watering of unpaved roadways and areas of exposed soil.

Increased emissions in the air due to anticipated traffic along the proposed connector road was evaluated in a study performed by a consultant specializing in this field. A copy of this study is included in the appendix of the Draft EA. Results of this study indicate compliance with federal and State carbon monoxide standards under worst case conditions of meteorology and peak hour traffic. The amount of particulate dust and dirt in the air is anticipated to reduce as a result of the proposed connector road due to the landscaping and ground cover incorporated in the design of the road.

b. *"SAFETY: My family will be at risk with oncoming cars. With so much accidents appearing on the news lately, can anyone guarantee the safety of my family? Our home is considered to be one of the safest place we know."*

Traffic calming measures have been incorporated into the design of the proposed connector road to minimize the risk of an accident occurring along this proposed roadway. These traffic calming measures include reducing the speed limit along this road to 20 MPH and narrowing the width of the road within the 50- to 60-foot right-of-way of cane haul road to two 10-foot wide vehicle travel lanes with 2-foot wide shoulders. Since the vehicle travel path will be reduced in width, the alignment of the connector road will be set closer to the north side of the right-of-way, away from the homes that are situated below the proposed roadway. As shown on Figure 2-2 of the Draft EA, proposed structures separating the vehicle travel lanes and the homes situated along the south side of the connector road include a 6-inch high concrete curb, a landscape strip of varying width and a 12-foot wide multi-use path.

3. *My children room is the closest to the access road. Continuous noise will contribute to disruption with their studies for school and receiving the best grades possible throughout their school years. If you are a parent like I am you value the education that your children receives.*

During the construction of the proposed connector road, it is anticipated that there will be an increase in noise. Mitigation of construction noise to inaudible levels will not be practical due to the intensity of construction noise sources and the exterior nature of the work. However, a Community Noise Permit for Construction

Activities will be obtained from the State Department of Health that will specify the allowable conditions under which noise-producing operations can occur. This will include time periods of the day (typically limited to day time hours) and restricted days. Construction equipment will also be equipped with mufflers to minimize construction noise.

Upon completion of the connector road, increased noise levels are also anticipated. A traffic noise study was performed for the Village Park Connector Road and is included in the appendix of the Draft EA. Based on the results of this study, predicted noise levels along the proposed connector road should not exceed 65 Ldn, which is considered moderate exposure to noise and is acceptable under Federal standards. Mitigative measures have been incorporated in the project including traffic calming and lower posted speed limits, moving traffic lanes further from the homes situated below the road, and restricting large trucks and buses. However, if in the future noise levels should exceed the 65 Ldn due to increased traffic flow, further mitigative measures may be implemented such as the construction of sound attenuating walls.

4. *Unnecessary litter thrown from any type of vehicle will be impossible to live with. I am proud of Hawaii's beauty, as it is known today.*

As the use of this proposed connector road increases, there may be instances where motorists may litter. Littering is against the law and should be reported to the Honolulu Police Department. Nevertheless, we believe that the improvements proposed in this project (i.e. landscaping) will improve the appearance of the existing cane haul road.

A copy of your correspondence and this response will be included in the Final EA. Should you have any questions, please call Harold Sato of the Civil Design and Engineering Division at 527-6244.

Very truly yours,

RAE M. LOUI, P.E.
Director

HSS:LC:pto

cc: Ms. Genevieve Salmonson - Office of Environmental Quality Control
Mr. Kay Muranaka - Engineering Concepts, Inc.

APPENDIX C

TRAFFIC ANALYSIS REPORT
by Pacific Planning & Engineering, Inc.

TRAFFIC ANALYSIS REPORT

FOR

VILLAGE PARK CONNECTOR ROAD

November 21, 2000

Waipahu, Oahu, Hawaii

Prepared for:

Engineering Concepts, Inc.

Prepared By:

Pacific Planning & Engineering, Inc.
1221 Kapiolani Boulevard, Suite PH-60
Honolulu, Hawaii 96814

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FOREWORD

The traffic forecasts shown within this report's figures and tables are the direct result of Pacific Planning & Engineering, Inc.'s proprietary analytical tools. For report editing and review purposes, some or all of the forecast values have been rounded to the nearest five vehicles from our mathematical results, although we do not imply this level of accuracy can exist in any forecast method. The rounded values, however, reasonably quantify the forecasted traffic volumes for the purposes of this study.

This traffic impact assessment report deals with traffic volumes and roadway capacity, and is not intended as a design document. Recommendations of mitigation actions relate solely to capacity improvements to reduce or minimize traffic delays.

EXECUTIVE SUMMARY

Pacific Planning & Engineering, Inc. (PP&E) was engaged to identify and assess future traffic impacts that would be caused by the construction of a connector road between Waipahu Town and Village Park communities. The project is located in Waipahu, Oahu, Hawaii.

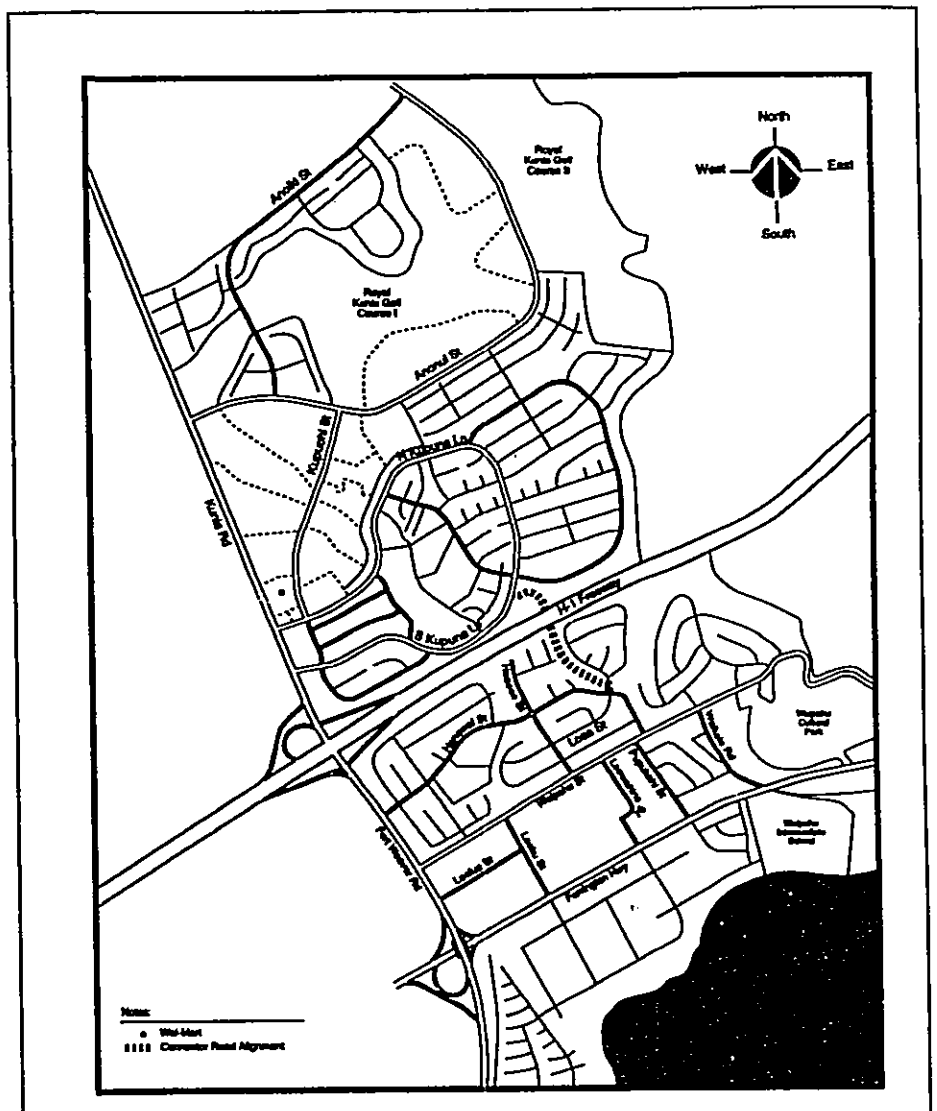
Project Description

The Village Park and Royal Kunia developments are physically separated from Waipahu Town by the H-1 Freeway and separated from Waikele by Waikele Gulch. Currently, motorists from Village Park/Royal Kunia use Kunia Road to access Waipahu Town. The proposed Village Park Connector Road will provide a direct link to the Waipahu Town core via an improved existing cane haul road. Figure ES-1 shows the Project Location.

The Village Park Connector Road is envisioned as a two-way collector road from Kupuna Loop at the mauka end and Loaa Street on the makai end.

Methodology

Traffic analysis was conducted at the following study intersections below to determine the relative traffic impact of the proposed connector road between the communities of Kunia/Village Park and Waipahu Town.



PACIFIC PLANNING & ENGINEERING, INC.	Village Park Connector Road Project Location	Figure ES-1

- Kunia Road with North Kupuna Loop,
- Kunia Road with South Kupuna Loop,
- North Kupuna Loop with Kupuohi Street,
- South Kupuna Loop with Kupuohi Street,
- Waipahu Street with Honowai Street,
- Honowai Street with Loaa Street and
- South Kupuna Loop with the Village Park Connector Road

Future traffic was forecasted for the study intersections by adding the following:

- Existing traffic volumes at the study intersections,

- The increase in traffic along Kunia Road based on the historical traffic growth rate,

- Traffic generated by other nearby developments in the area that would impact the study intersections and

- Reassignment of forecast traffic due to the construction of the Village Park Connector Road.

This study assesses the impact on each intersection by determining and comparing the weekday commuter peak hour level-of-service (LOS) for existing traffic, year 2005 forecast without the Village Park Connector Road and year 2005 forecast with the Village Park Connector Road traffic conditions.

Conclusions and Recommendations

The proposed Village Park Connector Road project, in the year 2005 will result in reduced volumes at the intersections of Kunia Road with North Kupuna Loop and Kunia Road with South Kupuna Loop. Consequently, the traffic analysis results show that motorists making left-turns onto Kunia Road will experience less delays and better Level-of-Service (LOS).

Traffic volumes are expected to increase on Kupuohi Street due to the attraction of commercial activities such as Wal-Mart and Times Supermarket. The LOS at the intersections of North Kupuna Loop with Kupuohi Street and South Kupuna Loop with Kupuohi Street are still expected to operate at satisfactory levels.

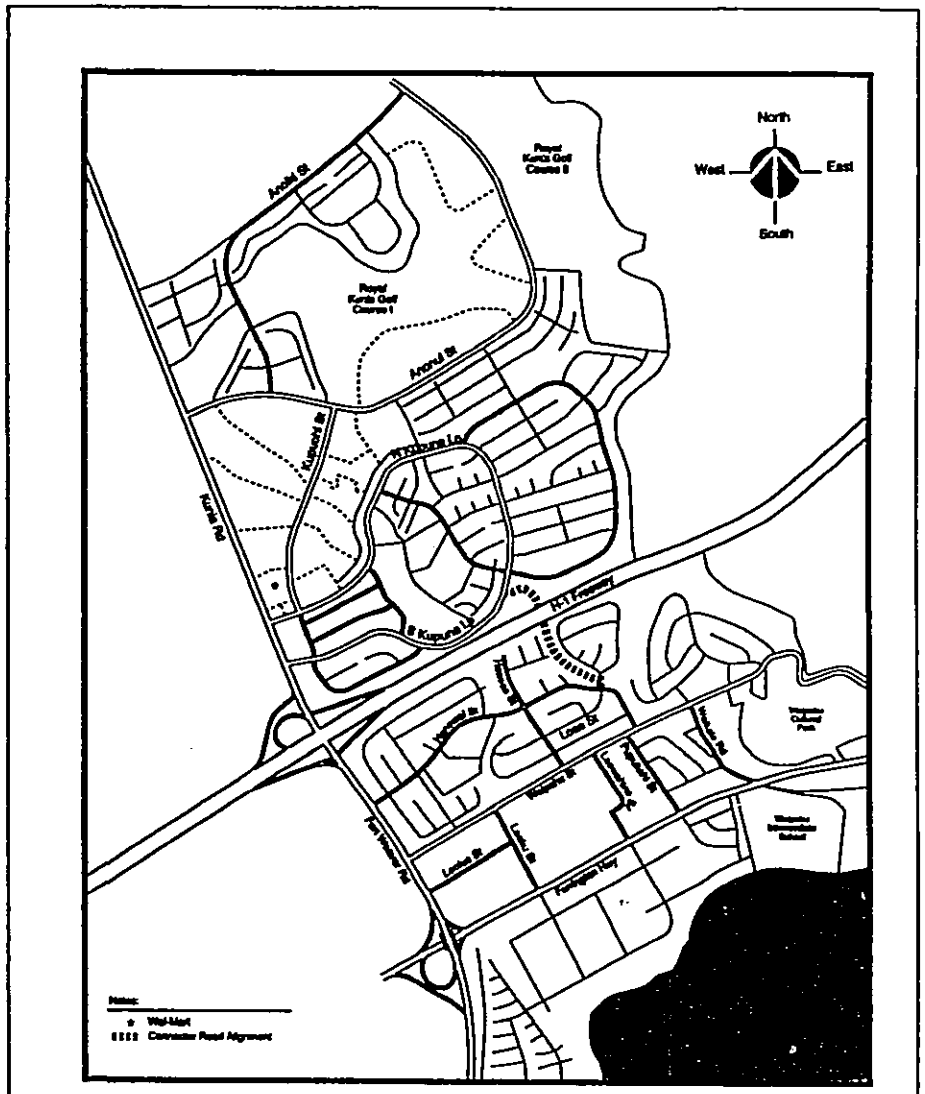
At the intersection of Waipahu Street with Honowai Street, the construction of the Village Park Connector Road will result in increased traffic volumes. Motorists making left-turns from Honowai Street to Waipahu Street will experience long delays, LOS "F". Due to the anticipated long delays, a preliminary traffic signal warrant analysis was conducted using the peak hour warrant as a criterion. The results show that the peak hour warrant would be met for the afternoon peak hour in 2005. However, the satisfaction of a warrant is not in itself justification for a signal. The intersection should be monitored to determine if actual traffic volumes meets the warrants for signalization.

The recommended laneage for the Village Park Connector Road at South Kupuna Loop is a single lane for left-turn movements with a flared approach which allows right-turns to proceed if a left-turn queue exists. Traffic analysis shows that the LOS for all movements is LOS "A".

PROJECT DESCRIPTION

The Village Park and Royal Kunia developments are physically separated from Waipahu Town by the H-1 Freeway and separated from Waikele by Waikele Gulch. Currently, motorists from Village Park/Royal Kunia use Kunia Road to access Waipahu Town. The proposed Village Park Connector Road will provide a direct link to the Waipahu Town core via an improved existing cane haul road. Figure 1 shows the Project Location.

The Village Park Connector Road is envisioned as a two-way collector road from Kupuna Loop at the mauka end and Loaa Street on the makai end.



PACIFIC PLANNING & ENGINEERING, INC	Village Park Connector Road Project Location	Figure 1

EXISTING CONDITIONS

An inventory of existing conditions was conducted to ascertain the current traffic conditions in the area and to provide a basis for estimating the potential traffic impact of the proposed Village Park Connector Road. The review included the existing land uses in the area, roadway facilities and traffic conditions.

Land Uses

The land uses immediately surrounding the Village Park community consists primarily of residential and commercial uses. The Royal Kunia Phase I development is located to the north. Within the community is a commercial center containing Wal-Mart, Times Supermarket and other retail stores.

The land uses immediately surrounding the Waipahu community also consists primarily of residential and commercial uses. South of the community are various commercial and industrial uses.

Roadway Facilities

Kunia Road is a north-south arterial, which runs from Waipahu to Schofield and services various residential and commercial land uses. Kunia Road also provides direct access to the H-1 Freeway. The posted speed limit varies from 35 to 45 miles per hour (mph). South of the H-1 Freeway, Kunia Road becomes Fort Weaver Road, which runs from Waipahu to Ewa Beach.

Kupuna Loop is a two-lane collector road providing access to various residential areas in Village Park. Kupuna Loop has two connections to Kunia Road. Hereafter, they will be designated as North Kupuna Loop and South Kupuna Loop. Access to the existing commercial center is via North Kupuna Loop. The posted speed limit is 25 mph and parking is generally allowed throughout.

The intersection of Kunia Road with North Kupuna Loop is a signalized 4-leg intersection. The southbound approach has a shared through/right-turn lane and an exclusive left-turn lane. The northbound approach has an exclusive left-turn lane, a through lane and an exclusive right-turn lane. The westbound approach consists of a shared left-turn/through lane and an exclusive right-turn lane. The eastbound approach consists of a shared left-turn/through/right-turn lane.

The intersection of Kunia Road with South Kupuna Loop is a signalized T-intersection. The northbound approach has two through lanes and an exclusive right-turn lane. The southbound approach has an exclusive left-turn lane and a single through lane. The westbound approach has double left-turn lanes and an exclusive right-turn lane.

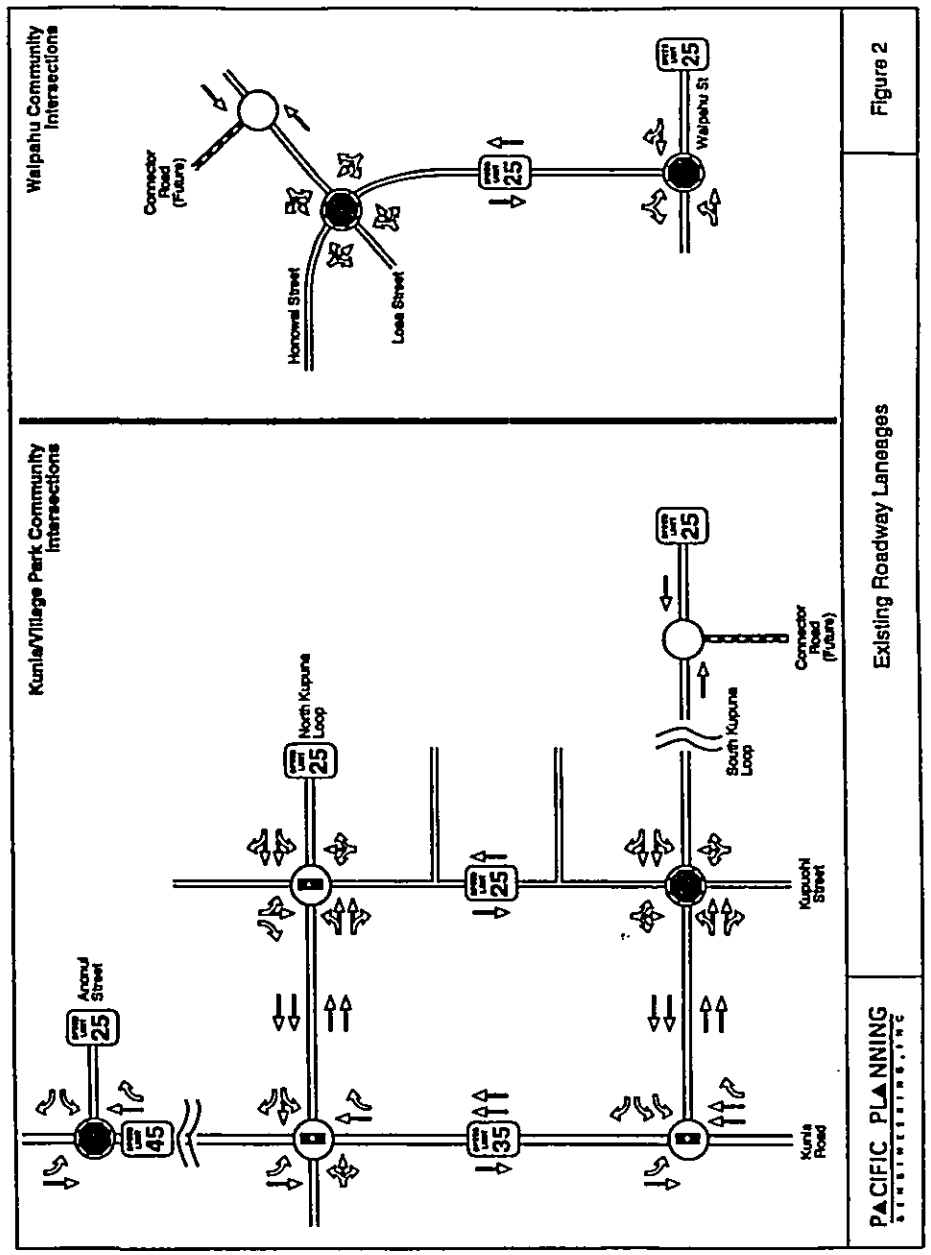
Waipahu Street is two-lane roadway from Kamehameha Highway to Kunia road which runs essentially parallel to Farrington Highway through Waipahu. Traffic signals are located at major intersections. The posted speed limit is 25 mph and parking is generally not allowed.

Honowai Street and Loaa Street are two-lane roadways which provides access to residential areas north of Waipahu Street. Honowai Street also

has a direct connection to Kunia Road. The posted speed limit is 25 mph and parking is generally allowed throughout.

The intersection of Waipahu Street with Honowai Street is an unsignalized T-intersection with single lane approaches. The intersection of Honowai Street with Loaa Street is an unsignalized 4-leg intersection with single lane approaches.

Schematics of the study intersection laneages are shown on Figures 2



Traffic Conditions

A review of Hawaii Department of Transportation (HDOT) traffic count data indicates that the peak periods generally occurs on weekdays between 6:15 to 8:15 a.m. and 4:00 to 6:00 p.m.

Traffic counts were taken at the following intersections:

February 9, 2000

- Kunia Road with Anonui Street
- Kunia Road with North Kupuna Loop
- Kunia Road with South Kupuna Loop

March 8, 2000

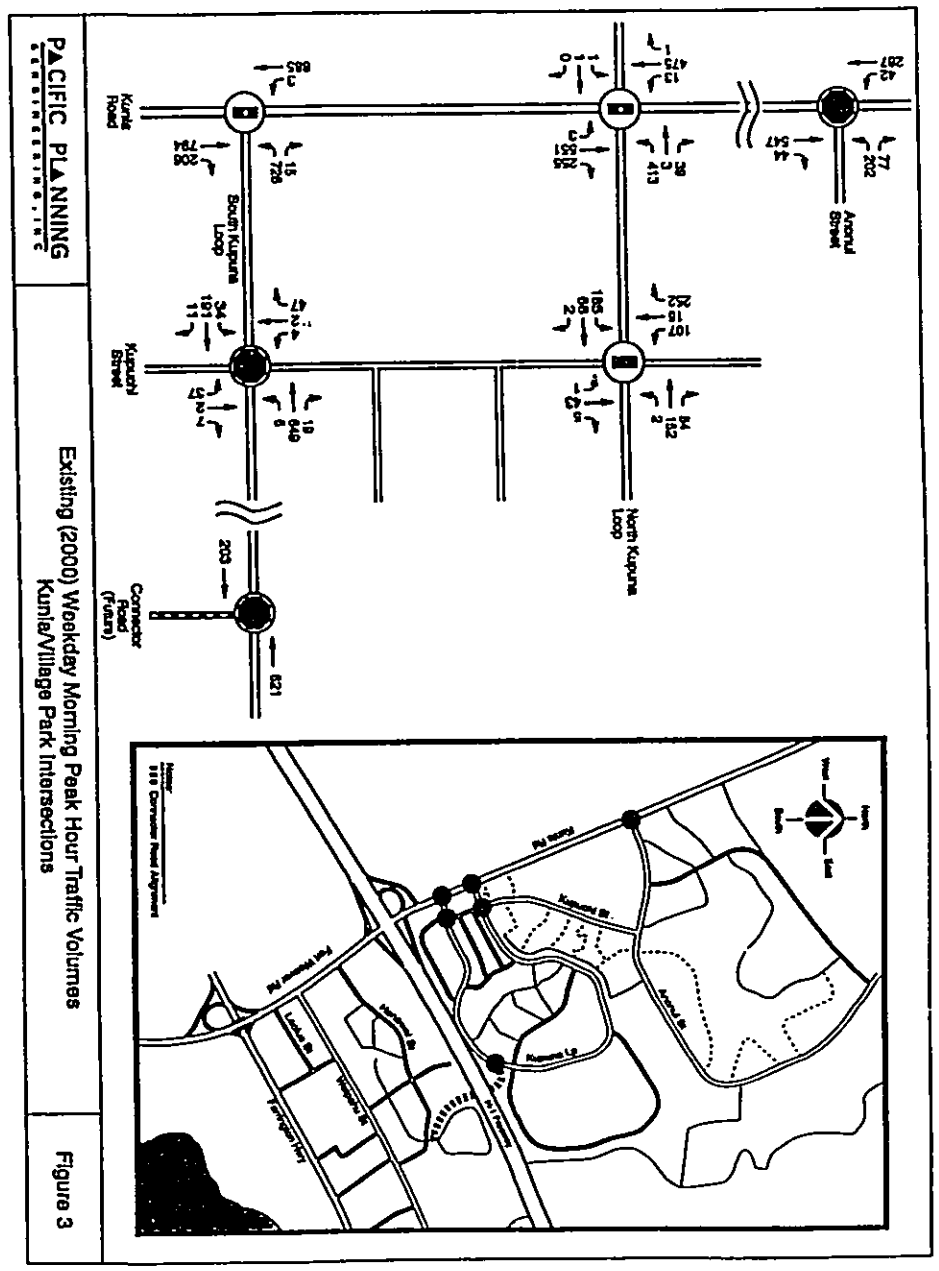
- South Kupuna Loop near the Village Park Connector Road

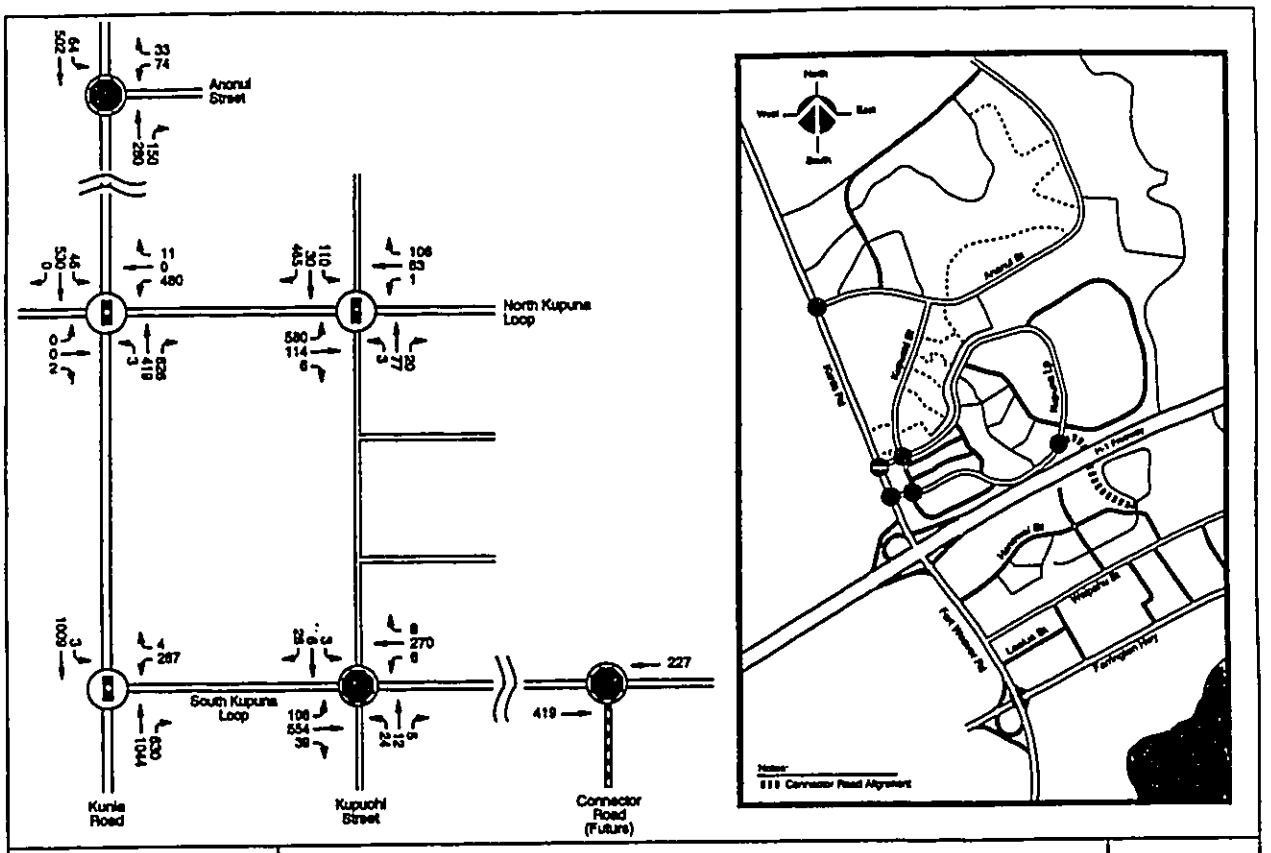
April 11, 2000

- North Kupuna Loop with Kupuohi Street
- South Kupuna Loop with Kupuohi Street
- Waipahu Street with Honowai Street
- Honowai Street with Loaa Street

These counts were used as the baseline condition upon which future estimated traffic volumes were added.

Manual counts were taken of passenger cars and trucks by turning movements and approaches. During the field counts, the weather was sunny and the roadway pavement was dry. Figures 3 through 6 shows the existing volume of traffic at the study locations for the observed peak hours. The manual traffic count data is also summarized in Appendix A.

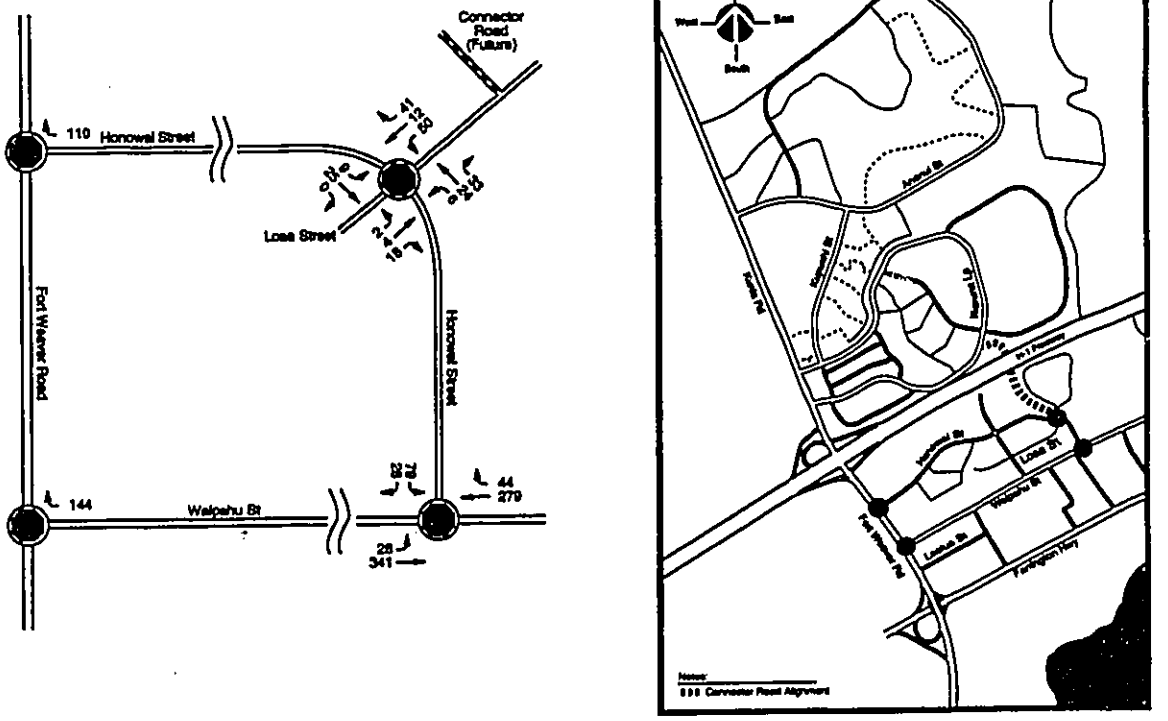




Existing (2000) Weekday Afternoon Peak Hour Traffic Volumes
Kunia/Village Park Intersections

Figure 5

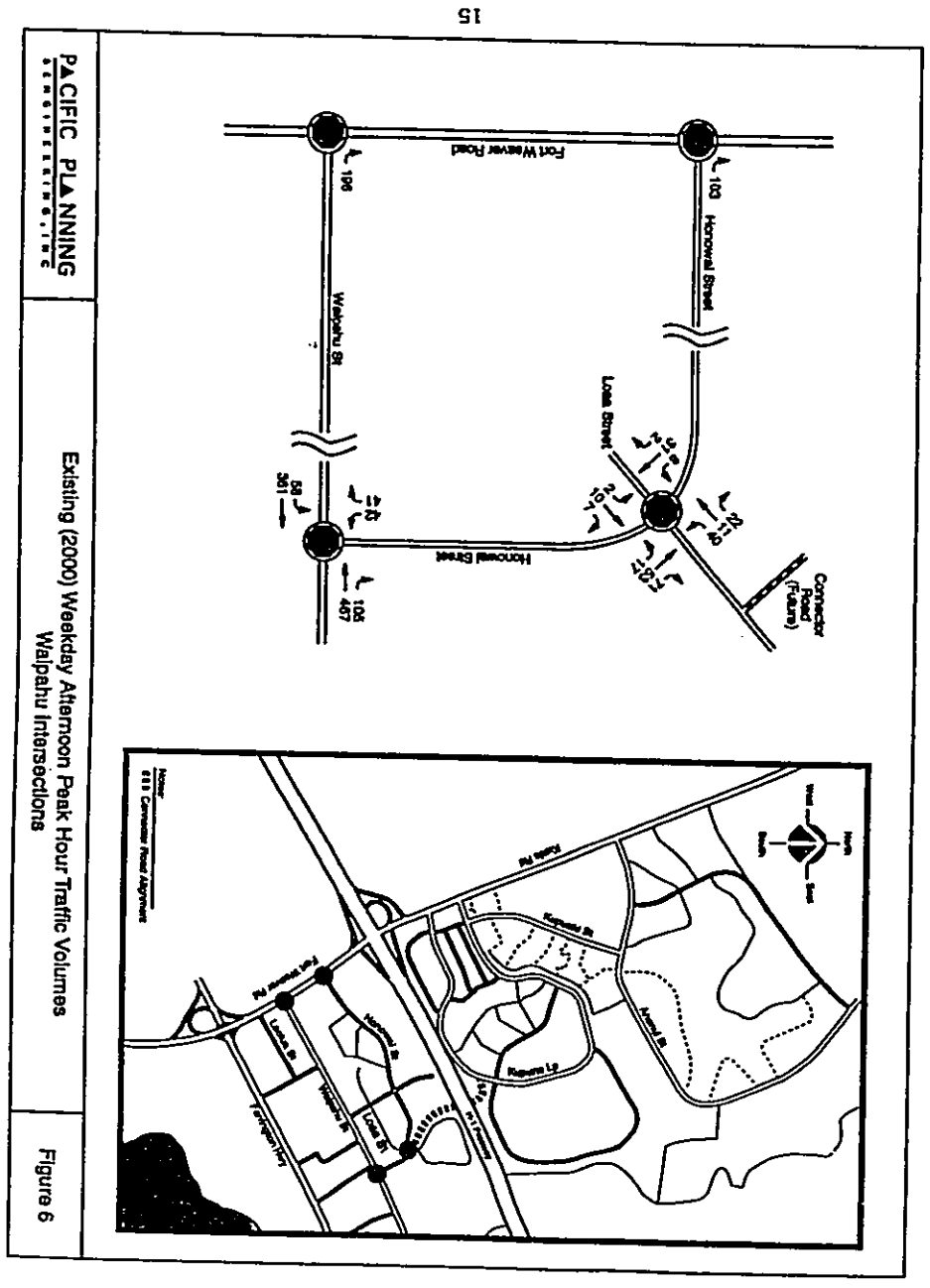
PACIFIC PLANNING & ENGINEERING, INC



Existing (2000) Weekday Morning Peak Hour Traffic Volumes
Waipahu Intersections

Figure 4

PACIFIC PLANNING & ENGINEERING, INC



During the field survey, the following observations of the study roadways were noted:

Kunia Road with Anonui Street

- Traffic at this intersection flowed smoothly during both peak hours.
- Kunia Road traffic flow was platooned in both directions.

Kunia Road with North Kupuna Loop

- The majority of the time, traffic at this intersection flowed smoothly during both peak hours.
- More than 50% of the northbound motorists making right-turns from Kunia Road to North Kupuna Loop did so on the red phase.
- On occasion, downstream conditions at the South Kupuna Loop intersection caused southbound vehicles turning left from North Kupuna Loop and along Kunia Road to queue back through the intersection. However, the queued vehicles were able to clear the intersection during the green phase.

Kunia Road with South Kupuna Loop

- The majority of the time, traffic at this intersection flowed smoothly during both peak hours.

- More than 50% of the northbound motorists making right-turns from Kunia Road to South Kupuna Loop did so on the red phase.

North Kupuna Loop with Kupuohi Street

- Traffic at this intersection flowed smoothly during both peak hours.

- The inside lane on the eastbound approach to the intersection operates essentially as an exclusive left-turn lane.

South Kupuna Loop with Kupuohi Street

- Traffic at this intersection flowed smoothly during both peak hours.

Waipahu Street with Honowai Street

- Traffic at this intersection flowed smoothly during both peak hours.

Honowai Street with Loaa Street

- Traffic at this intersection flowed smoothly during both peak hours.

FUTURE CONDITIONS

A survey was conducted of planned developments in the immediate area to estimate future traffic conditions at the study intersections.

Future Land Uses

The Royal Kunia Phase I project is currently being developed by Castle and Cooke Homes Hawaii, Inc. and is expected to be completed within the study time frame.

Golf course Number 1, located within Royal Kunia Phase I, is being developed by Koei and the Royal Kunia Phase II project is being developed by Herbert K. Horita Realty, Inc. There are currently no known definitive plans for the completion and occupancy of these sites.

The Moanalua Congregational Christian Church American Samoa is planning to construct a Church Facility within Village Park. The Church will be built on a site near the Village Park Connector Road just south of South Kupuna Loop. The Church will have access via Kunia Road and is currently working with the City and County of Honolulu to allow a second access to be located on South Kupuna Loop.

Future Roadway Facilities

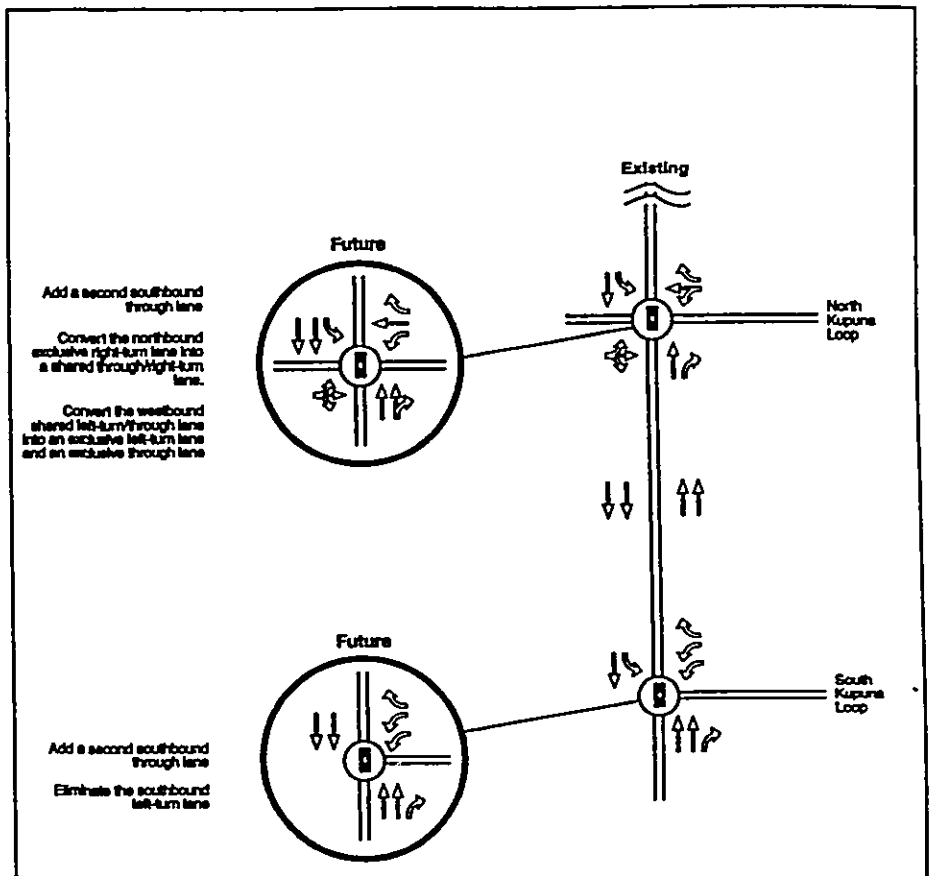
Kunia Road is currently being widened from South Kupuna Loop to Anonui Street. Details of the improvements are described as follows and is also shown on Figure 7:

Kunia Road with North Kupuna Loop

- Addition of a second southbound through lane on Kunia Road.
- Convert the existing northbound right-turn lane into a shared through/right-turn lane.
- On the westbound approach, provide an exclusive left-turn lane, a through lane and an exclusive right-turn lane.

Kunia Road with South Kupuna Loop

- Addition of a second southbound through lane on Kunia Road. This will eliminate the southbound left-turn lane.



PACIFIC PLANNING & ENGINEERING, INC	Roadway Improvements on Kunia Road	Figure 7

PROJECTED TRAFFIC CONDITIONS

Future traffic conditions for the year 2005 were forecast for scenarios without and with the Village Park Connector Road.

Future Traffic Without Project

Future traffic without the project was forecast by adding the following: 1) existing traffic volumes, 2) the growth in through-traffic on Kunia Road based on historical traffic growth trends and 3) traffic due to other approved planned projects in the area. The resulting forecasts at the study intersections for the peak hours without the project in year 2005 are shown in Figures 8 through 11.

Growth in Through-Traffic on Kunia Road

Through-traffic is traffic that travels on a roadway without a specific origin or destination near the project site. The growth rate is intended to account for future conditions such as other developments outside of the project study area and future projects, which have not been clearly defined. The growth in through-traffic was estimated using historical data obtained from the HDOT traffic count station #C-9-D (2.8 miles northwest of the H-1 Freeway) and linear regression analysis. HDOT data indicates an annual growth trend of about 2.2% per year along Kunia Road. Accordingly, the existing peak hour traffic was increased on Kunia Road by 11% (5 years x 2.2%).

Traffic From Other Developments

The three-step procedure of trip generation, trip distribution and traffic assignment was used to forecast traffic from the Royal Kunia Phase I development.

The trip generation step estimates the number of trips that would be generated by the remaining Royal Kunia Phase I developments during the weekday morning and afternoon peak hours. Trip generation for this project was based on rates from the Institute of Transportation Engineers (ITE) Trip Generation Report, Sixth Edition, 1997. Table 1 shows the number of trips generated from this development.

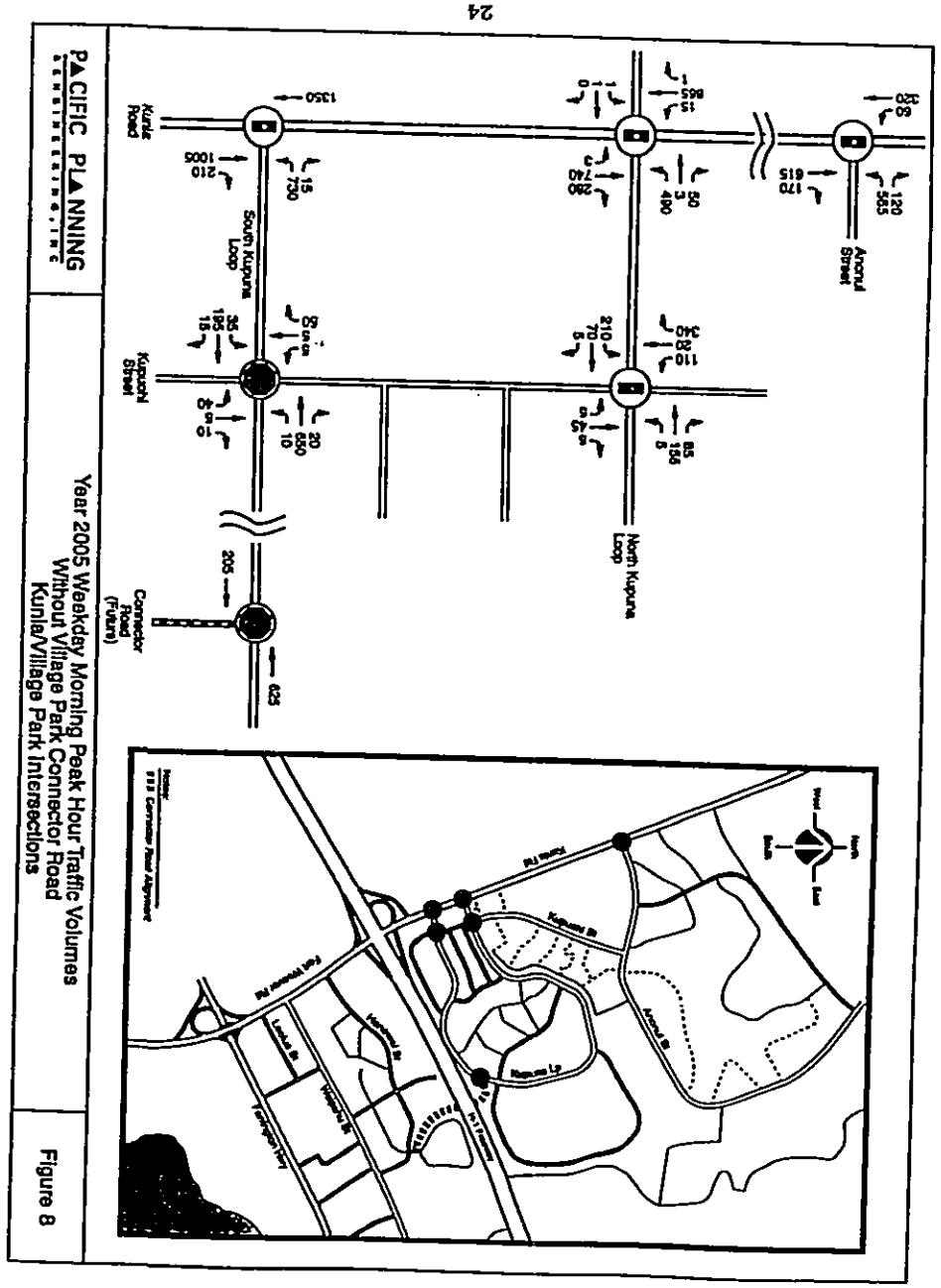
The trip distribution step estimates the distribution of vehicle trips to their predicted destinations and origins. Trips were distributed based on projections of population and employment on Oahu for the year 2005.

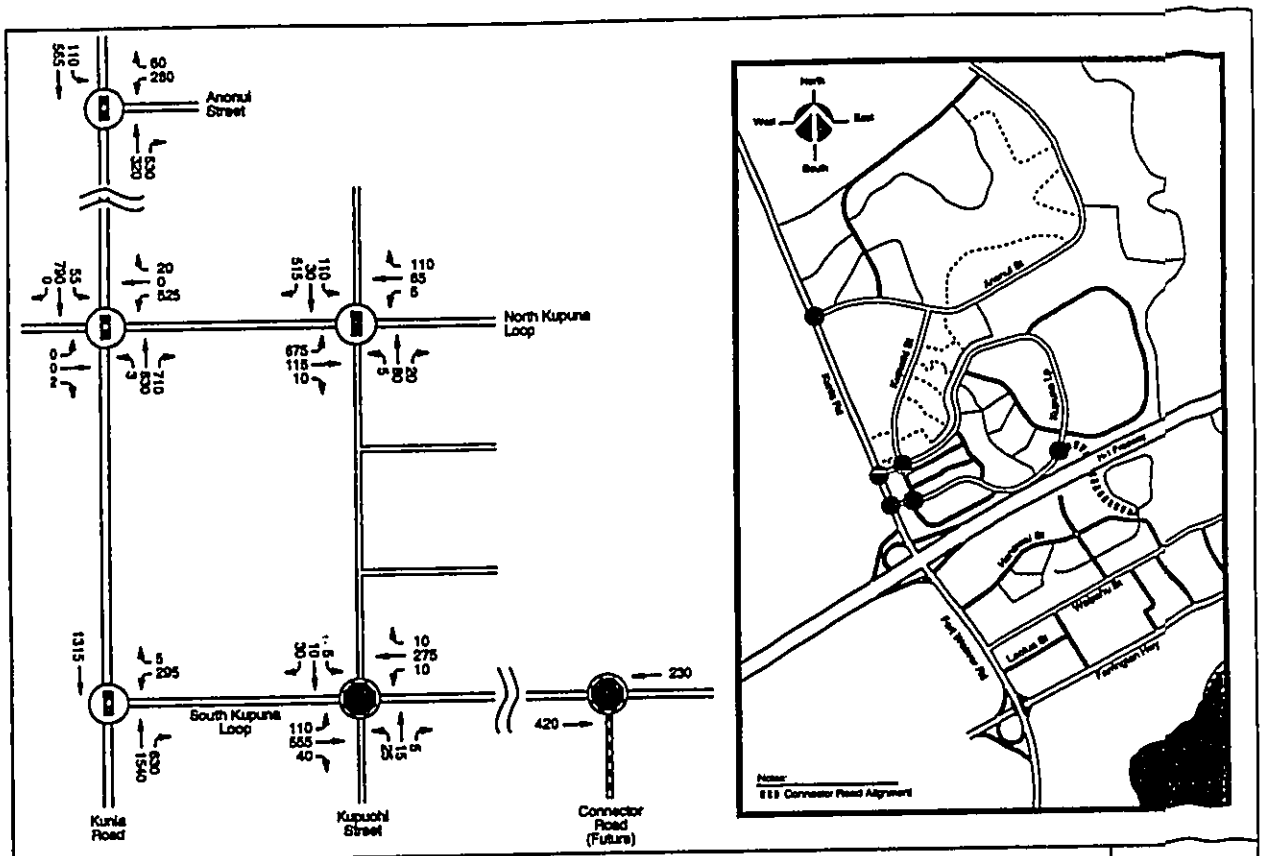
Future traffic from the Royal Kunia development was assigned to a specific route for each origin and destination based on available traffic studies and estimated shortest distance or travel time. Traffic was assigned to Kunia Road via Anonui Street and Kupuohi Street.

Table 1. Royal Kunia Development

		Weekday Morning Peak Hour		Weekday Afternoon Peak Hour	
Land Use	Parameter	Enter	Exit	Enter	Exit
Single Family Homes	814 Units	157	446	534	288
Multi-Family Homes	100 Units	7	37	36	18
	Total	164	483	570	306

Future traffic from the Moanalua Congregational Christian Church was obtained from its traffic study, Traffic Impact Assessment Report for Moanalua Congregational Christian Church American Samoa, dated February 5, 1999 by Pacific Planning & Engineering, Inc.





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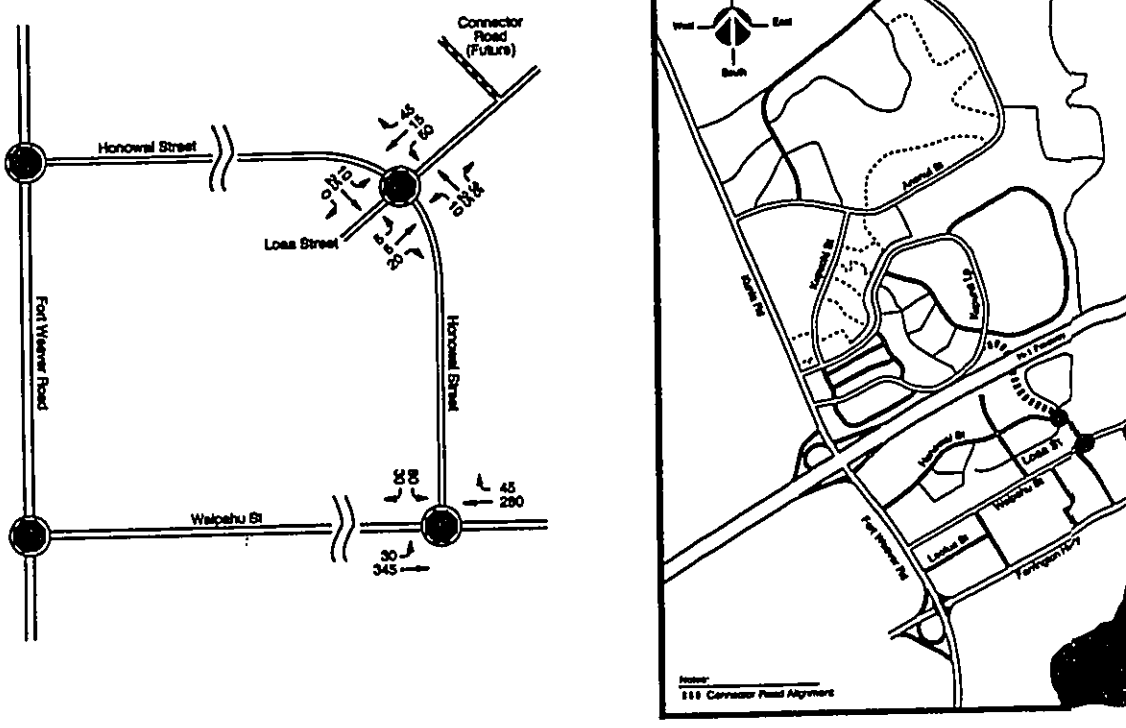
Year 2005 Weekday Afternoon Peak Hour Traffic Volumes
Without Village Park Connector Road
Kunia/Village Park Intersections

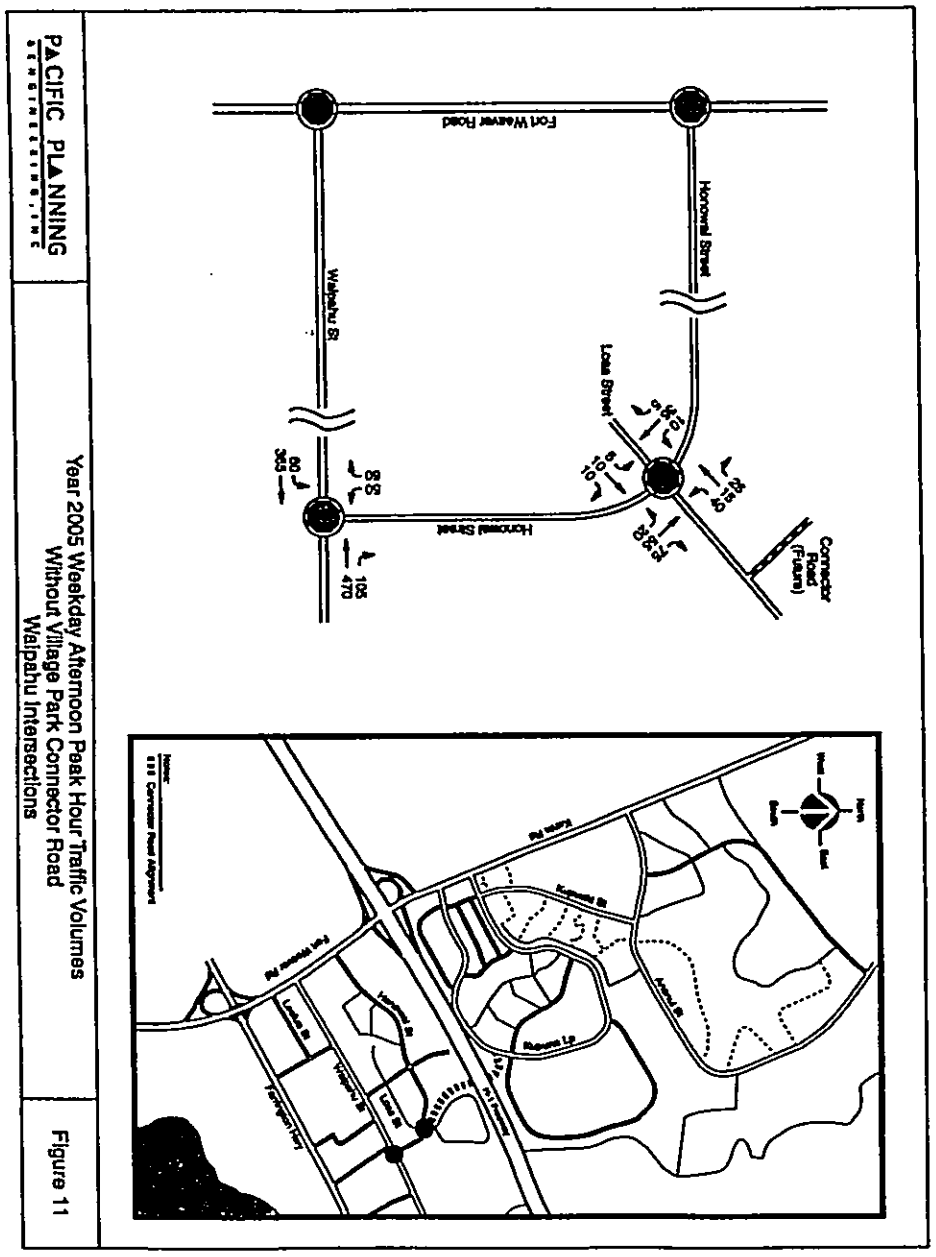
Figure 10



PACIFIC PLANNING & ENGINEERING, INC

Year 2005 Weekday Morning Peak Hour Traffic Volumes
Without Village Park Connector Road
Waipahu Intersections

Figure 9



Future Traffic With Project

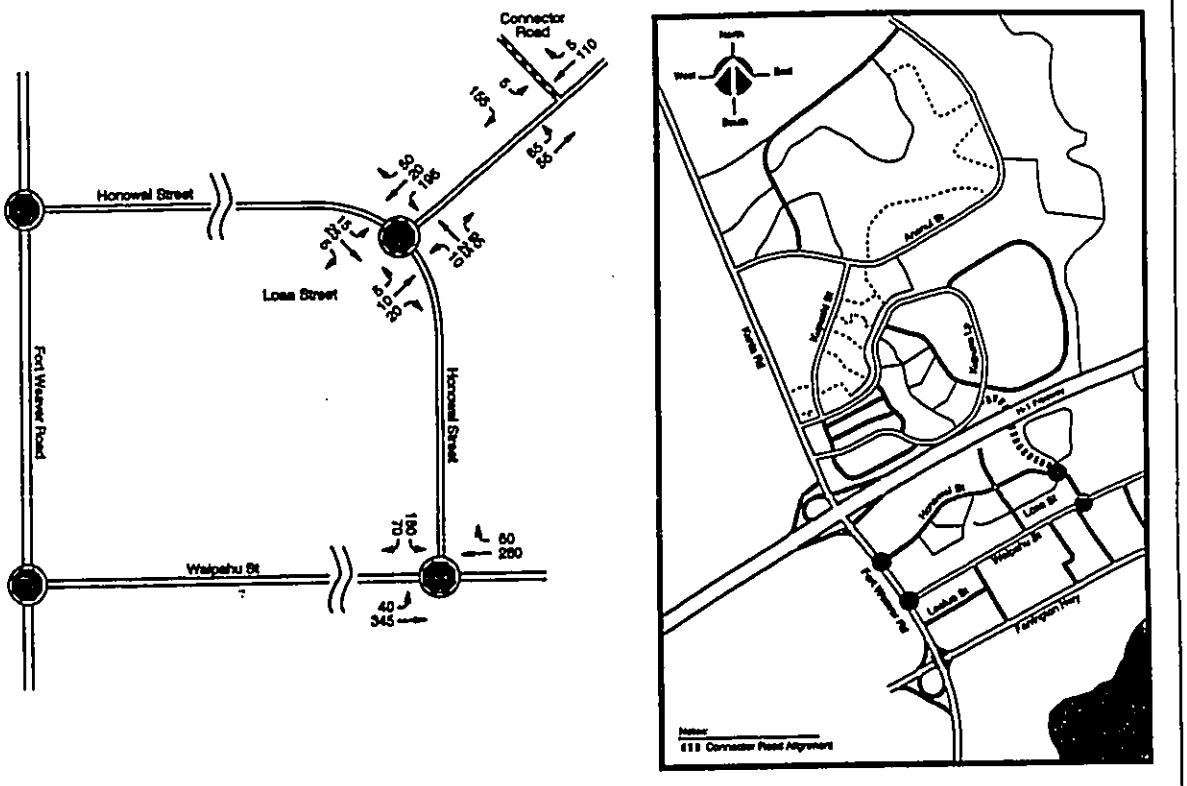
Future traffic with the Village Park Connector Road was obtained by re-assigning traffic due to the existence of an alternate route between the two communities. The forecasts were developed by:

1. Conducting a license plate survey to determine the number of motorists currently travelling between the Kunia/Village Park and Waipahu communities,
2. Of the motorists travelling between Kunia/Village Park and Waipahu, determine who would likely use the Connector Road and
3. Estimate the future usage of the Connector Road in the year 2005.

The resulting peak hour traffic volume forecasts with the project are shown in Figures 12 through 15.

License Plate Survey

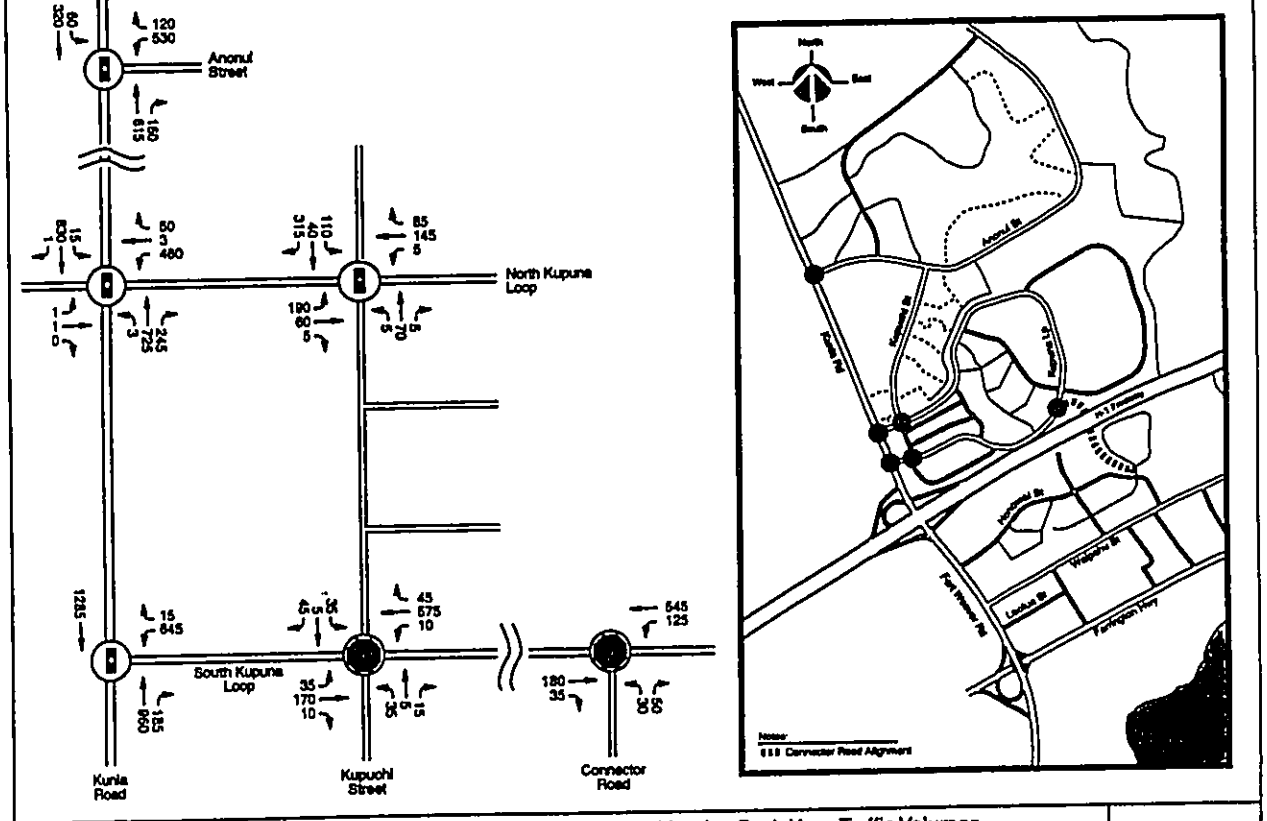
To determine how many motorists are currently travelling between the Kunia/Village Park and Waipahu communities, a license plate survey was conducted on March 8, 2000 during the peak periods. The survey was conducted by stationing personnel at the appropriate access points along Fort Weaver Road/Kunia Road and recording license plate numbers as vehicles passed through each access point. Subsequently, the license plate numbers were matched to obtain origin-destination information between the two communities. The results of the survey for the weekday morning and afternoon peak hour are shown in Tables 2 and 3.



PACIFIC PLANNING ENGINEERING, INC

Year 2005 Weekday Morning Peak Hour Traffic Volumes
With Village Park Connector Road
Waipahu Intersections

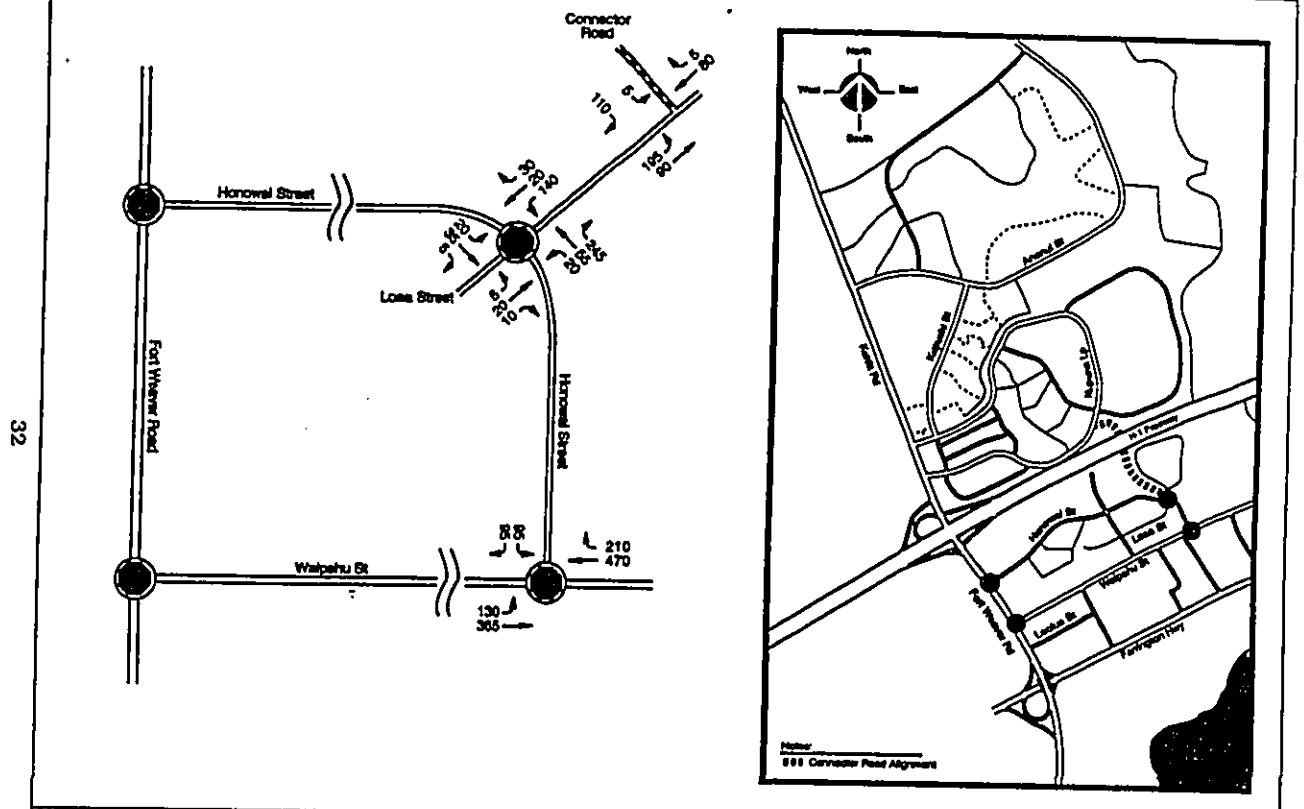
Figure 13



PACIFIC PLANNING ENGINEERING, INC

Year 2005 Weekday Morning Peak Hour Traffic Volumes
With Village Park Connector Road
Kunia/Village Park Intersections

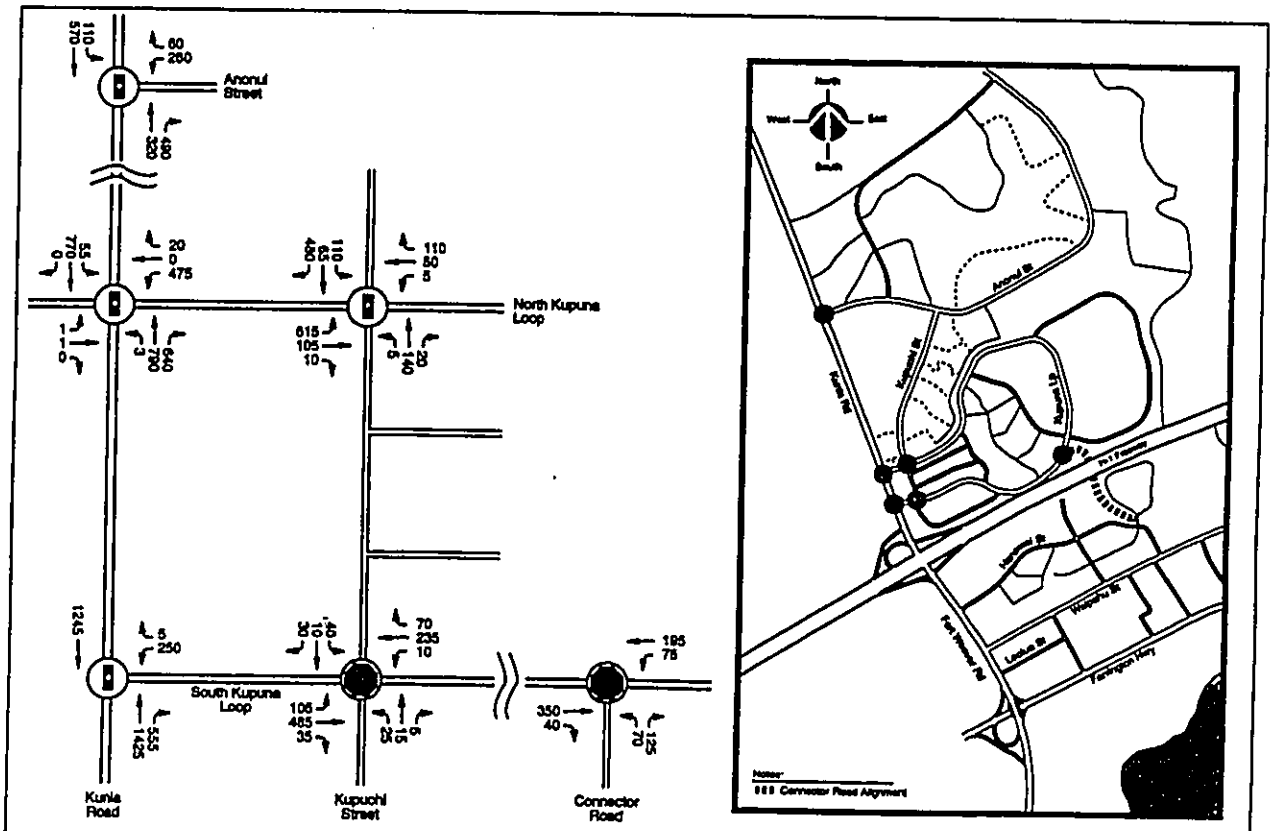
Figure 12



PACIFIC PLANNING ENGINEERING, INC

Year 2005 Weekday Afternoon Peak Hour Traffic Volumes
With Village Park Connector Road
Waipahu Intersections

Figure 15



PACIFIC PLANNING ENGINEERING, INC

Year 2005 Weekday Afternoon Peak Hour Traffic Volumes
With Village Park Connector Road
Kunia/Village Park Intersections

Figure 14

Table 2 – License Plate Survey Results – Weekday Morning Peak Hour			
Origin: Kunia/Village Park Destination: Waipahu			
		Destination	
Origin	Total Volume	Waipahu	Percentage
Anonui Street	196	15	8%
North Kupuna Loop	428	37	9%
South Kupuna Loop	708	95	13%
Total	1,332	147	11%
Origin: Waipahu Destination: Kunia/Village Park			
		Origin	
Destination	Total Volume	Waipahu	Percentage
Anonui Street	47	9	19%
North Kupuna Loop	281	37	13%
South Kupuna Loop	224	28	13%
Total	552	74	13%

During the weekday morning peak hour, there are currently 1,332 vehicles exiting (turning left from) Kunia/Village Park. Of the 1,332 trips, 147 or 11% are heading to Waipahu. In the opposite direction, there are currently 552 trips entering (turning right into) Kunia/Village Park. Of the 552 trips, 74 or 13% originated from Waipahu.

Table 3 – License Plate Survey Results – Weekday Afternoon Peak Hour			
Origin: Kunia/Village Park Destination: Waipahu			
		Destination	
Origin	Total Volume	Waipahu	Percentage
Anonui Street	72	14	19%
North Kupuna Loop	496	55	11%
South Kupuna Loop	280	43	15%
Total	848	112	13%
Origin: Waipahu Destination: Kunia/Village Park			
		Origin	
Destination	Total Volume	Waipahu	Percentage
Anonui Street	132	16	12%
North Kupuna Loop	665	78	12%
South Kupuna Loop	610	88	14%
Total	1,407	182	13%

During the weekday afternoon peak hour, there are currently 848 vehicles exiting (turning left from) Kunia/Village Park. Of the 848 trips, 112 or 13% are heading to Waipahu. In the opposite direction, there are currently 1,407 trips entering (turning right into) Kunia/Village Park. Of the 1,407 trips, 182 or 13% originated from Waipahu.

Diversion of Existing Trips due to the Connector Road

The presence of the Connector Road between Kunia/Village Park and Waipahu will divert traffic away from Kunia Road and Fort Weaver Road.

The traffic assignment step assigns vehicle trips to specific routes on the roadway network that drivers would take from their trip origin to their destination. Traffic is generally assigned based on the estimated shortest path or travel time from origins to destinations.

Future Usage of Connector Road

The Connector Road is bounded by communities which are essentially already developed. There are several parcels which may be developed, however, plans are uncertain at this time. Therefore, with no significant developments in Village Park or Waipahu, the traffic volumes estimated on the connector road are not expected to increase significantly. However, a component which would impact the usage of the connector road is the continued development of Royal Kunia Phase 1 north of Village Park. The communities of Royal Kunia and Village Park are currently connected via Leia Street. As a result, a portion of motorists from several future developments of Royal Kunia will likely drive through Village Park to access the connector road to get to Waipahu.

This increase in traffic was obtained by first forecasting the trips generated in Royal Kunia up to the year 2005. The trip generation was calculated previously and is repeated in Table 4.

Table 4. Royal Kunia Development

		Weekday Morning Peak Hour		Weekday Afternoon Peak Hour	
Land Use	Parameter	Enter	Exit	Enter	Exit
Single Family Homes	814 Units	157	446	534	288
Multi-Family Homes	100 Units	7	37	36	18
	Total	164	483	570	306

Not all of the development sites in Royal Kunia are expected to use the connector road. Based on the locations of future sites, it was estimated

that residents from three sites would be close enough to make the Village Park Connector Road route attractive. Table 5 shows the trips generated by these three sites.

Table 5. Royal Kunia Developments Likely to Use Connector Road

		Weekday Morning Peak Hour		Weekday Afternoon Peak Hour	
Land Use	Parameter	Enter	Exit	Enter	Exit
Single Family Homes	394 Units	75	215	259	140

The results of the license plate survey indicated that 11% of the total trips exiting Kunia/Village Park are headed to Waipahu during the morning peak hour. During the afternoon peak hour, the percentage is 13%. In the opposite direction, of the total trips entering Kunia/Village Park, 13% are from Waipahu for both the morning and afternoon peak hour. For the future, the same percentages were assumed and applied to the Royal Kunia trips. Table 6 shows the results.

Table 6. Royal Kunia Trips on the Connector Road

	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour	
	Enter	Exit	Enter	Exit
New Royal Kunia Trips	75	215	259	140
Percentage using Connector Road	11%	13%	13%	13%
Trips to and from Kunia/Village Park	8	28	34	18

The trips generated in Table 6 were assigned to the following path: Leia Street, Kaaholo Street, South Kupuna Loop and the Connector Road.

TRAFFIC IMPACT ANALYSIS

Analyses were conducted for the study intersections to determine the relative impact of the project. The analysis compares the existing, year 2005 forecasts without the Village Park Connector Road and year 2005 forecast with the Village Park Connector Road traffic conditions.

Analysis Methods

The study intersections were analyzed using procedures outlined in the Highway Capacity Manual[1]. The analysis methodology measures traffic operations using a Level-of-Service (LOS) rating, which ranges from "A" to "F", where LOS "A" is the best and LOS "F" is the worst. Appendix B provides detailed definitions of the LOS used in this study.

Unsignalized Intersection Analysis

The following were analyzed as stop-controlled unsignalized intersections.

- South Kupuna Loop with Kupuohi Street
- Waipahu Street with Honowai Street
- Honowai Street with Loaa Street
- South Kupuna Loop with Village Park Connector Road

The LOS for unsignalized intersections is determined by the computed or measured control delay. Control delay includes the initial deceleration

[1] Transportation Research Board, National Research Council, Highway Capacity Manual, Special Report 209, Third Edition, Washington, D.C. 1998.

delay, queue move-up time, stopped delay and final acceleration delay. Control delay is defined for each minor movement only and not for the intersection as whole. LOS for the minor movements is classified into six letter categories ranging from less than 10 seconds of average control delay per vehicle (LOS "A") to over 50 seconds of average control delay per vehicle (LOS "F").

In the performance evaluation of unsignalized intersections, it is also important to consider other measures of effectiveness (MOE) in addition to control delay, such as the v/c (volume to capacity) ratio. The v/c ratio was also obtained through HCM procedures.

Signalized Intersection Analysis

The following were analyzed as signalized intersections.

- Kunia Road with North Kupuna Loop
- Kunia Road with South Kupuna Loop
- North Kupuna Loop with Kupuohi Street

Operational analysis for signalized intersections is based on the average control delay per vehicle to measure traffic operating conditions. Control delay as defined here includes the initial deceleration delay, queue move-up time, stopped delay and final acceleration delay. The LOS for the traffic movements at a signalized intersection is classified into six letter categories ranging from less than 5 seconds of average control delay per vehicle (LOS "A") to over 80 seconds of average control delay per vehicle (LOS "F"). LOS criteria for unsignalized and signalized intersections are not directly comparable because motorists expect different levels of delay for each facility.

Analysis Results

The results of the analysis for the study intersections are shown on Figures 16 to 19 with highlights described below:

Kunia Road with North Kupuna Loop

- Currently, motorists at this intersection generally experience LOS "D" or better conditions with the exception of the southbound left-turn movement, which operates at LOS "E" during the afternoon peak hour.

In the year 2005, Kunia Road will be widened from one to two through lanes in the northbound direction and from one to two through lanes in the southbound direction.

- In the year 2005 without the Village Park Connector Road, the westbound left-turn movement drops to LOS "D" during the afternoon peak hour.

- In the year 2005 with the Village Park Connector Road, the westbound left-turn movement improves to LOS "C" during the morning peak hour. This is due to some of the traffic being diverted to the Connector Road.

Kunia Road with South Kupuna Loop

- Currently, motorists at this intersection generally experience LOS "D" or better during the peak hours.

In the year 2005, Kunia Road will be widened from one to two through lanes in the southbound direction.

- In the year 2005 without the Village Park Connector Road, the southbound through movement is expected to operate at LOS "B" due to the additional through lane.

- In the year 2005 with the Village Park Connector Road, the intersection will continue to operate at the same LOS as the without project condition. However, there will be less vehicle delays as traffic is diverted to the connector road.

North Kupuna Loop with Kupuohi Street

- Currently, motorists at this intersection generally experience LOS "C" or better during both peak hours.

- In the year 2005 without the Village Park Connector Road, the southbound through movement is expected to operate at the same LOS as the existing condition.

- In the year 2005 with the Village Park Connector Road, the intersection will continue to operate at the same LOS as the without project condition.

South Kupuna Loop with Kupuohi Street

- Currently, southbound motorists exiting from Kupuohi Street onto South Kupuna Loop experience LOS "B" during the morning peak

hour. In the afternoon peak hour, northbound motorists exiting from Kupuohi Street onto South Kupuna Loop experience LOS "E".

- In the year 2005 without the Village Park Connector Road, the southbound through movement is expected to operate at the same LOS as the existing condition.

- In the year 2005 with the Village Park Connector Road, the LOS for southbound motorists exiting Kupuohi Street onto South Kupuna Loop is expected to drop from "B" to "C". This is due to the increased traffic on Kupuohi Street. During the afternoon peak hour, the LOS for northbound motorists exiting Kupuohi Street onto South Kupuna Loop is expected to improve from "E" to "D". This is due to some of the traffic on South Kupuna Loop near Kunia Road being diverted away to the Connector Road.

Waipahu Street with Honowai Street

- Currently, southbound motorists turning left from Honowai Street onto Waipahu Street experience LOS "C" during the weekday morning and afternoon peak hours.

- In the year 2005 without the Village Park Connector Road, the LOS is expected to remain the same as the existing condition.

- In the year 2005 with the Village Park Connector Road, southbound motorists turning left from Honowai Street onto Waipahu Street will experience a drop in LOS from "C" to "F" during the weekday morning and afternoon peak hours. This is due to increased traffic in the area from the Connector Road.

Honowai Street with Loaa Street

- Currently, motorists at this intersection experience LOS "B" conditions or better during the weekday morning and afternoon peak hours.

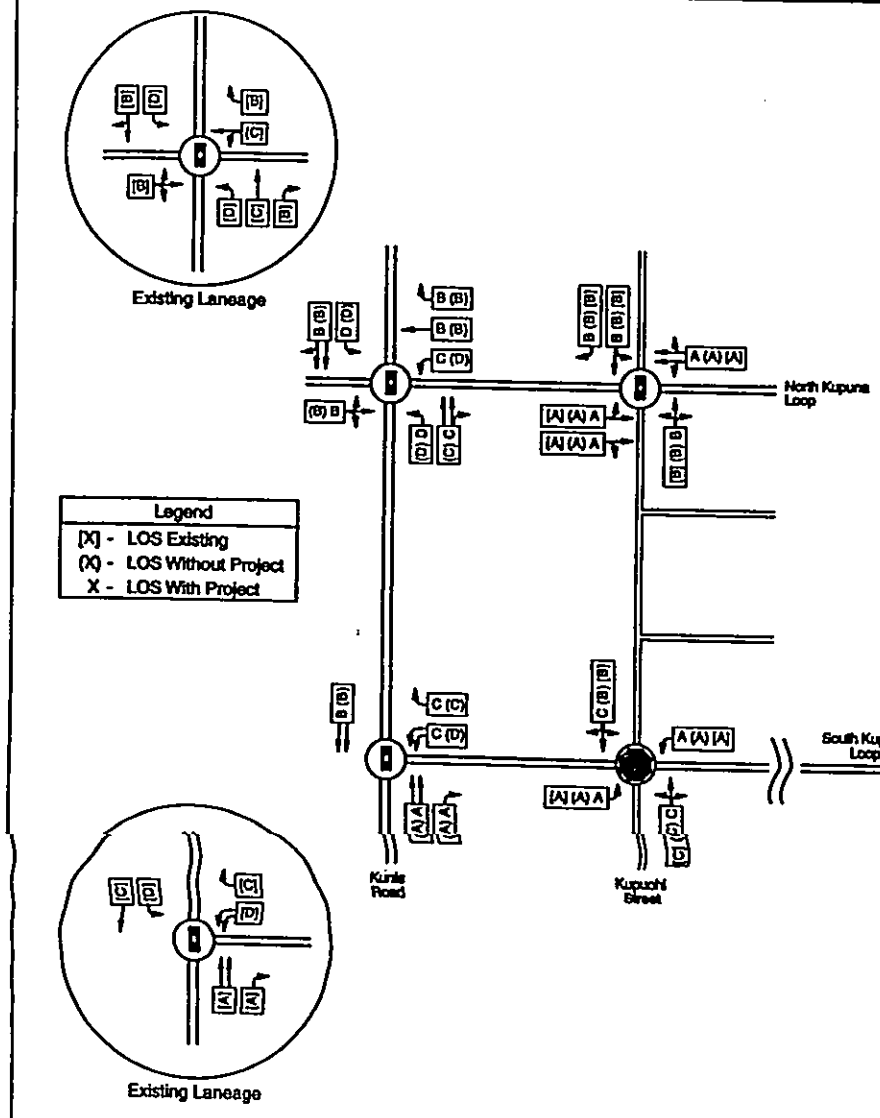
- In the year 2005 without the Village Park Connector Road, the LOS is expected to remain the same as existing.

- In the year 2005 with the Village Park Connector Road, westbound motorists from Loaa Street will experience a drop in LOS from "B" to "C" during the weekday morning and afternoon peak hours.

Connector Road with South Kupuna Loop

The laneage for the Village Park Connector Road at South Kupuna Loop was assumed to be a single lane for left-turn movements with a flared approach which would allow right-turn movements to proceed if left-turning vehicles are queued.

- In the year 2005 with the Village Park Connector Road, motorists at this intersection will experience LOS "A" conditions during the weekday morning and afternoon peak hours.



Tabular Traffic Analysis Results

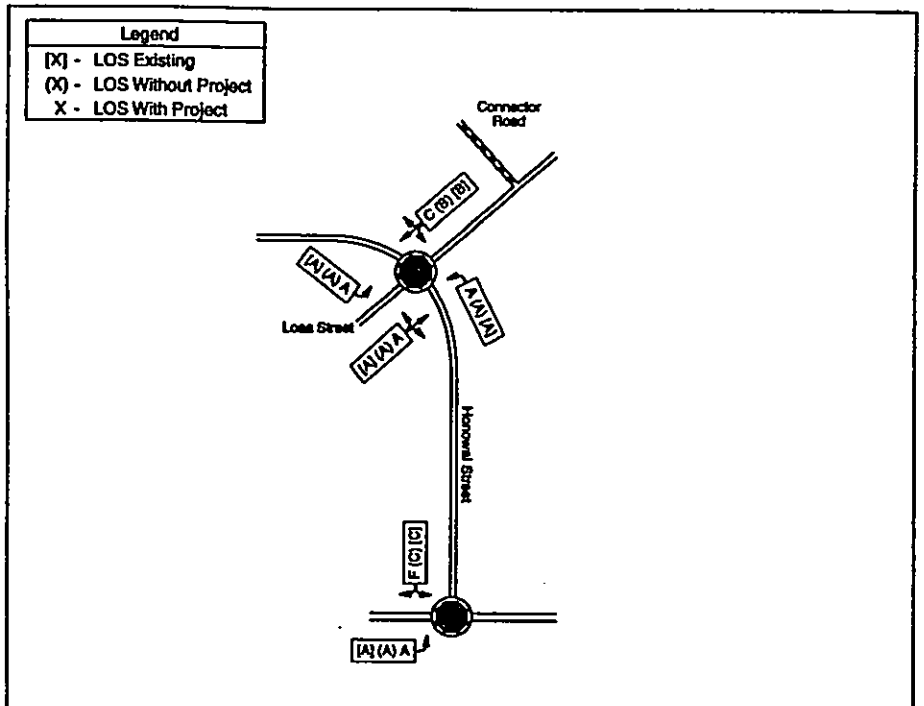
	Movement	Existing	Without Project	With Project
Kunia Road with North Kupuna Loop (Signalized Intersection)	Northbound LT	D	D	D
	Northbound TH	C	n/a	n/a
	Northbound RT	B	n/a	n/a
	Northbound TH/RT*	n/a	C	C
	Southbound LT	D	D	D
	Southbound TH/RT	B	n/a	n/a
	Southbound TH/RT*	n/a	B	B
	Eastbound LT/TH/RT	B	B	B
	Westbound LT/TH	C	n/a	n/a
	Westbound RT	B	B	B
	Westbound LT*	n/a	D	C
	Westbound TH*	n/a	B	B
	Overall	C	C	C
North Kupuna Loop with Kupuohi Street (Signalized Intersection)	Northbound LT/TH/RT	B	B	B
	Southbound LT/TH	B	B	B
	Southbound RT	B	B	B
	Eastbound LT/TH	A	A	A
	Eastbound TH/RT	A	A	A
	Westbound LT/TH/RT	A	A	A
	Overall	B	B	B
Kunia Road with South Kupuna Loop (Signalized Intersection)	Northbound TH	A	A	A
	Northbound RT	A	A	A
	Southbound LT	D	n/a	n/a
	Southbound TH	C	n/a	n/a
	Southbound TH*	n/a	B	B
	Westbound LT	D	D	C
	Westbound RT	C	C	C
	Overall	B	B	B
South Kupuna Loop with Kupuohi Street (Unsignalized Intersection)	Northbound LT/TH/RT	C	C	C
	Southbound LT/TH/RT	B	B	C
	Eastbound LT	A	A	A
	Westbound LT	A	A	A
South Kupuna Loop with Connector Road (Unsignalized Intersection)	Northbound LT/RT	n/a	n/a	A
	Westbound LT	n/a	n/a	A

LT - Left-turn
TH - Through
RT - Right-Turn
* - LOS with Planned Improvements to Intersection

PACIFIC PLANNING & ENGINEERING, INC.

Traffic Analysis - Weekday Morning Peak Hour
Village Park Intersections

Figure 16



Tabular Traffic Analysis Results

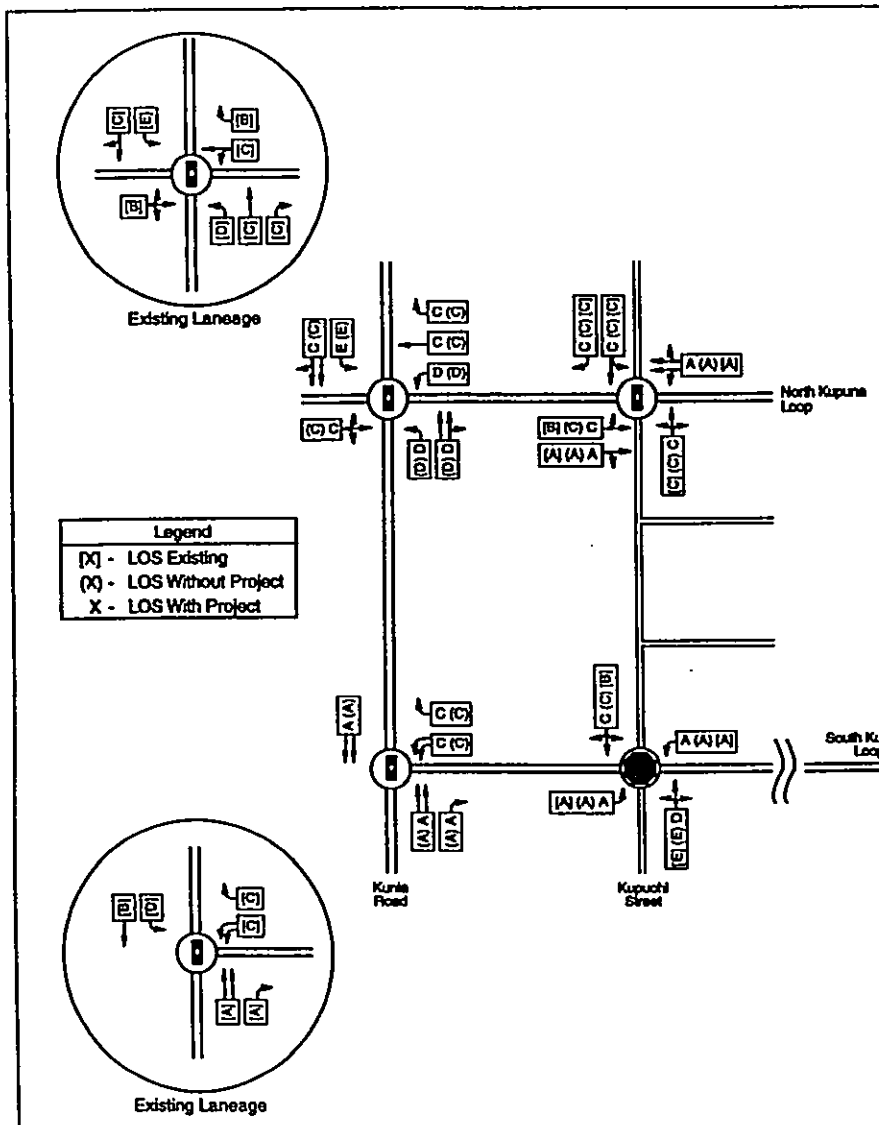
	Movement	Existing	Without Project	With Project
Honoreil Street with Loss Street (Unsignalized Intersection)	Northbound LT	A	A	A
	Southbound LT	A	A	A
	Eastbound LT/TH/RT	A	A	A
	Westbound LT/TH/RT	B	B	C
Waipahu Street with Honoreil Street (Unsignalized Intersection)	Southbound LT/RT	C	C	F
	Eastbound LT	A	A	A

LT - Left-turn
TH - Through
RT - Right-Turn

PACIFIC PLANNING & ENGINEERING, INC

Traffic Analysis - Weekday Morning Peak Hour
Waipahu Intersections

Figure 17



Tabular Traffic Analysis Results

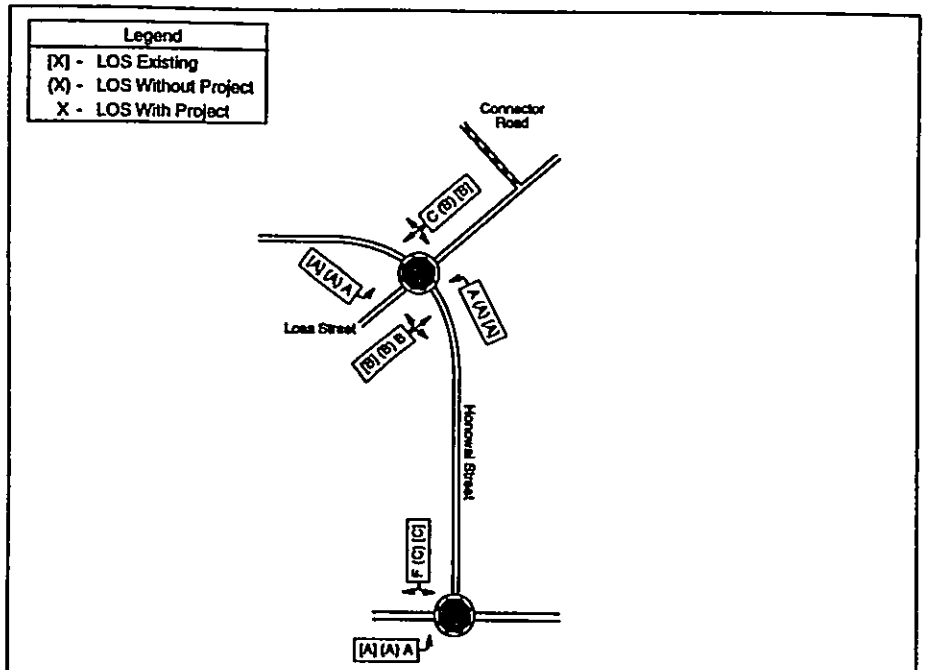
	Movement	Existing	Without Project	With Project
Kunia Road with North Kupuna Loop (Signalized Intersection)	Northbound LT	D	D	D
	Northbound TH	C	n/a	n/a
	Northbound RT	C	n/a	n/a
	Northbound TH/RT*	n/a	D	D
	Southbound LT	E	E	E
	Southbound TH/RT	C	n/a	n/a
	Southbound TH/RT*	n/a	C	C
	Eastbound LT/TH/RT	B	C	C
	Westbound LT/TH	C	n/a	n/a
	Westbound RT	B	C	C
	Westbound LT*	n/a	D	D
	Westbound TH*	n/a	C	C
	Overall	C	D	C
North Kupuna Loop with Kupuohi Street (Signalized Intersection)	Northbound LT/TH/RT	C	C	C
	Southbound LT/TH	C	C	C
	Southbound RT	C	C	C
	Eastbound LT/TH	B	C	C
	Eastbound TH/RT	A	A	A
	Westbound LT/TH/RT	A	A	A
	Overall	B	C	C
Kunia Road with South Kupuna Loop (Signalized Intersection)	Northbound TH	A	A	A
	Northbound RT	A	A	A
	Southbound LT	D	n/a	n/a
	Southbound TH	B	n/a	n/a
	Southbound TH*	n/a	A	A
	Westbound LT	C	C	C
	Westbound RT	C	C	C
	Overall	B	A	A
South Kupuna Loop with Kupuohi Street (Unsignalized Intersection)	Northbound LT/TH/RT	E	E	D
	Southbound LT/TH/RT	B	C	C
	Eastbound LT	A	A	A
	Westbound LT	A	A	A
South Kupuna Loop with Connector Road (Unsignalized Intersection)	Northbound LT/RT	n/a	n/a	A
	Westbound LT	n/a	n/a	A

LT - Left-turn
TH - Through
RT - Right-Turn
* - LOS with Planned Improvements to Intersection

PACIFIC PLANNING ENGINEERING, INC

Traffic Analysis - Weekday Afternoon Peak Hour
Village Park Intersections

Figure 18



Tabular Traffic Analysis Results

	Movement	Existing	Without Project	With Project
Honowai Street with Loss Street (Unsignalized Intersection)	Northbound LT	A	A	A
	Southbound LT	A	A	A
	Eastbound LT/TH/RT	B	B	B
	Westbound LT/TH/RT	B	B	C
Walpahu Street with Honowai Street (Unsignalized Intersection)	Southbound LT/RT	C	C	F
	Eastbound LT	A	A	A

LT - Left-turn
TH - Through
RT - Right-Turn

PACIFIC PLANNING ENGINEERING, INC | Traffic Analysis - Weekday Afternoon Peak Hour Walpahu Intersections | Figure 19

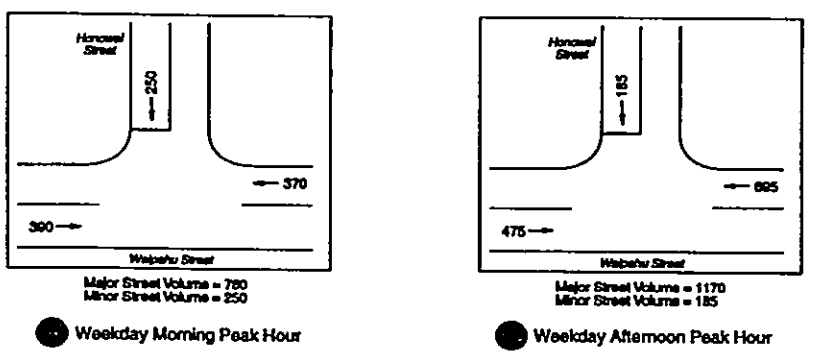
MITIGATION MEASURES

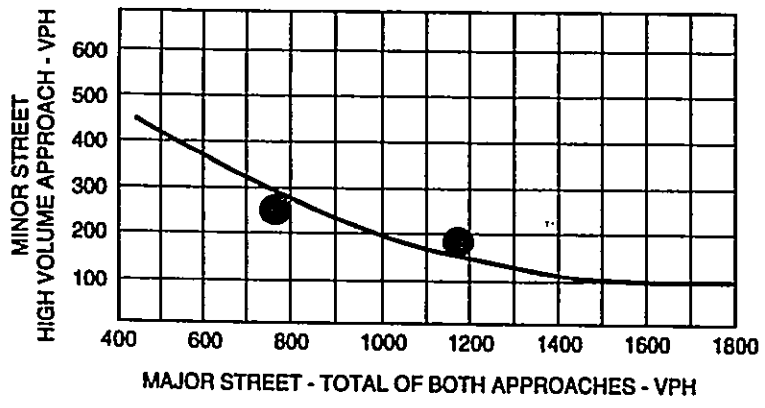
Due to the LOS "F" conditions for motorists making left-turns from Honowai Street to Waipahu Street, a preliminary check was conducted to see if traffic conditions are expected to meet the warrant for installation of traffic signals. However, the intersection should be monitored and a warrant study should be conducted by the responsible agency to determine when the traffic signal should be installed.

The check was conducted according to procedures in the Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD contains 11 Warrants, which are used to determine whether traffic control signals are warranted. In this case, only Warrant 11, based on peak hour volume, was used.

The criteria for Warrant 11 is satisfied when a plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicle per hour of the higher volume minor street approach (one direction only) for one hour of an average day falls above the curve shown in Figure 4-5 of the MUTCD for the existing combination of approach lanes. Figure 20 graphically shows the results of the peak hour volume warrant.

The results of the warrant analysis indicate that the intersection is expected to meet the criteria set forth in Warrant 11 for the weekday afternoon peak hour. Therefore, this intersection was analyzed as a signalized intersection to determine traffic operations. As a signalized intersection, The results of the traffic analysis indicate that the LOS for motorists exiting Honowai Street will improve to LOS "C" during the weekday morning and afternoon peak hours.





PACIFIC PLANNING & ENGINEERING, INC	Warrant 11 Analysis (Peak Hour Volume Warrant) Waipahu Street with Honowai Street	Figure 20

CONCLUSIONS AND RECOMMENDATIONS

The proposed Village Park Connector Road project, in the year 2005 will result in reduced volumes at the intersections of Kunia Road with North Kupuna Loop and Kunia Road with South Kupuna Loop. Consequently, the traffic analysis results show that motorists making left-turns onto Kunia Road will experience less delays and better Level-of-Service (LOS).

Traffic volumes are expected to increase on Kupuohi Street due to the attraction of commercial activities such as Wal-Mart and Times Supermarket. The LOS at the intersections of North Kupuna Loop with Kupuohi Street and South Kupuna Loop with Kupuohi Street are still expected to operate at satisfactory levels.

At the intersection of Waipahu Street with Honowai Street, the construction of the Village Park Connector Road will result in increased traffic volumes. Motorists making left-turns from Honowai Street to Waipahu Street will experience long delays, LOS "F". Due to the anticipated long delays, a preliminary traffic signal warrant analysis was conducted using the peak hour warrant as a criterion. The results show that the peak hour warrant would be met for the afternoon peak hour in 2005. However, the satisfaction of a warrant is not in itself justification for a signal. The intersection should be monitored to determine if actual traffic volumes meets the warrants for signalization.

The recommended laneage for the Village Park Connector Road at South Kupuna Loop is a single lane for left-turn movements with a flared approach which allows right-turns to proceed if a left-turn queue exists. Traffic analysis shows that the LOS for all movements is LOS "A".

APPENDIX A

TRAFFIC COUNT DATA

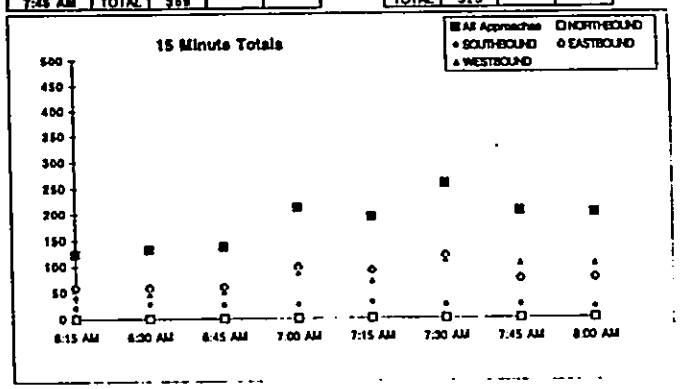
Project : 117.8 Waipahu Connector Road
Date: 4/11/00

	Direction NORTHBOUND	North-South Road Honowai Street	Direction SOUTHBOUND
Start Time	[redacted]	SB-LT	SB-RT
6:15 AM		18	3
6:30 AM		19	8
6:45 AM		20	6
7:00 AM		15	11
7:15 AM		23	7
7:30 AM		21	4
7:45 AM		18	9
8:00 AM		13	7

PEAK HOUR	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT		
6:45 AM	0	0	0			79	0	28		
7:45 AM	TOTAL	0				TOTAL	107			

	Direction EASTBOUND	East-West Road Waipahu Street	Direction WESTBOUND
Start Time	EB-LT EB-TH [redacted]		WB-TH WB-RT
6:15 AM	1 59		39 5
6:30 AM	0 62		39 8
6:45 AM	4 65		45 6
7:00 AM	3 85		80 9
7:15 AM	7 85		83 8
7:30 AM	14 106		90 22
7:45 AM	14 80		85 11
8:00 AM	8 68		83 22

PEAK HOUR	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT		
6:45 AM	28	341	0			0	279	44		
7:45 AM	TOTAL	389				TOTAL	323			



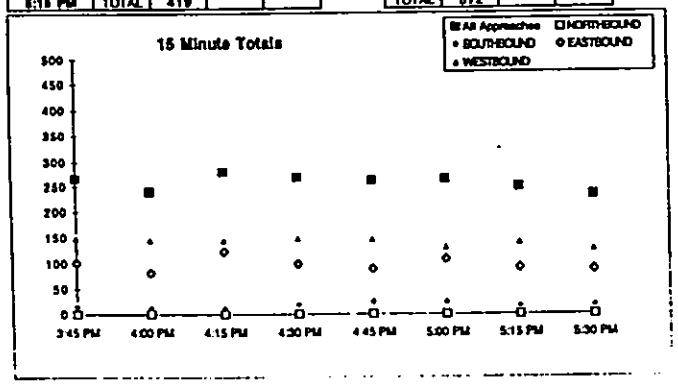
Project : 117.0 Waipahu Connector Road
Date: 4/11/00

	Direction NORTHBOUND			North-South Road Honowai Street	Direction SOUTHBOUND		
Start Time	NB-LT	NB-TH	NB-RT		SB-LT	SB-TH	SB-RT
3:45 PM					10		6
4:00 PM					8		5
4:15 PM					8		4
4:30 PM					11		9
4:45 PM					15		11
5:00 PM					8		17
5:15 PM					9		8
5:30 PM					7		11

PEAK HOUR	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT		
4:15 PM	0	0	0			42	0	41		
5:15 PM	TOTAL	0				TOTAL	83			

	Direction EASTBOUND			East-West Road Waipahu Street	Direction WESTBOUND		
Start Time	EB-LT	EB-TH	EB-RT		WB-TH	WB-RT	WB-LT
3:45 PM	12	89			117	33	
4:00 PM	13	69			114	32	
4:15 PM	19	110			118	27	
4:30 PM	12	87			129	30	
4:45 PM	18	73			118	29	
5:00 PM	17	91			102	29	
5:15 PM	15	76			118	23	
5:30 PM	7	89			103	28	

PEAK HOUR	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT		
4:15 PM	58	381	0			0	467	105		
5:15 PM	TOTAL	419				TOTAL	572			



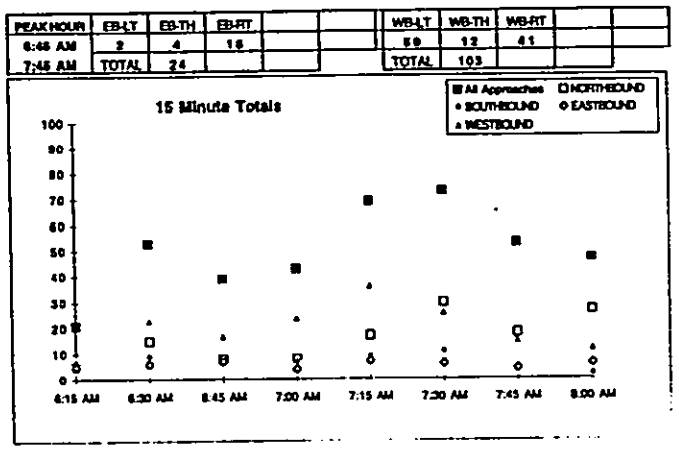
Project : 117.0 Waipahu Connector Road
Date: 4/11/00

	Direction NORTHBOUND			North-South Road Honowai Street	Direction SOUTHBOUND		
Start Time	NB-LT	NB-TH	NB-RT		SB-LT	SB-TH	SB-RT
6:15 AM	2	1	2		0	4	0
6:30 AM	1	6	8		1	8	0
6:45 AM	0	6	3		1	6	0
7:00 AM	1	3	4		3	4	0
7:15 AM	0	8	9		2	7	0
7:30 AM	5	8	17		3	8	0
7:45 AM	4	5	9		6	10	0
8:00 AM	4	7	16		0	2	0

PEAK HOUR	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT		
6:45 AM	6	24	33			9	25	9		
7:45 AM	TOTAL	63				TOTAL	34			

	Direction EASTBOUND			East-West Road Lusa Street	Direction WESTBOUND		
Start Time	EB-LT	EB-TH	EB-RT		WB-TH	WB-RT	WB-LT
6:15 AM	0	2	3		6	0	1
6:30 AM	0	2	4		17	2	4
6:45 AM	1	0	6		6	2	7
7:00 AM	1	1	2		14	2	8
7:15 AM	0	1	6		19	4	19
7:30 AM	0	2	4		12	4	10
7:45 AM	0	1	3		11	0	4
8:00 AM	0	1	5		8	0	4

PEAK HOUR	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT		
6:45 AM	2	4	16			59	12	41		
7:45 AM	TOTAL	24				TOTAL	103			



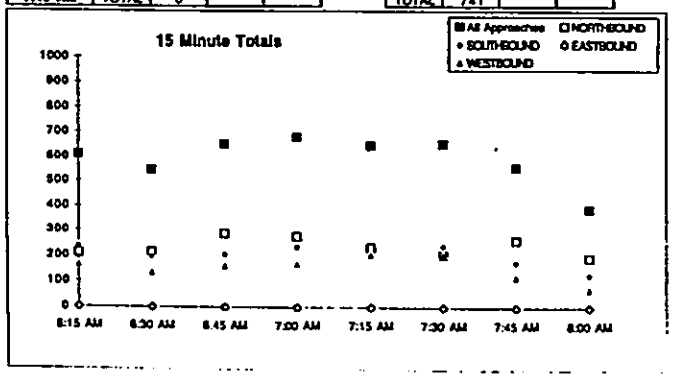
Project : 117.0 Waipahu Connector Road
Date: 2/9/00

	Direction NORTHBOUND			North-South Road Kunia Road			Direction SOUTHBOUND		
Start Time		NB-TH	NB-RT			SB-LT	SB-TH		
6:15 AM		172	37			0	238		
6:30 AM		191	24			1	185		
6:45 AM		247	40			1	203		
7:00 AM		219	63			0	235		
7:15 AM		183	49			1	208		
7:30 AM		161	54			1	239		
7:45 AM		180	63			1	172		
8:00 AM		121	71			1	185		
			421						

PEAK HOUR	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT		
6:45 AM	0	794	206			3	885	0		
7:45 AM	TOTAL	1000				TOTAL	888			

	Direction EASTBOUND			East-West Road South Kupuna Loop			Direction WESTBOUND		
Start Time						WB-LT		WB-RT	
6:15 AM						163		2	
6:30 AM						132		2	
6:45 AM						158		2	
7:00 AM						163		5	
7:15 AM						201		5	
7:30 AM						204		3	
7:45 AM						116		2	
8:00 AM						72		1	
						1209		22	

PEAK HOUR	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT		
6:45 AM	0	0	0			728	0	15		
7:45 AM	TOTAL	0				TOTAL	741			



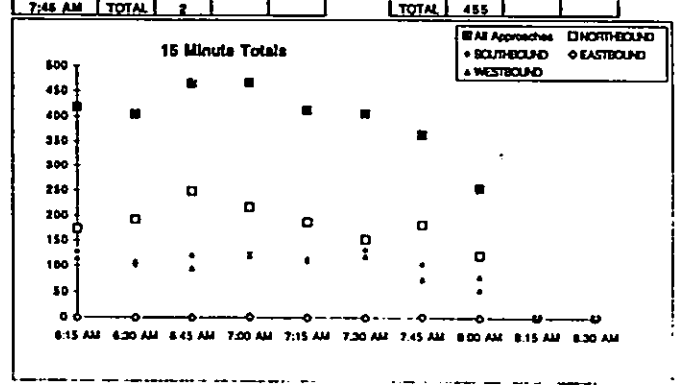
Project : 117.0 Waipahu Connector Road
Date: 2/9/00

	Direction NORTHBOUND			North-South Road Kunia Road			Direction SOUTHBOUND		
Start Time	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT	
6:15 AM	2	131	41			2	126	0	
6:30 AM	0	126	67			2	100	0	
6:45 AM	1	166	82			4	117	0	
7:00 AM	1	159	58			0	126	0	
7:15 AM	1	127	60			4	105	1	
7:30 AM	0	98	66			5	127	0	
7:45 AM	0	89	93			1	103	0	
8:00 AM	1	49	73			4	49	0	

PEAK HOUR	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT		
6:45 AM	3	551	255			13	476	1		
7:45 AM	TOTAL	809				TOTAL	489			

	Direction EASTBOUND			East-West Road North Kupuna Loop			Direction WESTBOUND		
Start Time	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT	
6:15 AM	0	0	0			110	0	7	
6:30 AM	0	0	0			96	0	14	
6:45 AM	0	0	0			87	1	8	
7:00 AM	1	1	0			109	0	13	
7:15 AM	0	0	0			104	2	10	
7:30 AM	0	0	0			113	0	8	
7:45 AM	1	0	1			89	1	4	
8:00 AM	0	0	0			77	0	4	

PEAK HOUR	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT		
6:45 AM	1	1	0			413	3	39		
7:45 AM	TOTAL	2				TOTAL	455			



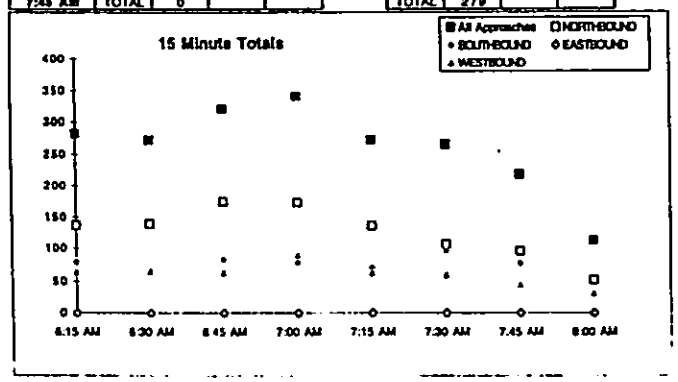
Project : 117.0 Waipahu Connector Road
Date: 2/9/00

	Direction NORTHBOUND			North-South Road Kunia Road	Direction SOUTHBOUND		
Start Time		NB-TH	NB-RT		SB-LT	SB-TH	
6:15 AM		130	8		3	76	
6:30 AM		123	17		11	55	
6:45 AM		165	9		12	71	
7:00 AM		166	7		13	66	
7:15 AM		120	17		8	65	
7:30 AM		98	11		11	66	
7:45 AM		73	23		10	67	
8:00 AM		25	27		2	25	
			119		68		

PEAK HOUR	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT		
6:45 AM	0	547	44			42	287	0		
7:45 AM	TOTAL	591				TOTAL	329			

Start Time	Direction EASTBOUND			East-West Road Aonui Street	Direction WESTBOUND		
		EB-TH	EB-RT	WB-LT		WB-RT	
6:15 AM		0	0	52		13	
6:30 AM		0	0	47		19	
6:45 AM		0	0	60		14	
7:00 AM		0	0	61		28	
7:15 AM		0	0	45		19	
7:30 AM		0	0	48		16	
7:45 AM		0	0	37		9	
8:00 AM		0	0	25		6	
				123			

PEAK HOUR	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT		
6:45 AM	0	0	0			202	0	77		
7:45 AM	TOTAL	0				TOTAL	279			



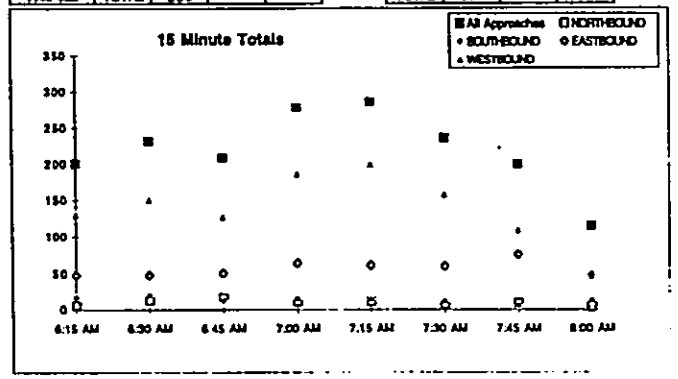
Project : 117.0 Waipahu Connector Road
Date: 4/11/00

	Direction NORTHBOUND			North-South Road Kupuohi St.	Direction SOUTHBOUND		
Start Time	NB-LT	NB-TH	NB-RT		SB-LT	SB-TH	SB-RT
6:15 AM	6	0	0		0	1	16
6:30 AM	12	0	1		0	0	20
6:45 AM	16	0	1		0	1	12
7:00 AM	11	0	0		1	0	14
7:15 AM	6	1	4		3	0	11
7:30 AM	4	1	2		0	1	10
7:45 AM	0	0	0		0	1	5
8:00 AM	4	0	0		0	0	12

PEAK HOUR	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT		
6:45 AM	37	3	7			4	2	47		
7:45 AM	TOTAL	48				TOTAL	53			

Start Time	Direction EASTBOUND			East-West Road South Kupuna Loop	Direction WESTBOUND		
	EB-LT	EB-TH	EB-RT		WB-LT	WB-TH	WB-RT
6:15 AM	11	35	2		0	129	1
6:30 AM	9	36	3		1	150	0
6:45 AM	9	39	3		0	129	2
7:00 AM	13	50	1		1	183	4
7:15 AM	5	53	3		4	190	6
7:30 AM	7	49	4		1	160	7
7:45 AM	13	57	6		0	105	5
8:00 AM	13	29	0		0	61	0

PEAK HOUR	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT		
6:45 AM	34	191	11			6	649	19		
7:45 AM	TOTAL	236				TOTAL	674			



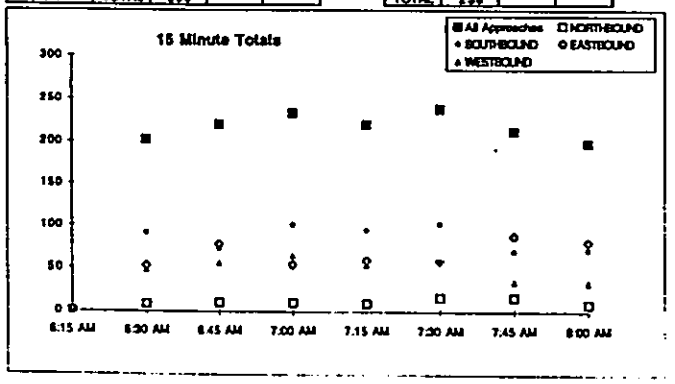
Project : 117.0 Waipahu Connector Road
Date: 4/11/00

	Direction NORTHBOUND			North-South Road Kupuohi St.	Direction SOUTHBOUND		
Start Time	NB-LT	NB-TH	NB-RT	SB-LT	SB-TH	SB-RT
6:15 AM	0	0	0	0	0	0
6:30 AM	1	4	4	2	4	86
6:45 AM	0	9	2	11	5	58
7:00 AM	1	9	1	25	5	71
7:15 AM	0	8	7	36	1	59
7:30 AM	0	16	1	35	4	64
7:45 AM	0	13	4	8	1	62
8:00 AM	1	8	0	11	2	50

PEAK HOUR	NB-LT	NB-TH	NB-RT	SB-LT	SB-TH	SB-RT
6:45 AM	1	43	8	107	18	252
7:45 AM	TOTAL	49		TOTAL	376	

	Direction EASTBOUND			East-West Road North Kupuna Loop	Direction WESTBOUND		
Start Time	EB-LT	EB-TH	EB-RT	WB-LT	WB-TH	WB-RT
6:15 AM	0	0	0	0	0	0
6:30 AM	48	3	2	0	37	12
6:45 AM	89	11	0	0	41	18
7:00 AM	39	16	0	0	40	26
7:15 AM	32	27	1	2	38	14
7:30 AM	46	12	1	0	32	28
7:45 AM	80	9	0	1	16	20
8:00 AM	72	10	0	1	20	14

PEAK HOUR	EB-LT	EB-TH	EB-RT	WB-LT	WB-TH	WB-RT
6:45 AM	185	56	2	2	162	64
7:45 AM	TOTAL	253		TOTAL	239	



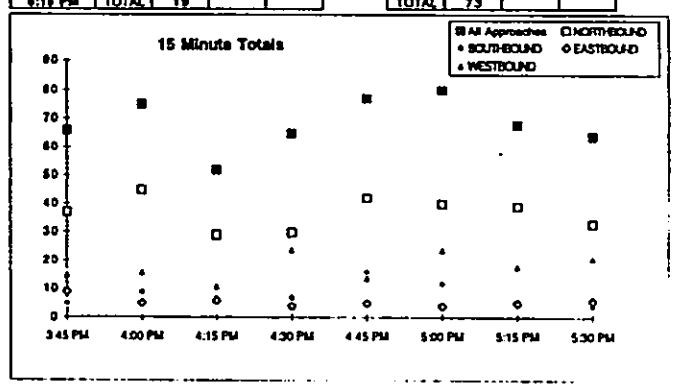
Project : 117.0 Waipahu Connector Road
Date: 4/11/00

	Direction NORTHBOUND			North-South Road Honoapi Street	Direction SOUTHBOUND		
Start Time	NB-LT	NB-TH	NB-RT	SB-LT	SB-TH	SB-RT
3:45 PM	6	18	15	3	2	0
4:00 PM	8	17	20	2	7	0
4:15 PM	4	8	17	3	2	1
4:30 PM	5	10	15	0	6	1
4:45 PM	4	18	20	2	14	0
5:00 PM	4	17	18	3	8	0
5:15 PM	4	9	26	3	3	0
5:30 PM	8	10	15	0	4	0

PEAK HOUR	NB-LT	NB-TH	NB-RT	SB-LT	SB-TH	SB-RT
4:15 PM	17	53	71	8	31	2
5:15 PM	TOTAL	141		TOTAL	41	

	Direction EASTBOUND			East-West Road Loea Street	Direction WESTBOUND		
Start Time	EB-LT	EB-TH	EB-RT	WB-LT	WB-TH	WB-RT
3:45 PM	2	5	2	10	2	3
4:00 PM	0	3	2	7	5	4
4:15 PM	1	1	4	2	2	7
4:30 PM	0	3	1	19	0	5
4:45 PM	1	2	2	9	1	4
5:00 PM	0	4	0	10	8	6
5:15 PM	0	2	3	9	3	6
5:30 PM	1	2	3	12	2	7

PEAK HOUR	EB-LT	EB-TH	EB-RT	WB-LT	WB-TH	WB-RT
4:15 PM	2	10	7	40	11	22
5:15 PM	TOTAL	19		TOTAL	73	



Project : 117.0 Waipahu Connector Road
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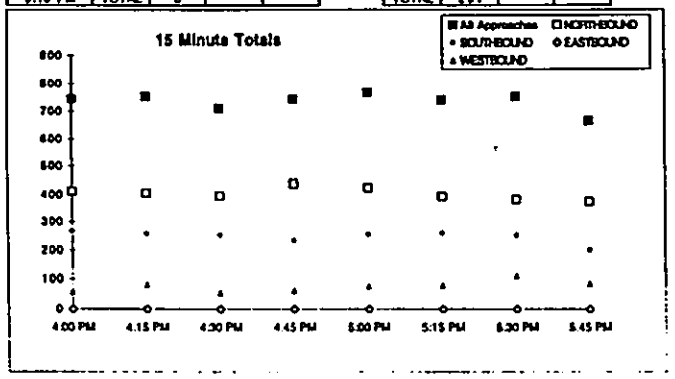
	Direction NORTHBOUND			North-South Road Kunia Road	Direction SOUTHBOUND	
Start Time		NB-TH	NB-RT		SB-LT	SB-TH
4:00 PM		265	149		0	269
4:15 PM		256	162		2	259
4:30 PM		247	150		1	254
4:45 PM		274	167		0	239
5:00 PM		267	161		0	259
5:15 PM		238	160		2	261
5:30 PM		242	142		0	255
5:45 PM		245	131		0	203
		1212				

PEAK HOUR	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT		
4:15 PM	0	1044	630			3	1009	0		
5:15 PM	TOTAL	1674				TOTAL	1012			

	Direction EASTBOUND			East-West Road N Kupuna Loop	Direction WESTBOUND	
Start Time		WB-LT			WB-RT	
4:00 PM		90			1	
4:15 PM		93			2	
4:30 PM		59			0	
4:45 PM		85			1	
5:00 PM		80			1	
5:15 PM		81			1	
5:30 PM		113			1	
5:45 PM		85			3	
		626			10	

PEAK HOUR	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT		
4:15 PM	0	0	0			257	0	4		
5:15 PM	TOTAL	0				TOTAL	291			



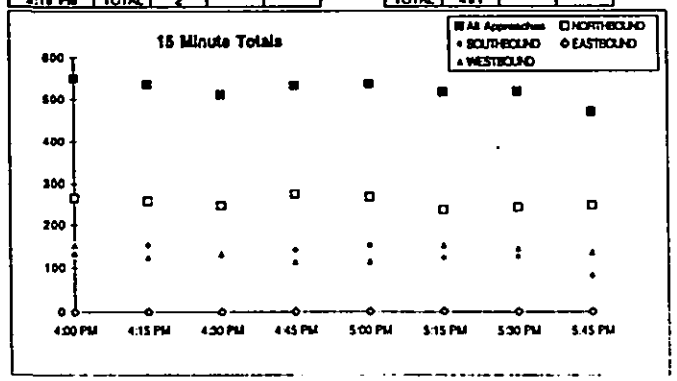
Project : 117.0 Waipahu Connector Road
Date: 2/9/00

	Direction NORTHBOUND			North-South Road Kunia Road	Direction SOUTHBOUND	
Start Time	NB-LT	NB-TH	NB-RT		SB-LT	SB-TH	SB-RT
4:00 PM	0	108	158		9	123	0
4:15 PM	0	94	164		13	139	0
4:30 PM	0	103	144		8	122	0
4:45 PM	3	114	158		10	123	0
5:00 PM	0	108	160		6	148	0
5:15 PM	1	82	164		8	117	0
5:30 PM	0	101	142		11	117	0
5:45 PM	1	85	162		9	76	0
		1242			82		

PEAK HOUR	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT		
4:15 PM	3	418	628			40	530	0		
5:15 PM	TOTAL	1049				TOTAL	678			

	Direction EASTBOUND			East-West Road N Kupuna Loop	Direction WESTBOUND	
Start Time	EB-LT	EB-TH	EB-RT		WB-LT	WB-TH	WB-RT
4:00 PM	0	0	0		146	0	7
4:15 PM	0	0	0		121	0	5
4:30 PM	0	0	0		133	0	1
4:45 PM	0	0	1		114	0	1
5:00 PM	0	0	1		112	0	4
5:15 PM	0	0	2		144	0	9
5:30 PM	0	0	1		137	0	9
5:45 PM	0	0	1		127	0	11
					1034		

PEAK HOUR	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT		
4:15 PM	0	0	2			480	0	11		
5:15 PM	TOTAL	2				TOTAL	491			



Project : 117.0 Walpahu Connector Road
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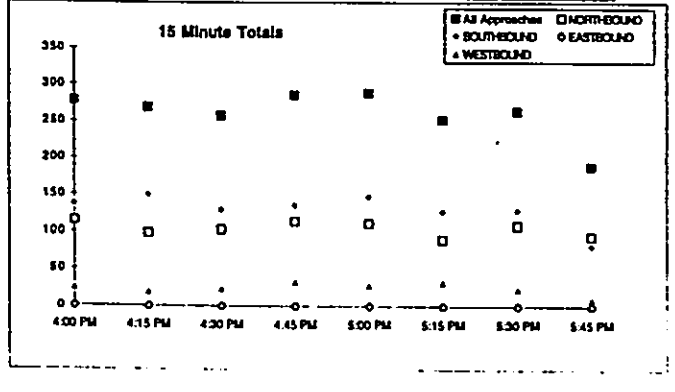
	Direction NORTHBOUND			North-South Road Kunia Road			Direction SOUTHBOUND		
Start Time		NB-TH	NB-RT			SB-LT	SB-TH	SB-RT	
4:00 PM		78	37			22	116		
4:15 PM		82	37			8	141		
4:30 PM		72	32			18	112		
4:45 PM		78	37			21	116		
5:00 PM		69	44			15	133		
5:15 PM		42	49			28	101		
5:30 PM		59	61			19	112		
5:45 PM		76	20			6	76		

PEAK HOUR	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT		
4:15 PM	0	280	150			64	582	0		
5:15 PM	TOTAL	430				TOTAL	585			

	Direction EASTBOUND			East-West Road Aonui Street			Direction WESTBOUND		
Start Time		EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT
4:00 PM		0	0	0			18	0	9
4:15 PM		0	0	0			11	0	9
4:30 PM		0	0	0			18	0	6
4:45 PM		0	0	0			26	0	8
5:00 PM		0	0	0			19	0	10
5:15 PM		0	0	0			24	0	9
5:30 PM		0	0	0			16	0	8
5:45 PM		0	0	0			7	0	3

PEAK HOUR	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT		
4:15 PM	0	0	0			74	0	33		
5:15 PM	TOTAL	0				TOTAL	107			



Project : 117.0 Walpahu Connector Road
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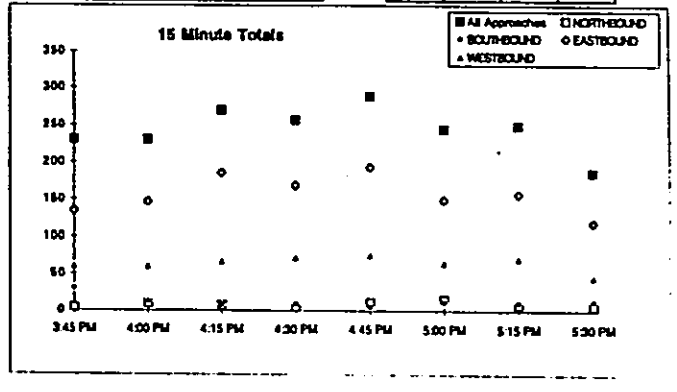
	Direction NORTHBOUND			North-South Road Kupuohi St.			Direction SOUTHBOUND		
Start Time		NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT
3:45 PM		2	1	1			3	0	28
4:00 PM		6	1	1			0	1	12
4:15 PM		6	2	0			0	0	8
4:30 PM		3	1	1			0	1	9
4:45 PM		6	3	1			1	0	5
5:00 PM		7	6	3			2	5	6
5:15 PM		2	2	4			1	1	10
5:30 PM		6	0	0			2	7	5

PEAK HOUR	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT		
4:15 PM	24	12	5			3	8	28		
5:15 PM	TOTAL	41				TOTAL	37			

	Direction EASTBOUND			East-West Road South Kupuna Loop			Direction WESTBOUND		
Start Time		EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT
3:45 PM		28	97	12			0	67	4
4:00 PM		25	112	10			1	60	0
4:15 PM		19	155	12			1	64	3
4:30 PM		28	136	9			1	70	2
4:45 PM		31	169	5			4	71	2
5:00 PM		31	106	13			0	65	1
5:15 PM		28	120	12			0	70	2
5:30 PM		35	90	4			1	43	3

PEAK HOUR	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT		
4:15 PM	108	554	38			6	278	0		
5:15 PM	TOTAL	699				TOTAL	284			



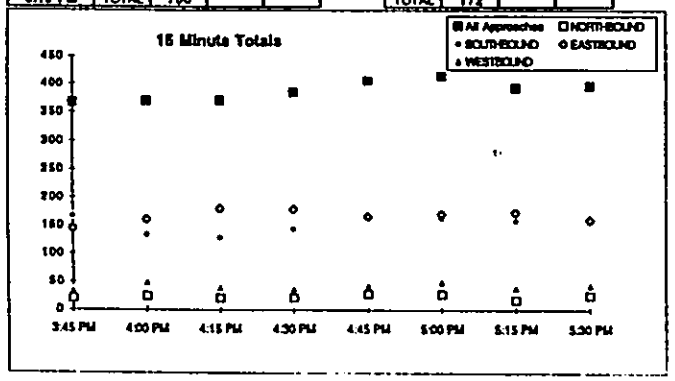
Project : 117.0 Waipahu Connector Road
Date: 4/11/00

	Direction NORTHBOUND			North-South Road Kupuohi St.			Direction SOUTHBOUND		
Start Time	NB-LT	NB-TH	NB-RT		SB-LT	SB-TH	SB-RT		
3:45 PM	1	15	4		26	25	117		
4:00 PM	3	20	2		24	9	101		
4:15 PM	3	13	5		25	7	97		
4:30 PM	0	19	6		24	5	110		
4:45 PM	0	26	4		32	9	128		
5:00 PM	0	23	5		29	9	129		
5:15 PM	1	15	2		25	9	126		
5:30 PM	0	29	3		28	17	119		

PEAK HOUR	NB-LT	NB-TH	NB-RT			SB-LT	SB-TH	SB-RT		
4:15 PM	3	77	20			116	30	486		
5:15 PM	TOTAL	100				TOTAL	505			

	Direction EASTBOUND			East-West Road North Kupuna Loop			Direction WESTBOUND		
Start Time	EB-LT	EB-TH	EB-RT		WB-LT	WB-TH	WB-RT		
3:45 PM	124	20	1		0	19	16		
4:00 PM	129	31	1		0	22	28		
4:15 PM	152	25	4		0	18	24		
4:30 PM	181	29	0		0	15	23		
4:45 PM	193	32	2		1	16	26		
5:00 PM	144	29	0		0	16	35		
5:15 PM	122	39	4		1	17	22		
5:30 PM	134	26	1		0	18	29		

PEAK HOUR	EB-LT	EB-TH	EB-RT			WB-LT	WB-TH	WB-RT		
4:15 PM	680	114	6			1	83	100		
5:15 PM	TOTAL	700				TOTAL	172			



APPENDIX B

LEVEL-OF-SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS AND UNSIGNALIZED INTERSECTIONS

REFERENCE: Highway Capacity Manual (Special Report 209, 1997)

LEVEL-OF-SERVICE FOR SIGNALIZED INTERSECTIONS

Level-of-service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of any incidents and when there are no other vehicles on the road. For signalized intersections, only the portion of total delay attributed to the control facility is quantified. This delay is called control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay and final acceleration delay.

Specifically, the Level-of-Service (LOS) criteria are stated in terms of the average control delay, typically for a 15-minute analysis period. The table to the right gives the LOS criteria.

LOS	Control Delay Per Vehicle (seconds)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Level-of-service A describes operations with very low control delay up to 10 seconds per vehicle. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

Level-of-service B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good

progression, short cycle lengths or both. More vehicles stop than for LOS A, causing higher levels of average delay.

Level-of-service C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths or both. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

Level-of-service D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths or a high v/c ratios (volume of cars to capacity). Individual cycle failures are noticeable.

Level-of-service E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths and high v/c ratios. Individual cycle failures are frequent occurrences.

Level-of-service F describes operations with delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

LEVEL-OF-SERVICE FOR UNSIGNALIZED INTERSECTIONS

The Level-of-Service (LOS) for an unsignalized intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS is not defined for the intersection as whole. LOS criteria are given in the table to the right. Control delay includes initial deceleration delay, queue move-up time, stopped delay and final acceleration delay.

LOS	Control Delay Per Vehicle (seconds)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

The proposed LOS criteria are somewhat different from the criteria for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, whereas drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the control delay threshold for any given LOS is less for an unsignalized intersections than it would be for a signalized intersection.

APPENDIX D

AIR QUALITY IMPACT REPORT
by J.W. Morrow

AIR QUALITY IMPACT REPORT (AQIR)

VILLAGE PARK CONNECTOR ROAD
WAIPAHU, OAHU

30 November 2000

PREPARED FOR:

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PREPARED BY:

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1. INTRODUCTION

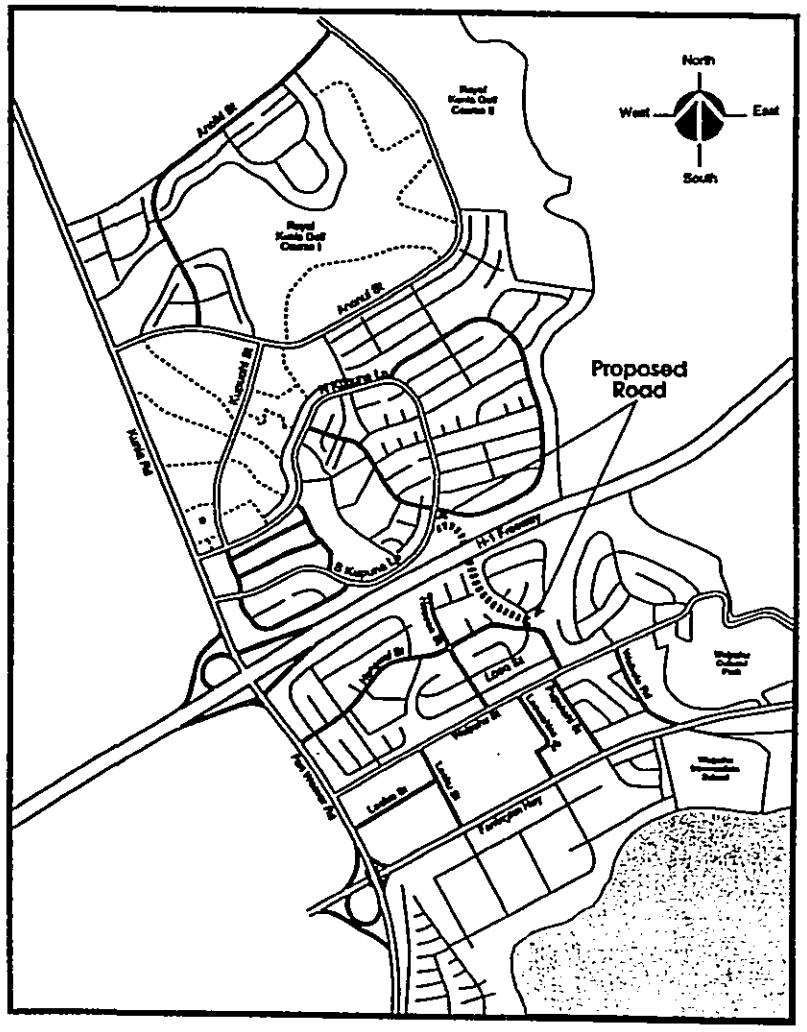
A new road to connect the Village Park and Royal Kunia communities with Waipahu town is being proposed. These communities are currently separated from Waipahu by the H-1 Freeway and must utilize Kunia Road to access the town. The new road will provide a more direct and less congested means of reaching the various public and private facilities in Waipahu (Figure 1).

The purpose of this report is to assess the short and long-term impacts of the proposed road on air quality. The overall project can be considered an "indirect source" of air pollution as defined in the federal Clean Air Act[1] since its primary association with air quality is its inherent attraction for mobile sources, i.e., motor vehicles. Much of the focus of this analysis, therefore, is on the project's ability to generate traffic and the resultant impact on air quality. Air quality impact was evaluated for existing (2000) and future (2005) conditions with and without the proposed new road.

During construction of the new road, air pollutant emissions will be generated onsite and offsite due to vehicular movement, grading, concrete and asphalt batching, and general dust-generating construction activities. These impacts have also been addressed.

FIGURE 1

PROJECT LOCATION



2. AIR QUALITY STANDARDS

A summary of State of Hawaii and national ambient air quality standards (NAAQS) is presented in Table 1.[2,3] Note that Hawaii's standards are not divided into primary and secondary standards as are the federal standards.

Primary standards are intended to protect public health with an adequate margin of safety while secondary standards are intended to protect public welfare through the prevention of damage to soils, water, vegetation, man-made materials, animals, wildlife, visibility, climate, and economic values [4]. Note that in the case of the principal automotive pollutants [CO, NO_2, and O_3], the primary and secondary standards are identical.

Some of Hawaii's standards (CO, NO_2, and O_3) are clearly more stringent than their federal counterparts and like their federal counterparts in the case of short-term standards, they may be exceeded once per year. Note also that the federal PM_{25} and 8-hour O_3 standards, while promulgated in 1997, [5,6] were remanded to EPA by a federal court in 1999 and are currently under appeal.[7]

Finally, the State of Hawaii also has fugitive dust regulations for particulate matter (PM) emanating from construction activities [8]. There simply can be no visible emissions from fugitive dust sources.

TABLE 1

SUMMARY OF STATE OF HAWAII AND FEDERAL AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING PERIOD	NAAQS PRIMARY	NAAQS SECONDARY	STATE STANDARDS
PM_{10}	Annual 24-hr	50 150	50 150	50 150
$PM_{2.5}$	Annual 24-hr	15 65	15 65	--- ---
SO_2	Annual 24-hr 3-hr	80 365 ---	--- --- 1,300	80 365 1,300
NO_2	Annual	100	100	70
CO	8-hr 1-hr	10 40	--- ---	5 10
O_3	1-hr 8-hr	235 156	235 156	100 ---
H_2S	1-hr	---	---	35
Pb	Calendar Quarter	1.5	1.5	1.5

KEY: PM_{10} - particulate matter ≤ 10 microns
$PM_{2.5}$ - particulate matter ≤ 2.5 microns
SO_2 - sulfur dioxide
NO_2 - nitrogen dioxide
CO - carbon monoxide
O_3 - ozone
H_2S - hydrogen sulfide
Pb - lead

All concentrations in micrograms per cubic meter ($\mu g/m^3$) except CO which is in milligrams per cubic meter.

3. EXISTING AIR QUALITY

3.1 General. The state Department of Health (DOH) maintains a network of air monitoring stations around the state to gather data on the following regulated pollutants:

- particulate matter ≤ 10 microns (PM_{10})
- sulfur dioxide (SO_2)
- nitrogen dioxide (NO_2)
- carbon monoxide (CO)
- ozone (O_3)

In the case of PM_{10} , measurements are made on a 24-hour basis to correspond with the averaging period specified in state and federal standards. Depending on the sampling equipment and site, samples are collected either continuously or once every six days in accordance with U.S. Environmental Protection Agency (EPA) guidelines. Carbon monoxide, sulfur dioxide, and ozone, however, are measured on a continuous basis due to their short-term (1- and 3-, and 8-hour) standards. Nitrogen dioxide is also measured with continuous instruments and averaged over a full year to correspond to its annual standards. Lead sampling was discontinued in October 1997 with EPA approval. This was largely due to the elimination of lead in gasoline and the resulting reduction of ambient lead levels in Hawaii to essentially zero.

3.2 Department of Health Monitoring. The nearest DOH monitoring stations to the project site are located at Pearl City and Kapolei. A summary of the most recent published air quality data [9] from those stations and Sand Island, the only ozone monitoring site, is presented in Table 2. These data are indicative of the generally good air quality in Honolulu County and may be considered reasonably representative of existing air quality in the project area.

4. CLIMATE AND METEOROLOGY

4.1 Climate. Climatic normals, means and extremes for Honolulu [10] are presented in Table 3. Analysis of the monthly temperature and rainfall data in accordance with Thornwaite's scheme for climatic classification, yields a precipitation/evaporation (P/E) index of 26.6 which classifies the area as "semi-arid". [11]

4.2 Surface Winds. Meteorological data records were reviewed from the Honolulu International Airport and Hickam Air Force Base. The annual prevalence of northeast trade winds is clearly shown in Table 4. A closer examination of the data, however, indicates that low velocities (less than 10 mph) occur frequently and that the "normal" northeasterly trade winds tend to break down in the Fall giving way to more light, variable wind conditions through the Winter and on into early Spring. It is during these times that Honolulu generally experiences elevated pollutant levels. This seasonal difference in wind conditions can be easily contrasted by comparing August and January wind roses (Figures 2 and 3).

TABLE 2

AIR QUALITY DATA
DEPARTMENT OF HEALTH MONITORING SITES
1998

Pollutant	Concentration (ug/m³)
Particulate matter ≤ 10 microns (PM_{10}) 24-hr (max)	39
Annual	16
Sulfur dioxide (SO_2) 3-hr (max)	69
24-hr (max)	17
Annual	2
Carbon monoxide (CO) 1-hr (max)	1.94
8-hr (max)	0.66
Annual	0.20
Ozone (O_3) 1-hr (max)	114
Annual	41
Nitrogen Dioxide (NO_2) Annual	8

Notes: 1. PM_{10} data are from the Pearl City site.
2. SO_2, CO and NO2 are from the Kapolei site.
3. O_3 data are from the Sand Island site.
4. CO data are milligrams per cubic meter (mg/m^3)

Source: Reference 9

TABLE 3

CLIMATIC NORMALS, MEANS AND EXTREMES
HONOLULU INTERNATIONAL AIRPORT

Parameter	Descriptor	Value
Temperature (deg F)	Daily maximum	84.4
	Daily minimum	70.0
	Annual mean	77.2
Precipitation (inches)	Maximum monthly	20.91
	Minimum monthly	trace
	Annual mean	22.02
Humidity (%)	Normal	68
Wind Speed (mph)	Mean	11.4
Sunshine	Percent of possible	71
Sky cover (mean # days)	Clear	90.0
	Partly cloudy	179.8
	Cloudy	92.0

Source: National Climatic Data Center (Reference 10)

TABLE 4

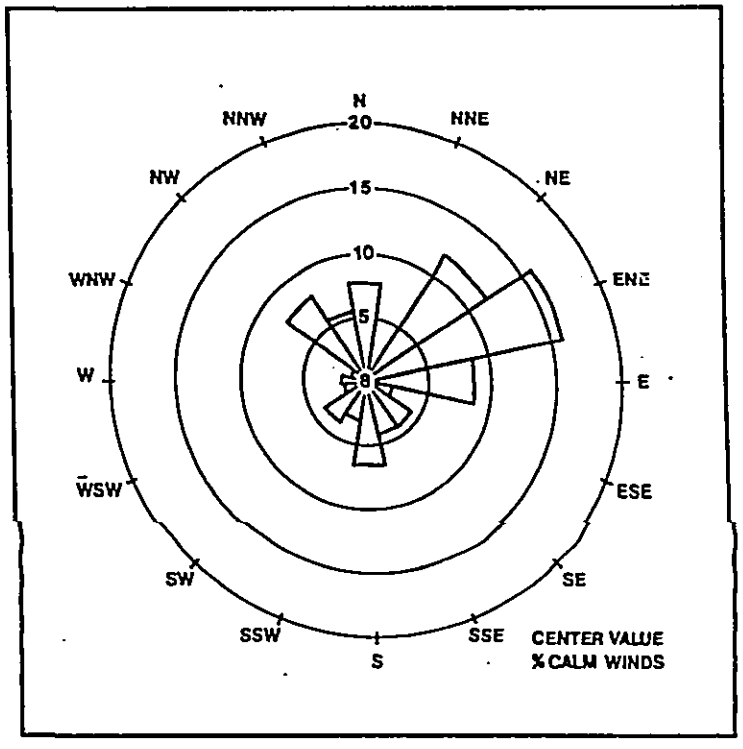
ANNUAL JOINT FREQUENCY DISTRIBUTION
OF WIND SPEED AND DIRECTION
HONOLULU INTERNATIONAL AIRPORT

Dir (deg)	Wind Speed (m/sec)						
	<3.1	<4.5	<6.8	<7.2	<8.5	>=8.5	All
10	0.0065	0.0038	0.0023	0.0016	0.0009	0.0001	0.0151
20	0.0082	0.0041	0.0025	0.0023	0.0011	0.0001	0.0183
30	0.0100	0.0061	0.0051	0.0038	0.0028	0.0007	0.0286
40	0.0188	0.0157	0.0258	0.0222	0.0174	0.0040	0.1039
50	0.0268	0.0290	0.0449	0.0385	0.0307	0.0054	0.1752
60	0.0344	0.0289	0.0436	0.0273	0.0238	0.0041	0.1621
70	0.0250	0.0151	0.0197	0.0122	0.0096	0.0009	0.0855
80	0.0113	0.0081	0.0065	0.0039	0.0009	0.0003	0.0310
90	0.0073	0.0049	0.0040	0.0009	0.0008	0.0000	0.0179
100	0.0031	0.0016	0.0014	0.0006	0.0002	0.0000	0.0068
110	0.0027	0.0019	0.0010	0.0007	0.0005	0.0001	0.0069
120	0.0027	0.0013	0.0019	0.0009	0.0003	0.0003	0.0075
130	0.0022	0.0032	0.0018	0.0015	0.0007	0.0002	0.0096
140	0.0034	0.0033	0.0039	0.0018	0.0011	0.0006	0.0141
150	0.0022	0.0030	0.0019	0.0003	0.0002	0.0005	0.0081
160	0.0024	0.0033	0.0023	0.0010	0.0005	0.0000	0.0094
170	0.0031	0.0046	0.0023	0.0007	0.0003	0.0000	0.0109
180	0.0055	0.0042	0.0018	0.0008	0.0005	0.0000	0.0128
190	0.0065	0.0038	0.0013	0.0002	0.0000	0.0000	0.0117
200	0.0057	0.0032	0.0011	0.0001	0.0000	0.0000	0.0101
210	0.0076	0.0038	0.0016	0.0001	0.0000	0.0000	0.0131
220	0.0083	0.0077	0.0016	0.0001	0.0001	0.0000	0.0179
230	0.0076	0.0049	0.0014	0.0001	0.0001	0.0000	0.0141
240	0.0042	0.0016	0.0013	0.0000	0.0000	0.0000	0.0071
250	0.0040	0.0010	0.0003	0.0000	0.0000	0.0000	0.0054
260	0.0064	0.0023	0.0005	0.0000	0.0000	0.0000	0.0091
270	0.0065	0.0010	0.0005	0.0002	0.0000	0.0000	0.0082
280	0.0099	0.0005	0.0002	0.0000	0.0000	0.0000	0.0106
290	0.0123	0.0003	0.0002	0.0001	0.0000	0.0000	0.0130
300	0.0167	0.0018	0.0011	0.0000	0.0000	0.0000	0.0197
310	0.0235	0.0022	0.0015	0.0001	0.0000	0.0000	0.0272
320	0.0200	0.0022	0.0013	0.0006	0.0001	0.0000	0.0241
330	0.0121	0.0023	0.0011	0.0005	0.0000	0.0000	0.0159
340	0.0094	0.0010	0.0003	0.0001	0.0000	0.0000	0.0109
350	0.0082	0.0025	0.0016	0.0002	0.0000	0.0000	0.0125
360	0.0093	0.0027	0.0022	0.0006	0.0005	0.0001	0.0154
All	0.3537	0.1898	0.1917	0.1240	0.0932	0.0174	0.9698
						Calms:	0.0302

SOURCE: National Weather Service, 1992

FIGURE 2

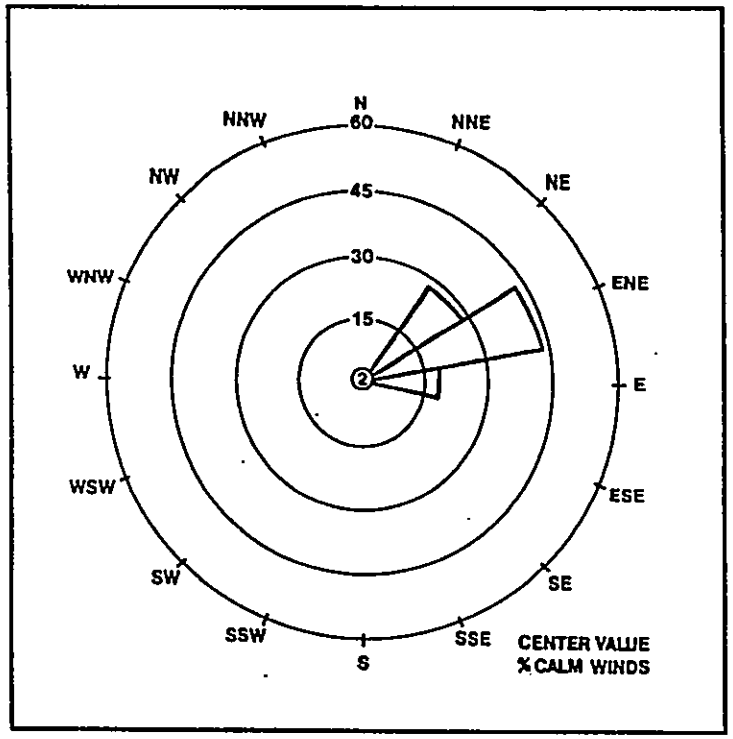
JANUARY WIND ROSE
HONOLULU INTERNATIONAL AIRPORT



SOURCE: National Weather Service
Historical Records, 1940-57

FIGURE 3

AUGUST WIND ROSE
HONOLULU INTENATIONAL AIRPORT



SOURCE: National Weather Service
Historical Records, 1940-57

Of particular interest from an air pollution standpoint were the stability wind roses prepared for Hickam Air Force Base [12]. These data indicated that stable conditions, i.e., Pasquill-Gifford stability categories E and F [13], occur about 28% of the time on an annual basis and 36% of the time during the peak winter month (January). It is under such conditions that the greatest potential for air pollutant buildup from groundlevel sources, e.g., motor vehicles, exists.

5. SHORT-TERM IMPACTS

5.1 Onsite Impacts. The principal source of short-term air quality impact will be construction activity. Construction vehicle activity can at times increase automotive pollutant concentrations along the existing streets as well as on the project site itself. Since the ends of the proposed new road are connected to existing local streets with relatively low traffic volumes, the occasional addition of construction vehicle traffic is not likely to exceed street capacity, but may at times cause a temporary reduction in average travel speeds and concomitant increase in emissions.

The site preparation and earth moving will create particulate emissions as will construction of the roadway itself. Construction vehicle movement on unpaved on-site areas will also generate particulate emissions. EPA studies on fugitive dust emissions from construction sites indicate that about 1.2 tons/acre per month of activity may be expected under conditions of medium activity, moderate soil silt content (30%), and a precipitation/ evaporation (P/E) index of 50 [11,14].

5.2 Offsite Impacts. In addition to the onsite impacts attributable to construction activity, there will also be offsite impacts due to the operation of concrete and asphalt batching plants needed for construction. The project is estimated to require 1,170 cubic yards of concrete and 1,200 tons of asphalt for the new road. Such plants routinely emit particulate matter and other gaseous pollutants; however. it is too early to identify the specific facilities that will be providing these materials and thus the discussion of air quality impacts is necessarily generic. The batch plants which will be producing this concrete and asphalt must be permitted by the Department of Health Clean Air Branch pursuant to state regulations [7]. In order to obtain these permits they must demonstrate their ability to continuously comply with both emission [7] and ambient air quality [3] standards. Under the federal Title V operating permit requirements [15], now incorporated in Hawaii's rules [7], air pollution sources must regularly attest to their compliance with all applicable requirements. A typical concrete batch plant in Hawaii is equipped with fabric filters, i.e., "baghouses" for particulate matter (PM) control. Similarly, a typical asphalt plant is equipped with either a wet venturi scrubber or fabric filters. The efficiency of such controls is normally greater than 90%. Using published EPA emission factors [14] for such batch plants, we estimated PM emissions at less than 0.1 ton for each plant producing the approximately 1,170 cubic yards of concrete and 1,200 tons of asphalt required for the road project.

6. MOBILE SOURCE IMPACTS

6.1 Mobile Source Activity. The traffic impact analysis [16] prepared for the proposed project served as the basis for this mobile source impact analysis. Existing peak-hour traffic volumes and projections

for 2005 were obtained for two principal intersections expected to be impacted at either end of the proposed new road. These intersections were:

- South Kupuna Loop at Kunia Road
- South Kupuna Loop at Kupuohi Street
- Loaa Street at Honowai Street
- Honowai Street at Waipahu Street

6.2 Emission Factors. Automotive emission factors for carbon monoxide (CO) were generated for calendar years 2000 and 2005 using EPA's Mobile Source Emissions Model (MOBILE-5B)[17]. To localize the emission factors as much as possible, the March 1992 age distribution for registered vehicles in the City & County of Honolulu [18] was used in lieu of national statistics. That same age distribution was the basis for the distribution of vehicle miles traveled as well.

6.3 Modeling Methodology. Mobile source air quality modeling has historically focused on estimating concentrations of non-reactive pollutants, primarily carbon monoxide (CO). This has been the case because CO is relatively stable in the atmosphere having a half-life on the order of about one (1) month,[19] and it comprises the largest fraction of automotive emissions. [17]

Using the traffic data provided, modeling was performed for the aforementioned intersections for 2000 and 2005 (with and without the project). The EPA guideline model CAL3QHC [20,21] was employed to estimate near-intersection carbon monoxide concentrations. Arrays of up to 58 receptor sites at a

distance of 10 meters from the road edge were entered in the model. The highest reported 1-hour CO concentration (1.94 mg/m^3) from the Department of Health's monitoring station at nearby Kapolei [9] was used as the background concentration in the modeling. The highest 8-hour CO concentration from Kapolei (0.66 mg/m^3) was also added to the computed 8-hour estimates discussed later. A one (1) meter per second wind speed was used in accordance with EPA guidance,[22] for both a.m. and p.m. peak hour analyses. Stability category 6 ("F") was used for the a.m. analysis due to the suburban residential nature of the area while category 4 ("D") was used for the p.m. peak hour.

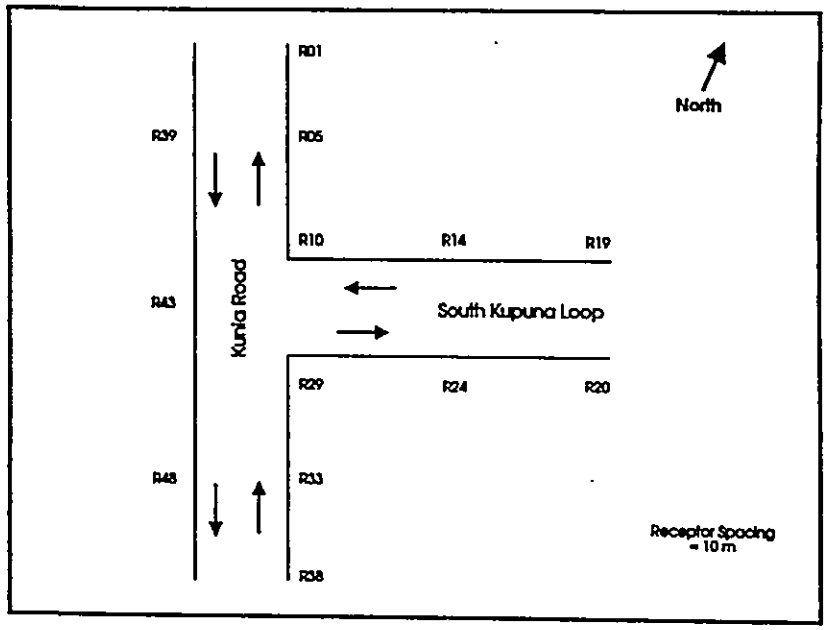
6.4 Results: 1-Hour Concentrations. The results of this modeling are presented in Figures 4 through 7. Each figure depicts the locations of the 10-meter receptor sites around the respective intersections. Maximum estimated concentrations in milligrams per cubic meter (mg/m^3) for each of the evaluated scenarios are also presented along with the particular receptor location at which they were predicted.

The results suggest that, under *worst case* conditions of meteorology and traffic, both the federal and state 1-hour CO standards would be met at receptor locations 10 meters and beyond from the studied intersections. There was little or no difference between CO levels with or without the proposed roadway project.

6.5 Results: 8-Hour Concentrations. With the exception of the Kunia Road intersection, all 1-hour CO concentrations are lower than the state and federal 8-hour standards. If the highest 1-hour level is lower than an 8-hour standard, then it follows mathematically that the 8-hour standard cannot be

FIGURE 4

ESTIMATES OF MAXIMUM 1- AND 8-HOUR CARBON MONOXIDE CONCENTRATIONS
Kunia Road at South Kupuna Loop
Peak Traffic Hours
2000 - 2005

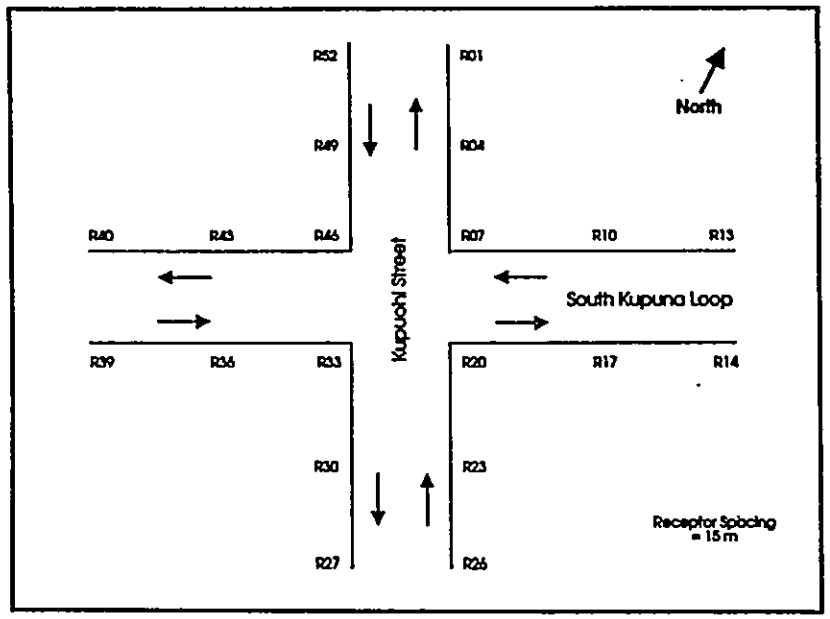


Estimated Maximum CO Concentrations (mg/m^3)

Period	2000	2005 w/o Project	2005 w/Project	Receptors
A.M.	4.2	5.9	5.9	R10/42
P.M.	4.0	5.2	5.2	R46/42
8-Hr	3.6	4.8	4.8	–

FIGURE 5

ESTIMATES OF MAXIMUM 1- AND 8-HOUR
CARBON MONOXIDE CONCENTRATIONS
Kupuohi Street at SouthKupuna Loop
Peak Traffic Hours
2000 - 2005

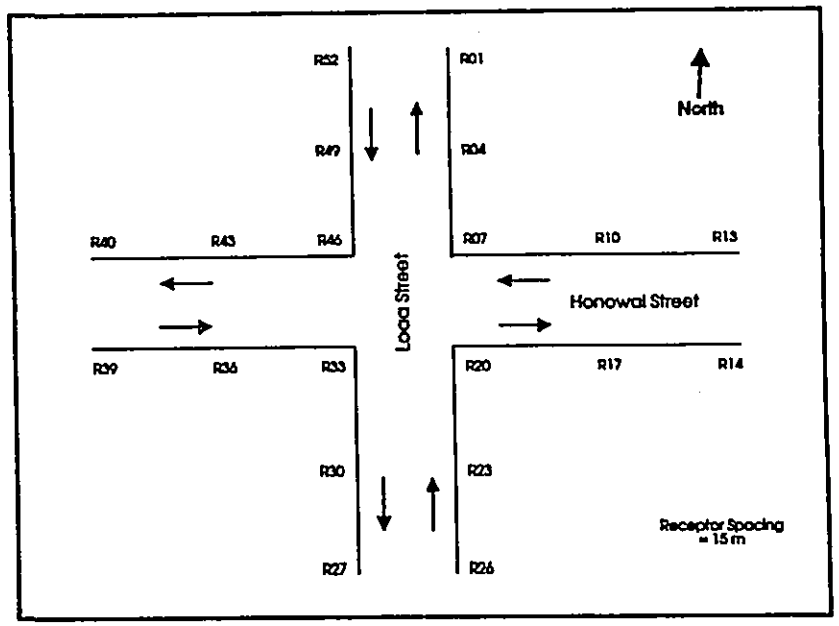


Estimated Maximum CO Concentrations
(mg/m^3)

Period	2000	2005 w/o Project	2005 w/Project	Receptors
A.M.	3.1	3.0	2.8	R40
P.M.	2.7	2.6	2.6	R33
8-Hr	2.8	2.8	2.6	--

FIGURE 6

ESTIMATES OF MAXIMUM 1- AND 8-HOUR
CARBON MONOXIDE CONCENTRATIONS
Loaa Street at Honowai Street
Peak Traffic Hours
2000 - 2005

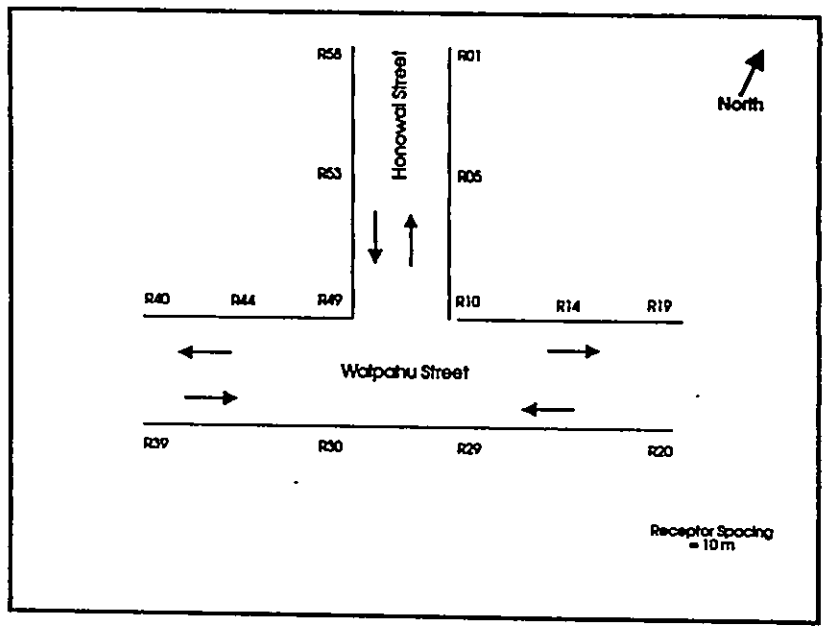


Estimated Maximum CO Concentrations
(mg/m^3)

Period	2000	2005 w/o Project	2005 w/Project	Receptors
A.M.	2.2	2.2	2.6	R41/46
P.M.	2.2	2.2	2.5	R07/20
8-Hr	2.2	2.2	2.5	--

FIGURE 7

ESTIMATES OF MAXIMUM 1- AND 8-HOUR CARBON MONOXIDE CONCENTRATIONS
Honowai Street at Waipahu Street
Peak Traffic Hours
2000 - 2005



Estimated Maximum CO Concentrations (mg/m^3)

Period	2000	2005 w/o Project	2005 w/Project	Receptors
A.M.	2.7	2.7	2.9	R30
P.M.	2.7	2.7	3.0	R30/46
8-Hr	2.5	2.5	2.8	--

exceeded and is thus complied with. For maximum 1-hour values greater than the 8-hour standard, it is necessary to compute estimates of the maximum 8-hour values for comparison with standards.

Since 1975, when EPA first published its guideline for indirect source analysis,[23] 8-hour CO concentrations have been estimated from maximum 1-hour values using a "persistence" factor. This factor is based on the relationship between 1-hour and 8-hour traffic as well as variable meteorological conditions over an 8-hour period. If a persistence factor cannot be computed from local data, then EPA recommends using a default value of 0.7.[22] The 8-hour values presented in Figures 4 - 7 were generated by applying this default value to the higher of the a.m. or p.m. peak 1-hour CO concentration and adding the aforementioned background level from Kapolei. The results are similar to the 1-hour findings in that compliance with state and federal standards is indicated.

7. CONCLUSIONS AND MITIGATION

7.1 Short-Term Impacts. Since, as noted above, the project area is considered semi-arid by Thornwaite's climatic classification system, there is an increased potential for fugitive dust. Dust potential is also increased by the predominant onsite soils which are silty clays and silty clay loams, both of which have a substantially higher silt content [24] than the 30% assumed in EPA's emission factor. [14] Because of the proximity of occupied residential areas, It will be very important to employ adequate dust control measures during the construction period. Dust control could be accomplished through frequent watering of unpaved roadways and areas of exposed soil. The EPA estimates that

twice daily watering can reduce fugitive dust emissions by as much as 50% [14]. The soonest possible paving of roadways and landscaping of adjacent areas will also help.

Short-term air quality impacts due to offsite activities supporting the proposed road project, i.e., concrete and asphalt production, appear to be *de minimus* due to the small size of the new road. and its limited materiel requirements. Furthermore, any emissions will be strictly regulated by the Department of Health permit which each batch plant must have in order to operate.

7.2 Mobile Source Impacts. As reported in Section 6, compliance with federal and state carbon monoxide standards is demonstrated under *worst case* conditions of meteorology and peak traffic hour traffic; thus, no special mitigative measures are required.

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APPENDIX E

TRAFFIC NOISE STUDY
by Y. Ebisu & Associates

TRAFFIC NOISE STUDY FOR THE VILLAGE PARK CONNECTOR ROAD WAIPAHU, OAHU, HAWAII

Prepared for:

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OCTOBER 2000

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CHAPTER I. SUMMARY

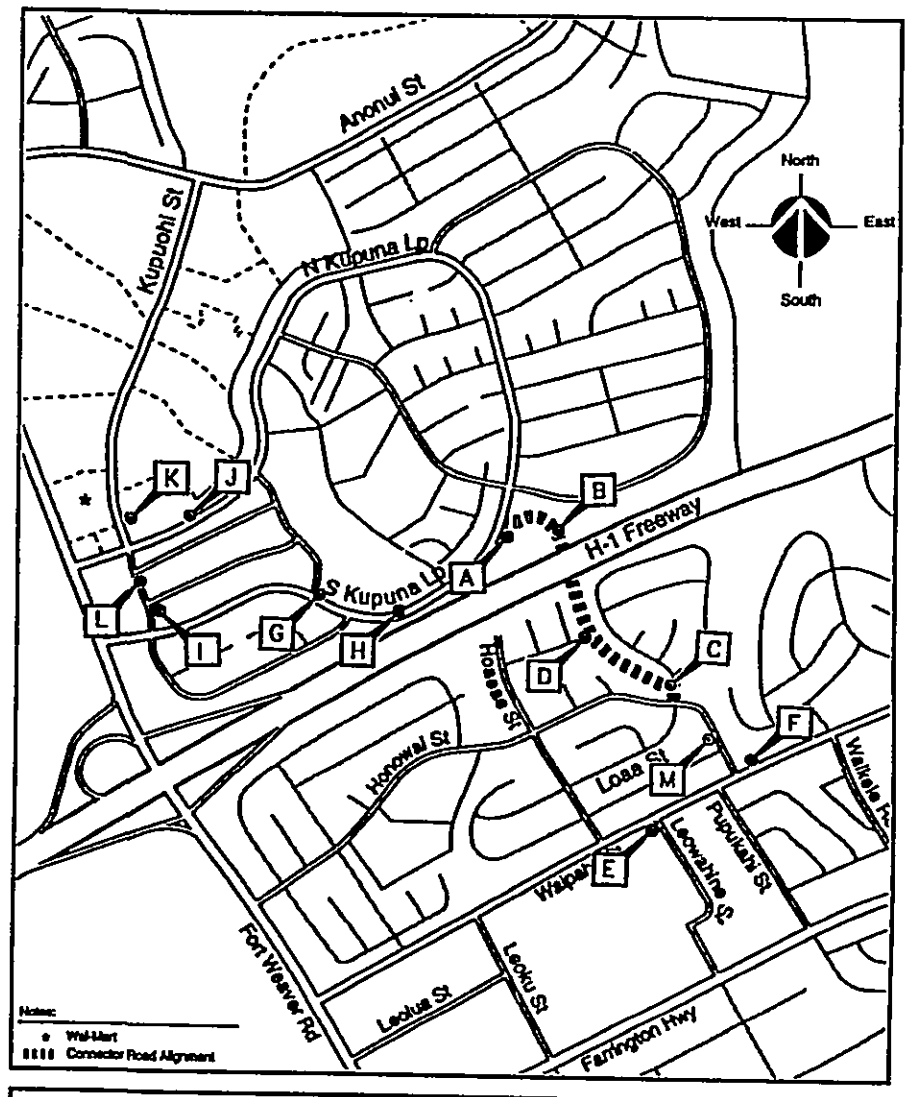
The existing and future traffic noise levels in the vicinity of the proposed Village Park Connector Road between Village Park and Waipahu were evaluated for their potential impacts and their relationship to the FHA/HUD (Federal Housing Administration/Housing and Urban Development) noise standard. The traffic noise level increases along the proposed connector road as well as along the existing feeder streets leading to and from the connector road (see Figure 1) were calculated.

With the construction of the proposed connector road, traffic noise levels along the Right-of-Way of the connector road will range between 63 to 64 Ldn, and should not exceed the 65 Ldn FHA/HUD noise standard. North of H-1 Freeway, where existing homes are shielded from the cane haul road by sound attenuating walls, H-1 Freeway noise will continue to be the dominant noise source at 67 to 64 Ldn. Traffic noise mitigation measures should not be required along the connector road in CY 2005.

Traffic noise mitigation measures along the new connector road may be implemented to minimize risks of traffic noise impacts beyond 2005 as traffic volumes along the connector road increase. These include the use of a low posted speed limit at 25 miles per hour or less. In addition, construction of a sound attenuating wall, which is 6 feet above the grade of the existing house lots or connector road (whichever is higher), to screen the existing dwellings from traffic noise is another possible noise mitigation measure.

Noise impacts from project plus non-project related traffic along the feeder streets to the new connector road may occur, particularly along Kupuohi Street between North and South Kupuna Loops. In addition, along those roadways where existing traffic noise levels exceed 65 Ldn, traffic noise impacts may continue to occur. Along these feeder streets, traffic noise mitigation measures are normally implemented by individual property owners, or by public agencies in conjunction with a roadway widening or realignment project. These mitigation measures normally involve the construction of sound attenuating walls or closure and air conditioning of the noise sensitive structures.

Unavoidable, but temporary, noise impacts may occur during construction of the proposed project. Because construction activities are predicted to be audible within the project site and 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 inaudible levels will not be practical in all cases, but the use of quiet equipment and use of construction curfew periods is recommended as a standard mitigation measure.



PROJECT SITE AND LOCATIONS OF SURROUNDING STREETS AND NOISE MEASUREMENTS

FIGURE 1

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 Village Park Connector Road between Village Park and Waipahu on the island of Oahu. Traffic noise level increases and impacts associated with the proposed connector road were to be determined along the public roadways which are expected to feed traffic to and from the connector road. 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 along the proposed connector road were also included as noise study objectives. Recommendations for minimizing identified 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 2. 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. In the project area, traffic noise levels associated with H-1 Freeway are typically greater than 75 Ldn along the Right-of-Way due to the large volume of traffic on that major thoroughfare.

For purposes of determining noise acceptability for funding assistance from federal agencies (FHA/HUD and VA), an exterior noise level of 65 Ldn or less is considered acceptable for residences. This standard is applied nationally (Reference 2), including Hawaii. 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 construction activities through the issuance of permits for allowing excessive

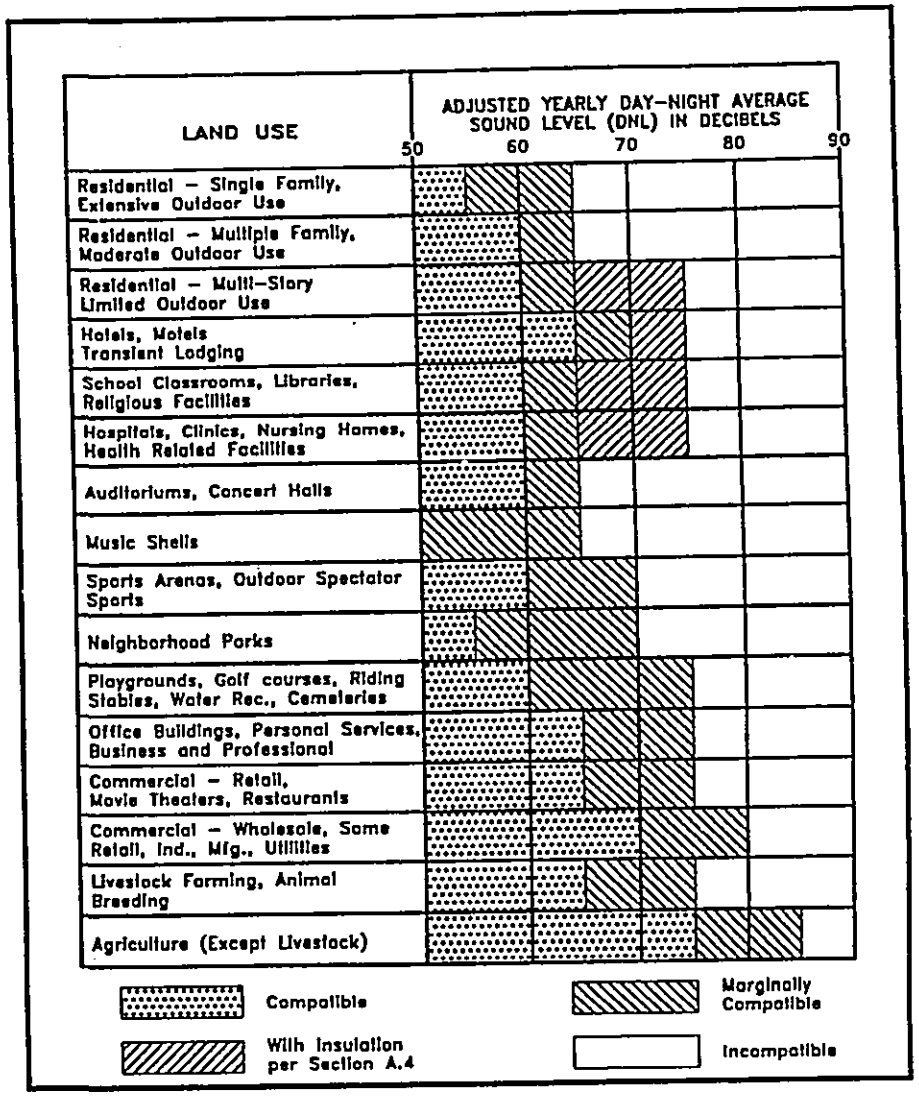
TABLE 1

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 DNL	Not Exceeding 55 Leq	Unconditionally Acceptable
Moderate Exposure	Above 55 DNL But Not Above 65 DNL	Above 55 Leq But Not Above 65 Leq	Acceptable(2)
Significant Exposure	Above 65 DNL But Not Above 75 DNL	Above 65 Leq But Not Above 75 Leq	Normally Unacceptable
Severe Exposure	Above 75 DNL	Above 75 Leq	Unacceptable

Notes: (1) Federal Housing Administration, Veterans Administration, Department of Defense, and Department of Transportation.

(2) FHWA uses the Leq instead of the Ldn 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 Leq.



LAND USE COMPATIBILITY WITH YEARLY AVERAGE DAY–NIGHT AVERAGE SOUND LEVEL (DNL) AT A SITE FOR BUILDINGS AS COMMONLY CONSTRUCTED.
(Source: American National Standards Institute S12.9–1998/Part 5)

FIGURE 2

noise during limited time periods. 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.

CHAPTER IV. GENERAL STUDY METHODOLOGY

Existing traffic and background ambient noise levels were measured at 13 locations (A through M) 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. The locations of the measurement sites are shown in Figure 1. Noise measurements were performed during the month of October 2000. The results of the traffic noise measurements were compared with calculations of existing traffic noise levels to validate the computer model used. The traffic and background ambient noise measurement results, and their comparisons with computer model predictions of existing traffic noise levels are summarized in Table 2. In some instances, such as at measurement Locations I and L (where there were steep road grades), higher than actual vehicle speeds were used in the computer model in order to achieve better agreement between the measured and predicted traffic noise levels shown in Table 2.

Traffic noise calculations for the existing conditions as well as noise predictions for the Year 2005 were performed using the Federal Highway Administration (FHWA) Traffic Noise Model (Reference 5). Traffic data entered into the noise prediction model were: roadway and receiver locations; hourly traffic volumes, average vehicle speeds; estimates of traffic mix; and "Pavement" propagation loss factor. The traffic data and forecasts for the project (Reference 6), plus the spot traffic counts obtained during the noise measurement periods were the primary sources of data inputs to the model. APPENDIX C summarizes the AM and PM peak hour traffic volumes for CY 2000 and 2005 which were used to model existing and future traffic noise along the streets servicing the proposed connector road. For existing and future traffic along the streets included in the noise study, it was assumed that the average noise levels, or Leq(h), during the PM peak traffic hour were approximately equal to the 24-hour Ldn along those roadways.

Traffic noise calculations for the existing conditions in the project environs were performed for ground level receptors, and for future conditions with and without the proposed project. The forecasted changes in traffic noise levels over existing levels were calculated with and without the project, and noise impact risks evaluated. The relative contributions of non-project and project related 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 during construction along the connector road was assessed.

TABLE 2 (CONTINUED)

TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

LOCATION	Time of Day (HRS)	Ave. Speed (MPH)	Hourly Traffic Volume AUTO	M.TRUCK	H.TRUCK	Measured Leq (dB)	Predicted Leq (dB)
G. 50 FT from the center-line of S. Kupuna Loop (10/6/00)	1400 TO 1459	35	466	2	9	64.9	65.0
H. 50 FT from the center-line of S. Kupuna Loop (10/6/00)	1405 TO 1500	35	466	2	9	67.8	65.0
I. 33 FT from the center-line of Kupuohi Street (10/6/00)	1515 TO 1614	38	346	2	0	65.4	65.4
I. 33 FT from the center-line of Kupuohi Street (10/6/00)	1615 TO 1714	38	309	3	1	67.0	65.2
J. 50 FT from the center-line of N. Kupuna Loop (10/12/00)	1017 TO 1117	32	140	2	2	58.9	58.8
K. 50 FT from the center-line of Kupuohi Street (10/12/00)	1123 TO 1223	32	996	14	2	68.1	66.4

TABLE 2

TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

LOCATION	Time of Day (HRS)	Ave. Speed (MPH)	Hourly Traffic Volume AUTO	M.TRUCK	H.TRUCK	Measured Leq (dB)	Predicted Leq (dB)
A. On cane haul road at S. Kupuna Lp. end of Connector Rd. (10/6/00)	0924 TO 1024	N/A	N/A	N/A	N/A	60.3	N/A
B. On cane haul road at 135' north H-1 Freeway (10/6/00)	1029 TO 1129	N/A	N/A	N/A	N/A	60.6	N/A
C. On cane haul road and 50' from centerline of Loaa Street (10/6/00)	1525 TO 1715	25	139	3	0	56.5	55.3
D. On cane haul road at 474' south H-1 Freeway (10/6/00)	1136 TO 1223	N/A	N/A	N/A	N/A	57.2	N/A
E. 36 FT from the center-line of Waipahu Street (10/6/00)	1240 TO 1339	32	564	9	7	66.2	66.2
F. 50 FT from the center-line of Waipahu Street (10/6/00)	1242 TO 1342	28	599	9	6	63.1	63.5

V. EXISTING ACOUSTICAL ENVIRONMENT

The results of the traffic and background ambient noise measurements are summarized in Table 2, with measurement locations identified in Figure 1. As shown in Table 2, correlation between measured and predicted traffic noise levels was generally good. The Traffic Noise Model's "Pavement" propagation loss factor was used to obtain the good correlation. At measurement Location H, noise from H-1 Freeway caused the measured noise levels to be higher than predicted for traffic on South Kupuna Loop. At measurement Locations I and K, an excessively noisy motorcycle which ranged from 100 to 102 dB, was the reason that measured noise levels were greater than predicted noise levels. At measurement Location L, a large number of heavy trucks transporting dirt were observed along Kupuohi Street.

For the purposes of this study, 2000 was used as the Base Year for computing the differences in traffic noise levels between the No Build and Build (Connector Road) Alternatives. The Base Year noise environment along the feeder streets to and from the proposed connector road were described by computing the Hourly Equivalent Sound Levels [Leq(h)] along the existing feeder streets during the PM peak traffic hour for the 2000 time period. The hourly sound levels, expressed in decibels, represent the average levels of traffic noise along the various feeder streets during the PM peak hour of the study's Base Year. The PM Leq values computed for each feeder street were assumed to be identical to the Ldn values.

The existing background ambient noise levels along the cane haul road between Loaa Street and South Kupuna Loop are controlled by traffic noise from H-1 Freeway. Traffic and background ambient noise measurements were obtained at four locations (A, B, C, and D) along the former cane haul road. These locations are shown in Figure 1. Existing noise levels along the section of cane haul road, which is proposed to become the Village Park Connector Road, range from approximately 55 Ldn at the Loaa Street end to 64 Ldn at the South Kupuna Loop end. At those receptor locations which are within approximately 450 feet of the H-1 Freeway centerline, and are at or above the elevation of the freeway, traffic noise levels currently exceed 65 Ldn, and are in the Significant Exposure, Normally Unacceptable" category for dwelling units.

Table 3 presents the traffic volume, speed, and mix assumptions used to calculate the Base Year noise levels during the PM peak hour along the various feeder streets of interest. Shown in Table 3 are the calculated PM peak hour Leq(h)'s at reference distances of 50 and 100 feet from the centerline of each feeder street. The calculated distances to the 65, 70, and 75 Ldn noise contour lines under unobstructed, line-of-sight conditions to each street are shown in Table 4. The actual distances to the contour lines will generally be less than indicated in Table 4 when intervening structures or terrain obstructions exist between the roadway and a receptor. This reduction (or shrinkage) of the traffic noise contour distances from the roadway's centerline is the result of noise shielding (or attenuation) effects caused by the intervening structures or natural terrain features.

TABLE 2

TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS (CONTINUED)

LOCATION	Time of Day (HRS)	Ave. Speed (MPH)	Hourly Traffic Volume AUTO	Hourly Traffic Volume M.TRUCK	Hourly Traffic Volume H.TRUCK	Measured Leq (dB)	Predicted Leq (dB)
L. 33 FT from the centerline of Kupuohi Street (10/12/00)	1241 TO 1341	38	149	1	10	64.8	64.9
M. 29 FT from the centerline of Honowai Street (10/12/00)	1241 TO 1341	32	184	3	0	61.2	60.9

TABLE 4

EXISTING AND CY 2005 DISTANCES TO 65, 70, AND 75 LDN CONTOURS

STREET SECTION	65 Ldn SETBACK (FT) EXISTING	65 Ldn SETBACK (FT) CY 2005	70 Ldn SETBACK (FT) EXISTING	70 Ldn SETBACK (FT) CY 2005	75 Ldn SETBACK (FT) EXISTING	75 Ldn SETBACK (FT) CY 2005
Connector Road	N/A	24	N/A	<20	N/A	<20
Loaa Street East of Honowai St.	<20	22	<20	<20	<20	<20
Loaa Street West of Honowai St.	<20	<20	<20	<20	<20	<20
Honowai Street North of Loaa St.	<20	<20	<20	<20	<20	<20
Honowai Street South of Loaa St.	<20	39	<20	<20	<20	<20
Walpahu St. East of Honowai St.	58	67	<20	20	<20	<20
Walpahu St. West of Honowai St.	75	85	23	27	<20	<20
S. Kupuna Lp. East of Conn. Rd.	63	73	<20	22	<20	<20
S. Kupuna Lp. West of Conn. Rd.	63	68	<20	21	<20	<20
S. Kupuna Lp. East of Kupuohi St.	85	85	26	26	<20	<20
S. Kupuna Lp. West of Kupuohi St.	102	91	31	29	<20	<20
Kupuohi St. North of S. Kupuna Lp.	21	34	<20	<20	<20	<20
Kupuohi St. South of N. Kupuna Lp.	17	30	<20	<20	<20	<20
Kupuohi St. North of N. Kupuna Lp.	102	115	31	35	<20	<20
N. Kupuna Lp. East of Kupuohi St.	34	35	<20	<20	<20	<20
N. Kupuna Lp. West of Kupuohi St.	105	121	33	37	<20	<20

Notes:

(1) All setback distances are from the roadways' centerlines.
(2) See TABLES 3 and 5 for traffic volume, speed, and mix assumptions.
(3) Setback distances are for ground level receptors.
(4) "Loose Soil" conditions assumed along all roadways.

TABLE 3

EXISTING (CY 2000) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS IN PROJECT AREA (PM PEAK HOUR)

LOCATION	SPEED (MPH)	******** VOLUMES (VPH) ******** AUTOS	M TRUCKS	H TRUCKS	50' Leq	100' Leq
Connector Road	N/A	N/A	N/A	N/A	N/A	N/A
Loaa Street East of Honowai St.	25	159	3	0	55.8	52.9
Loaa Street West of Honowai St.	25	48	1	0	50.7	47.9
Honowai Street North of Loaa St.	32	116	2	0	57.0	54.1
Honowai Street South of Loaa St.	32	215	4	0	59.7	56.9
Walpahu St. East of Honowai St.	28	950	15	10	65.6	62.7
Walpahu St. West of Honowai St.	32	904	14	9	66.7	63.8
S. Kupuna Lp. East of Conn. Rd.	35	630	10	6	66.0	63.1
S. Kupuna Lp. West of Conn. Rd.	35	630	10	6	66.0	63.1
S. Kupuna Lp. East of Kupuohi St.	35	825	13	8	67.2	64.3
S. Kupuna Lp. West of Kupuohi St.	35	996	15	10	68.0	65.1
Kupuohi St. North of S. Kupuna Lp.	38	175	4	1	61.4	58.5
Kupuohi St. South of N. Kupuna Lp.	38	133	3	1	60.3	57.3
Kupuohi St. North of N. Kupuna Lp.	32	1,342	21	7	68.0	65.1
N. Kupuna Lp. East of Kupuohi St.	32	404	6	6	63.4	60.5
N. Kupuna Lp. West of Kupuohi St.	32	1,195	18	18	68.2	65.2

By using the traffic noise data shown in Tables 3 and 4, and maps of the existing improvements on the east (Diamond Head) and west (Ewa) sides of the project corridor, the relationship of the existing free-field traffic noise contours to existing noise sensitive structures in the project area were obtained. Existing traffic noise levels at dwelling units along Waipahu Street, South Kupuna Loop, and Kupuohi Street north of North Kupuna Loop currently exceed 65 Ldn. At dwelling units along Kupuohi Street south of North Kupuna Loop, Loaa Street, Honowai Street, and portions of the existing cane haul road, existing traffic noise levels do not exceed 65 Ldn.

CHAPTER VI. FUTURE NOISE ENVIRONMENT

Predictions of future traffic noise levels were made using the traffic volume assignments of Reference 6 for CY 2005 with and without the proposed project. The non-project traffic noise contributions under the No Build Alternative are shown in Table 5. The future projections of project plus non-project traffic noise levels on the roadways which would service the project are shown in Table 6 for the PM peak hour under the Build Alternative. The future setback distances to the 65, 70, and 75 Ldn contours under the Build Alternative are shown in Table 4. The forecast 65 Ldn contour line along the connector road is expected to be contained within the Right-of-Way in CY 2005, and should not extend beyond 24 feet from the centerline of the new road.

The predicted increases in traffic noise levels for CY 2005 under the No Build and Build Alternatives are shown in Table 7. Relatively small changes (less than 1 dB) in traffic noise levels are expected in the project environs between CY 2000 and 2005 without the project. With the construction of the proposed connector road, traffic noise levels along the Right-of-Way of the connector road will range between 63 to 64 Ldn south of H-1 Freeway. North of H-1 Freeway, where existing homes are shielded from the cane haul road by sound attenuating walls, H-1 Freeway noise will continue to be the dominant noise source at 67 to 64 Ldn. The greatest increase in background ambient noise levels will occur at residences at the Loaa Street end of the new connector road, where background noise levels are predicted to increase from approximately 55 Ldn to 64 Ldn.

Relatively large increases (from 1.9 to 5.2 dB) in project related traffic noise levels are expected to occur along the short section of Loaa Street between the new connector road and Honowai Street, along Honowai Street between Waipahu and Loaa Streets, and along Kupuohi Street between North and South Kupuna Loops. The other feeder streets are not expected to experience large increases in traffic noise levels from traffic traveling to and from the new connector road. Future traffic noise levels along Waipahu Street, South Kupuna Loop, and Kupuohi Street north of North Kupuna Loop will continue to exceed 65 Ldn. In addition, future traffic noise at dwellings along Kupuohi Street between North and South Kupuna Loops will also exceed 65 Ldn.

TABLE 6

FUTURE (CY 2005) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS IN PROJECT AREA (PM PEAK HOUR, BUILD)

LOCATION	SPEED (MPH)	******** VOLUMES (VPH) ******** AUTOS	M TRUCKS	H TRUCKS	50' Leq	100' Leq
Connector Road	32	302	5	3	61.9	59.0
Loaa Street East of Honowai St.	25	463	7	5	61.5	58.6
Loaa Street West of Honowai St.	25	78	2	0	53.0	50.2
Honowai Street North of Loaa St.	32	147	3	0	58.2	55.3
Honowai Street South of Loaa St.	32	492	8	5	64.0	61.1
Waipahu St. East of Honowai St.	28	1,112	17	11	66.2	63.3
Waipahu St. West of Honowai St.	32	1,033	16	11	67.3	64.3
S. Kupuna Lp. East of Conn. Rd.	35	727	11	7	66.6	63.7
S. Kupuna Lp. West of Conn. Rd.	35	638	10	7	66.2	63.2
S. Kupuna Lp. East of Kupuohi St.	35	824	13	8	67.2	64.3
S. Kupuna Lp. West of Kupuohi St.	35	892	14	9	67.6	64.6
Kupuohi St. North of S. Kupuna Lp.	38	263	4	3	63.3	60.3
Kupuohi St. South of N. Kupuna Lp.	38	239	4	2	62.8	59.8
Kupuohi St. North of N. Kupuna Lp.	32	1,489	23	8	68.5	65.6
N. Kupuna Lp. East of Kupuohi St.	32	413	6	6	63.5	60.6
N. Kupuna Lp. West of Kupuohi St.	32	1,343	21	21	68.7	65.8

TABLE 5

FUTURE (CY 2005) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS IN PROJECT AREA (PM PEAK HOUR, NO-BUILD)

LOCATION	SPEED (MPH)	******** VOLUMES (VPH) ******** AUTOS	M TRUCKS	H TRUCKS	50' Leq	100' Leq
Connector Road	N/A	N/A	N/A	N/A	N/A	N/A
Loaa Street East of Honowai St.	25	171	4	0	56.3	53.5
Loaa Street West of Honowai St.	25	64	1	0	51.6	48.8
Honowai Street North of Loaa St.	32	132	3	0	57.8	54.9
Honowai Street South of Loaa St.	32	230	5	0	60.1	57.3
Waipahu St. East of Honowai St.	28	985	15	10	65.6	62.7
Waipahu St. West of Honowai St.	32	931	14	10	66.8	63.9
S. Kupuna Lp. East of Conn. Rd.	35	633	10	7	66.2	63.2
S. Kupuna Lp. West of Conn. Rd.	35	633	10	7	66.2	63.2
S. Kupuna Lp. East of Kupuohi St.	35	838	13	9	67.3	64.4
S. Kupuna Lp. West of Kupuohi St.	35	1,009	16	10	68.1	65.2
Kupuohi St. North of S. Kupuna Lp.	38	175	4	1	61.4	58.5
Kupuohi St. South of N. Kupuna Lp.	38	146	3	1	60.6	57.7
Kupuohi St. North of N. Kupuna Lp.	32	1,489	23	8	68.5	65.6
N. Kupuna Lp. East of Kupuohi St.	32	413	6	6	63.5	60.6
N. Kupuna Lp. West of Kupuohi St.	32	1,343	21	21	68.7	65.8

TABLE 7

CALCULATIONS OF PROJECT AND NON-PROJECT TRAFFIC NOISE CONTRIBUTIONS (CY 2005) (PM PEAK HOUR)

STREET SECTION	NOISE LEVEL INCREASE DUE TO: NON-PROJECT TRAFFIC	PROJECT TRAFFIC
Connector Road	N/A	N/A
Loaa Street East of Honowai St.	0.5	5.2
Loaa Street West of Honowai St.	0.9	1.4
Honowai Street North of Loaa St.	0.8	0.4
Honowai Street South of Loaa St.	0.4	3.9
Waipahu St. East of Honowai St.	0.0	0.6
Waipahu St. West of Honowai St.	0.1	0.5
S. Kupuna Lp. East of Conn. Rd.	0.2	0.4
S. Kupuna Lp. West of Conn. Rd.	0.2	0.0
S. Kupuna Lp. East of Kupuohi St.	0.1	-0.1
S. Kupuna Lp. West of Kupuohi St.	0.1	-0.5
Kupuohi St. North of S. Kupuna Lp.	0.0	1.9
Kupuohi St. South of N. Kupuna Lp.	0.3	2.2
Kupuohi St. North of N. Kupuna Lp.	0.5	0.0
N. Kupuna Lp. East of Kupuohi St.	0.1	0.0
N. Kupuna Lp. West of Kupuohi St.	0.5	0.0

CHAPTER VII. DISCUSSION OF PROJECT RELATED NOISE IMPACTS AND POSSIBLE MITIGATION MEASURES

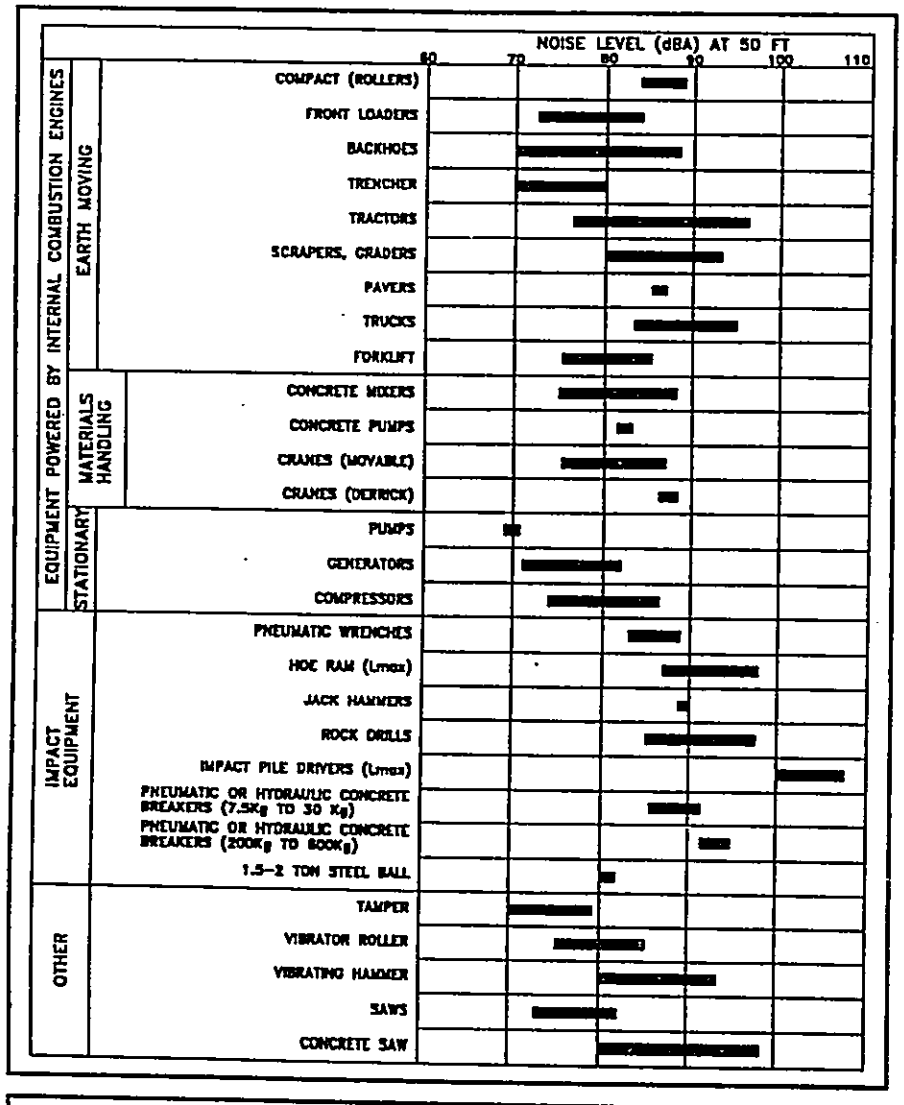
Traffic Noise. For the existing residential units along the proposed Village Park Connector Road, traffic noise mitigation measures should not be required for traffic volumes projected through CY 2005 when the connector road is completed. Existing homes north of H-1 Freeway currently have sound attenuating walls which were constructed between the existing cane haul road and the dwelling units. South of the H-1 Freeway, most of the existing residential lots do not have sound attenuating walls between the cane haul road and the dwelling units. However, the model predicts noise levels from the new connector road will be less than 65 Ldn at these homes. Also, existing freeway noise levels south of the freeway are lower than at homes north of the freeway due to the lower elevation of the house lots south of the freeway, as well as the larger distances between most of the house lots and the freeway.

Traffic noise mitigation measures along the new connector road may be implemented to minimize risks of traffic noise impacts as traffic volumes along the connector road increase. These include the use of a low posted speed limit of 25 miles per hour or less. In addition, construction of a sound attenuating wall, which is 6 feet above the grade of the existing house lots or connector road (whichever is higher), to screen the existing dwellings from traffic noise is another possible noise mitigation measure.

Noise impacts from project plus non-project related traffic along the feeder streets to the new connector road may occur, particularly along Kupuohi Street between North and South Kupuna Loops. In addition, along those roadways where existing traffic noise levels exceed 65 Ldn, traffic noise impacts may continue to occur. Along these feeder streets, traffic noise mitigation measures are normally implemented by individual property owners, or by public agencies in conjunction with a roadway widening or realignment project. These mitigation measures normally involve the construction of sound attenuating walls or closure and air conditioning of the noise sensitive structures.

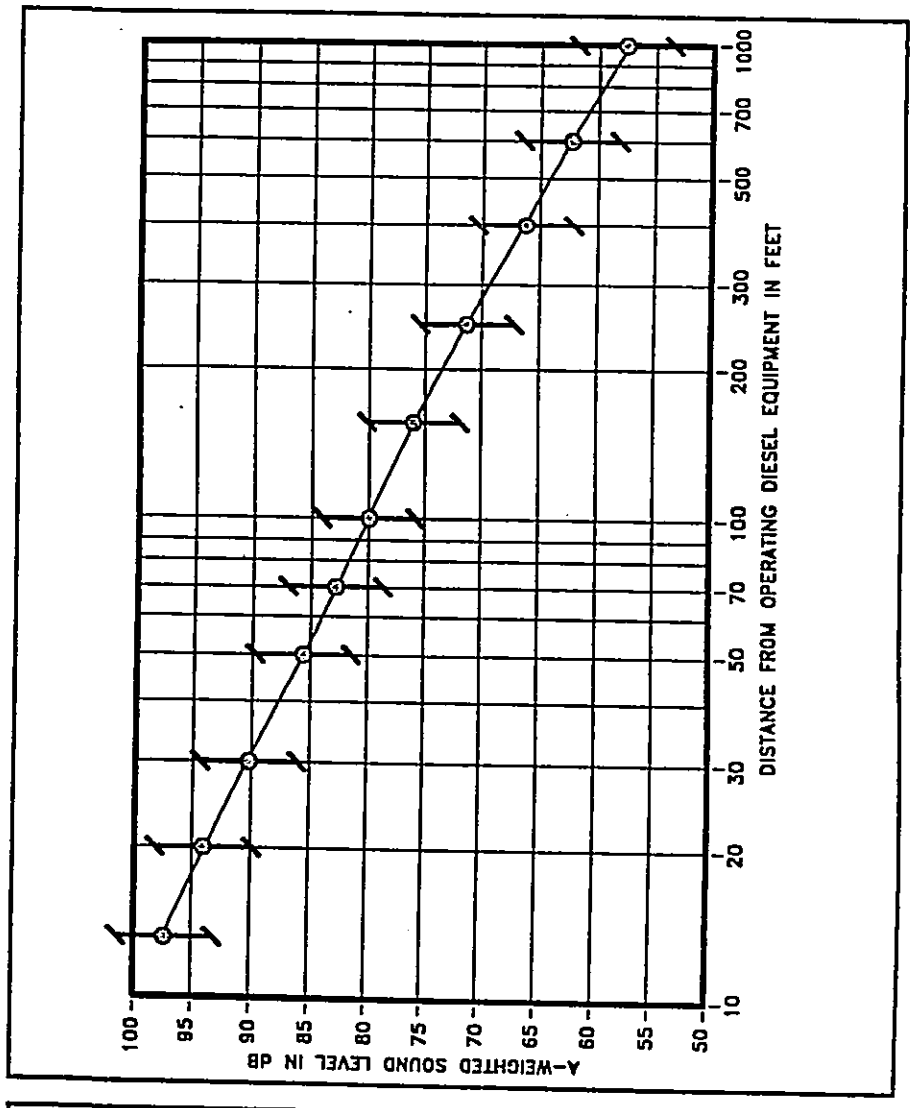
General Construction Noise. Audible construction noise along the new connector road will probably be unavoidable during the entire project construction period. The total time period for construction is unknown, but it is anticipated that the actual work will be moving from one location on the project 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. Figure 3 depicts the range of noise levels of various types of construction equipment when measured at 50 FT distance from the equipment. Typical levels of exterior noise from construction activity at various distances from the job site are shown in Figure 4.

Figure 4 is useful for predicting exterior noise levels at short distances (within 100 FT) from the work when visual line of sight exists between the construction



RANGES OF CONSTRUCTION EQUIPMENT NOISE LEVELS

FIGURE 3



ANTICIPATED RANGE OF CONSTRUCTION NOISE LEVELS VS. DISTANCE

FIGURE 4

equipment and the receptor. Direct line-of-sight distances from the construction equipment to existing residential buildings will range from 20 FT to 600 FT, with corresponding average noise levels of 95 to 62 dBA (plus or minus 5 dBA). 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 4.

The existing residences along the existing cane haul road and located south of H-1 Freeway are predicted to experience the highest noise levels during construction activities due to their close proximity (within 40 to 60 feet) to the centerline of the connector road. Inside naturally ventilated structures, interior noise levels (with windows or doors opened) are estimated to range between 85 to 52 dBA at 20 FT to 600 FT distances from the construction site. Closure of all doors and windows facing the construction site would generally reduce interior noise levels by an additional 5 to 10 dBA.

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. Instead, these impacts will probably be limited to the temporary degradation of the quality of the acoustic environment in the immediate vicinity of the project site. 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 (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 throughout the State of Hawaii (Reference 4), is another noise mitigation measure which is normally applied to construction activities. Figure 5 depicts the normally permitted hours of construction. Noisy construction activities are not allowed on Sundays and holidays, during the early morning, and during the late evening and nighttime periods under the DOH permit procedures.

AVAILABLE WORK HOURS UNDER DOH PERMIT PROCEDURES FOR CONSTRUCTION NOISE

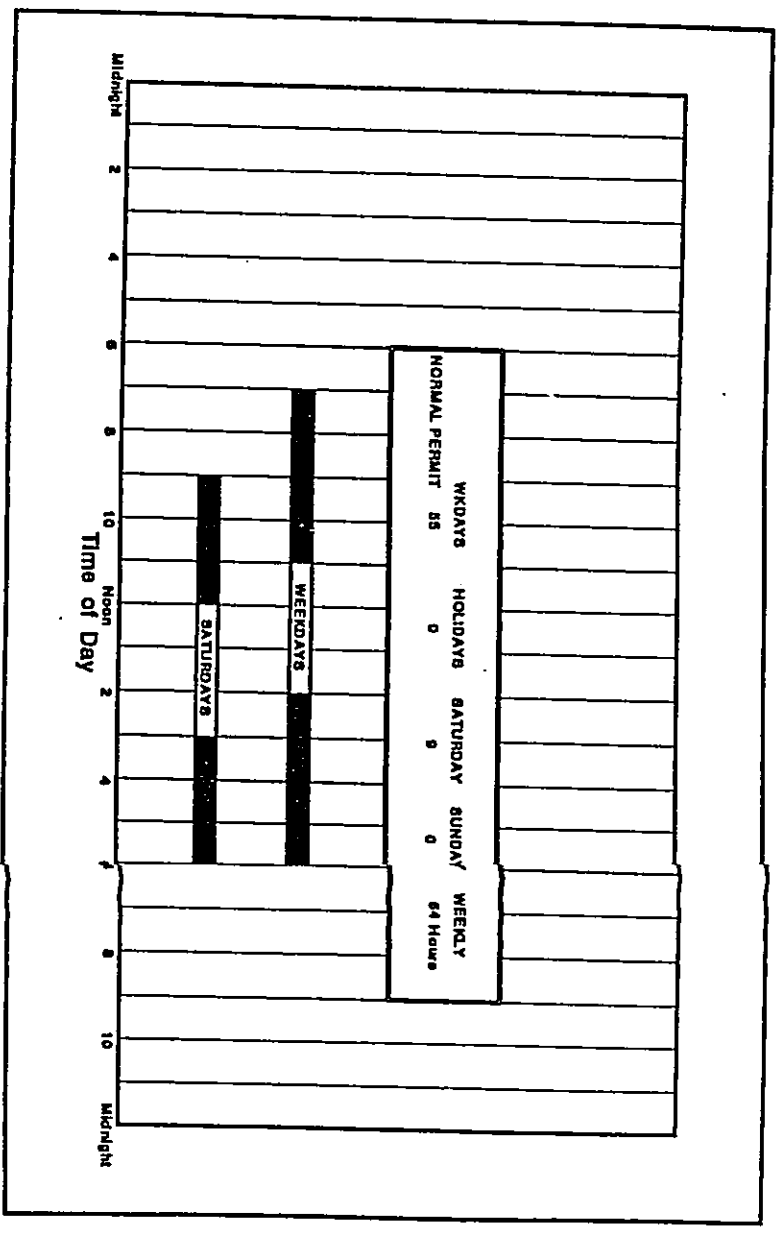


FIGURE 5

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 FR, 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 46, Community Noise Control;" Hawaii State Department of Health; September 23, 1996.

(5) "FHWA Traffic Noise Model User's Guide;" FHWA-PD-96-009, DOT-VNTSC-FHWA-98-1, Federal Highway Administration; Washington, D.C.; January 1998.

(6) Draft Traffic Analysis Report for Village Park Connector Road; Pacific Planning & Engineering, Inc.; May 31, 2000.

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 "Lepn" 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" (PWL) 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

TERM	SYMBOL
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)	$L_{eq(T)}$
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,

APPENDIX B (CONTINUED)

TABLE II
RECOMMENDED DESCRIPTOR LIST

TERM	A-WEIGHTING	ALTERNATIVE[1] A-WEIGHTING	OTHER[2] WEIGHTING	UNWEIGHTED
1. Sound (Pressure)[3] Level	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 Leq(1). Time may be specified in non-quantitative terms (e.g., could be specified as Leq(WASH) to mean the washing cycle noise for a washing machine.

APPENDIX C

SUMMARY OF BASE YEAR AND FUTURE YEAR TRAFFIC VOLUMES

ROADWAY LANES	**** CY 2000 ***** AM VPH	PM VPH	CY 2005 (NO BUILD) AM VPH	PM VPH	CY 2005 (BUILD) AM VPH	PM VPH
Connector Road (NB)	0	0	0	0	80	195
Connector Road (SB)	0	0	0	0	160	115
Two-Way	0	0	0	0	240	310
Loaa St. East of Honowai St. (EB)	46	89	50	95	120	285
Loaa St. East of Honowai St. (WB)	103	73	110	80	265	190
Two-Way	149	162	160	176	385	475
Loaa St. West of Honowai St. (EB)	24	19	30	25	35	35
Loaa St. West of Honowai St. (WB)	18	30	25	40	35	45
Two-Way	42	49	55	65	70	80
Honowai St. North of Loaa St. (NB)	67	77	75	85	80	90
Honowai St. North of Loaa St. (SB)	34	41	35	50	45	60
Two-Way	101	118	110	135	125	150
Honowai St. South of Loaa St. (NB)	63	141	70	150	130	320
Honowai St. South of Loaa St. (SB)	93	78	95	85	240	185
Two-Way	156	219	165	235	370	505
Waipahu St. East of Honowai St. (EB)	420	403	425	415	525	460
Waipahu St. East of Honowai St. (WB)	323	572	325	575	340	680
Two-Way	743	975	750	990	865	1,140
Waipahu St. West of Honowai St. (EB)	369	419	375	425	385	495
Waipahu St. West of Honowai St. (WB)	307	508	310	530	350	565
Two-Way	676	927	685	955	735	1,060
S. Kupuna Lp. East of Connector Rd. (EB)	203	419	205	420	230	475
S. Kupuna Lp. East of Connector Rd. (WB)	621	227	625	230	670	270
Two-Way	824	646	830	650	900	745
S. Kupuna Lp. West of Connector Rd. (EB)	203	419	205	420	215	390
S. Kupuna Lp. West of Connector Rd. (WB)	621	227	625	230	575	265
Two-Way	824	646	830	650	790	655
Kupouhi St. North of S. Kupuna Lp. (NB)	60	135	60	135	85	190
Kupouhi St. North of S. Kupuna Lp. (SB)	60	45	60	45	85	80
Two-Way	120	180	120	180	170	270

APPENDIX C (CONTINUED)

SUMMARY OF BASE YEAR AND FUTURE YEAR TRAFFIC VOLUMES

ROADWAY LANES	**** CY 2000 ***** AM VPH	PM VPH	CY 2005 (NO BUILD) AM VPH	PM VPH	CY 2005 (BUILD) AM VPH	PM VPH
S. Kupuna Lp. East of Kupuohi St. (EB)	202	562	210	565	220	530
S. Kupuna Lp. East of Kupuohi St. (WB)	674	284	680	295	630	315
Two-Way	876	846	890	860	850	845
S. Kupuna Lp. West of Kupuohi St. (EB)	236	699	245	705	215	625
S. Kupuna Lp. West of Kupuohi St. (WB)	733	322	740	330	655	290
Two-Way	969	1,021	985	1,035	870	915
Kupouhi St. South of N. Kupuna Lp. (NB)	49	100	55	105	80	165
Kupouhi St. South of N. Kupuna Lp. (SB)	20	37	30	45	50	80
Two-Way	69	137	85	150	130	245
N. Kupuna Lp. East of Kupuohi St. (EB)	178	244	185	245	175	235
N. Kupuna Lp. East of Kupuohi St. (WB)	238	172	245	180	235	165
Two-Way	416	416	430	425	410	400
N. Kupuna Lp. West of Kupuohi St. (EB)	253	700	285	800	255	730
N. Kupuna Lp. West of Kupuohi St. (WB)	405	531	500	585	485	535
Two-Way	658	1,231	785	1,385	720	1,265
Kupouhi St. North of N. Kupuna Lp. (NB)	312	765	340	865	345	665
Kupouhi St. North of N. Kupuna Lp. (SB)	375	605	470	655	485	655
Two-Way	687	1,370	810	1,520	810	1,520

APPENDIX F

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
by Edward K. Noda & Associates, Inc.

Phase I Environmental Site Assessment
Village Park Connector Road
Waipahu, Oahu, Hawaii
TMKs: (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.), (1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.)

PREPARED FOR:

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Prepared By:

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Project No. 2208-00F revised
March 2001

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PHASE I ENVIRONMENTAL SITE ASSESSMENT
VILLAGE PARK CONNECTOR ROAD
WAIPAHU, OAHU, HAWAII
TMKs: (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.),
(1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.)

Executive Summary

A Phase I Environmental Site Assessment (ESA) was conducted on the planned Village Park Connector Road alignment extending from Loaa Street to Kupuna Loop along a portion of an old cane haul road in the area of Waipahu, Oahu, Hawaii by Edward K. Noda and Associates, Inc. (EKNA) at the request of Engineering Concepts, Inc., 1150 South King Street, Suite 700, Honolulu, Hawaii 96814. This report has been prepared for the use of Engineering Concepts, Inc., and their client. This report is for specific application to the properties legally identified by Tax Map Keys (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.), (1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.).

The purpose of the Phase I Environmental Site Assessment was to determine the presence of petroleum products and other environmentally hazardous substances/wastes, and to identify potential sources of any suspected contaminants at the assessed road alignment and in its vicinity.

This Phase I Environmental Site Assessment, conducted in October and November 2000, indicates that:

- The assessed Site consists of one parcel of an old cane haul road and small portions of three rectangular shaped residential parcels. The areas of concern in these parcels do not contain any buildings.
- No prior environmental studies or investigations by other parties were found to have been made of the subject properties.
- Based on available information, it appears that the assessed properties has been used for agricultural or residential purposes for at least 54 years.
- The site survey identified 2 abandoned motor vehicles along the alignment.
- The site survey identified rain run off flowing onto the property which displays a petroleum product sheen flowing onto the Site from the H-1 Freeway.
- The site survey indicated that there are currently no electrical transformers or vaults on the property.
- No signs of underground fuel storage tanks (UST) or associated fuel pumps were found on the site.
- State environmental databases indicates 1 facility within one quarter of a mile of the assessed facility has reported a release or leak from underground storage tanks to the Hawaii Department of Health. This facility has completed cleanup activities.
- Federal and state environmental databases also indicates there are no facilities within one half mile that are generators of hazardous materials/wastes.

In view of the above, and based on a review of available information, the following may be concluded:

- There was no direct evidence of hazardous substance/ waste surface contamination at the property.
- There is some potential of surface petroleum hydrocarbon surface contamination at the property, resulting from rain runoff from the H-1 Freeway.

To address the environmental concerns identified by this Phase I Environmental Site Assessment, it is recommended that:

- Surface soil samples of the property, near the H-1 Freeway, be analyzed for non-volatile petroleum product.

PHASE I ENVIRONMENTAL SITE ASSESSMENT
VILLAGE PARK CONNECTOR ROAD
WAIPAHU, OAHU, HAWAII
TMKs: (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.),
(1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.)

1.0 Introduction

A Phase I Environmental Site Assessment (ESA) was conducted on the planned Village Park Connector Road alignment extending from Loaa Street to Kupuna Loop along a portion of an old cane haul road in the area of Waipahu, Oahu, Hawaii (Figure 1) by Edward K. Noda and Associates, Inc. (EKNA) at the request of Engineering Concepts, Inc., 1150 South King Street, Suite 700, Honolulu, Hawaii 96814. This report has been prepared for the use of Engineering Concepts, Inc., and their client. This report is for specific application to the properties situated at Tax Map Keys (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.), (1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.).

1.1 Purpose

The purpose of this Phase I Environmental Site Assessment was to determine any environmental impact due to the presence of petroleum products and other environmentally hazardous substances/wastes and to identify potential sources of any suspected contaminants within the assessed portions of the subject properties.

1.2 Involved Parties

The parties involved in the compilation and preparation of this ESA are:

Client Points of Contact: Mr. Kay Muranaka, V.P., Engineering Concepts, Inc.

EKNA Project Manager: Mr. Dayton E. Fraim, P.G., P.E.
Senior Engineering Geologist

EKNA Site Assessor: Mr. Charles G. Brown

1.3 Scope of Work

This work has been conducted in general accordance with American Society for Testing and Materials (ASTM) Standard Practice E 1527-97, "Standard Practice for Environmental Site Assessments", accepted industry standards, accepted local practices and a professional standard of care.

The scope of work involved two (2) tasks: a review of the history of the properties and surrounding areas, and a field survey/inspection of the properties and site improvements, surrounding properties and other facilities in the immediate vicinity of the properties.

In conducting this assessment, the following efforts were undertaken:

- review of available archive maps and historical land use maps of the site and area for information regarding land use involving the manufacture, generation, use, storage, and/or disposal of environmentally hazardous substances;
- review of available documents regarding past and present site development;
- review of State of Hawaii and U.S. Environmental Protection Agency (EPA) databases of hazardous waste generators, violations, underground storage tank facilities, landfills, and sites currently under investigation;
- review of available U.S. Geological Survey and Hawaii State Department of Health (DOH) documents and maps for pertinent geologic and hydrogeologic conditions;
- interviews with individuals familiar with the site history, and who have knowledge of activities on adjacent properties that may be pertinent to this assessment;
- a survey of the subject site for possible sources of hazardous material contamination, such as petroleum products, electrical equipment containing polychlorinated biphenyls (PCB), and underground storage tanks; and,
- a brief reconnaissance of the surrounding area for possible off-site sources of contamination from neighboring facilities which could impact the site.

No invasive sampling was undertaken in the conduct of this ESA. Suspected hazardous materials which may be described herein have been identified on the basis of visual observation, public records and reports from previous environmental studies.

2.0 General Site Characteristics

2.1 Site Location

The subject properties are situated between Loaa Street to Kupuna Loop along a portion of an old cane haul road in the area of Waipahu, on the island of Oahu, Hawaii. The properties are legally identified by TMKs: (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.), (1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.). The general location of the properties and their vicinity are shown on Figures 1, 2A, 2B, 2C and 2D.

2.2 Adjacent Properties

The subject properties are situated in the Waipahu and Village Park areas of Oahu (Figures 2A, 2B, 2C and 2D). Land use in the area immediately surrounding the site is predominately residential.

The properties are bordered by residential property, vacant property and a small portion of the H-1 Freeway.

2.3 Site Description and Current Site Use

The subject property encompass an area of approximately 76,000 square feet. At present, the site is occupied by a currently unused, paved cane haul road and small portions of residential lots.

The subject properties are unoccupied by any structure. The majority of the site is paved with asphaltic concrete.

3.0 Environmental Setting

3.1 Regional Physiographic Conditions

The ground surface elevation of the site is on the order of about one-hundred twenty (120) feet above mean sea level. The topography in the region of the site slopes gently down towards Pearl Harbor (Pacific Ocean) in a southerly direction.

3.2 Soil Conditions

The surface soils in the area of the site generally consist of well drained soils formed in material weathered from basic igneous rock. These soils have been classified by the U.S. Department of Agriculture, Soil Conservation Service as Molokai Silty Clay Loam 3 to 7 percent slopes (MuB)(Figure 4). Runoff is slow to medium and the erosion hazard is slight to moderate.

3.3 Regional Geology

The island of Oahu is composed largely of the weathered remnants of two extinct shield volcanoes - Waianae and Koolau. Koolau is the younger of the two and forms the eastern two-thirds of the island. After the cessation of the main shield building phase of Koolau, erosion deposited alluvial materials on the lower flanks of the volcano.

After the cessation of Waianae's shield building activity, lava flows from Koolau continued to bank against Waianae's eastern flank forming a broad plateau between the two (2) volcanoes. This plateau is referred to as the Schofield Plateau, which consists of a thick sequence of

residual soils and saprolite over the parent rock. The base of the stratigraphic section is the Koolau Basalts. The project site is situated over a thick wedge of alluvium and other sediments on the southern flank of the Schofield Plateau.

3.4 Surface Hydrology

The majority of the land area at the site is paved. Surface runoff generated at the site drains towards Loaa Street where it is intercepted by the City and County of Honolulu drainage system.

The nearest surface water bodies are Waikele Stream and Pearl Harbor West Loch which connect to the Pacific Ocean. Waikele Stream is about 2,200 feet east of the site and Pearl Harbor West Loch is about 3,300 feet to the southeast.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, the assessed properties are located in an area in which flood hazards are undetermined (Zone D).

3.5 Ground Water Hydrology

The site is situated in an area with significant ground water discharge. Ground water occurring in this portion of the aquifer is currently exploited for drinking water purposes. According to the University of Hawaii Water Resources Research Center Technical Report #179 (Mink & Lau, 1990), the ground water underlying the site is considered to be a significant source of drinking water. According to aquifer classification records, the property is situated over two (2) aquifers as shown in Table 1. The aquifers are basal aquifers where a layer or lens of fresh water is situated on top of sea water following the Ghyben-Herzberg principal. Ground water flow in the aquifers is generally towards the south-southeast

TABLE 1: AQUIFER CLASSIFICATION SYSTEM

Aquifer	Caprock Aquifer	Basalt Aquifer
Aquifer Code	30203118	30203121
Island Code	3 - Oahu	3 - Oahu
Aquifer Sector	02 - Pearl Harbor	02 - Pearl Harbor
Aquifer System	03 - Waipahu	03 - Waipahu
Aquifer Type, hydrogeology	1 - Basal	1 - Basal
Aquifer Condition	1 - Unconfined	2 - Confined
Aquifer Type, geology	6 - Sedimentary	1 - Flank
Status Code	12211	12212
Development Stage	1 - Currently Used	1 - Currently Used
Utility	2 - Ecologically Important	2 - Ecologically Important
Salinity (in mg/L Cl)	2 - Low (250 - 1,000)	2 - Low (250 - 1,000)
Uniqueness	1 - Irreplaceable	1 - Irreplaceable
Vulnerability to Contamination	1 - High	2 - Moderate

The assessed properties are situated upgradient (mauka) of the Underground Injection Control Line (UIC) in this area of Oahu. As described below, the utility of the ground water immediately beneath the properties has been evaluated in accordance with revised guidelines presented in DOH's policy statement entitled "Determination of Ground Water Utility at Leaking Underground Storage Tank Sites", September 19, 1995.

In accordance with the DOH guidelines, the University of Hawaii Water Resources Research Center (WRRC) report for Oahu (Mink and Lau, 1990) was used to determine the utility of the ground water at the Site. The report indicates that the ground water located immediately beneath the Site is part of the Waipahu Basal aquifer systems for the Island of Oahu, as described in Table 1 (see Appendix D for explanation of codes).

Based on the DOH Underground Injection Control Maps for Schofield Barracks (O-5) and Waipahu (O-9)(Figure 6), there are twenty eight (28) known public drinking water supply wells within a one (1) mile radius of the assessed property. These wells are located between ¼ and ¾ mile to the northeast, south and southwest from the assessed property. The wells are upgradient, cross gradient and downgradient of the site. DOH records do not indicate the presence of any individual or municipal disposal wells within a one (1) mile radius of the assessed property.

4.0 Current and Prior Property Use

The assessed properties are the planned Village Park Connector Road alignment extending from Loaa Street to Kupuna Loop along a portion of an old cane haul road (Photo 1) in the area of Waipahu and Village Park, Oahu, Hawaii (Figure 1). The properties are legally identified as TMKs: (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.), (1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.) (Photos 2, 3 and 4)(Figures 2A, 2B, 2C and 2D). The five (5) parcels encompass an area of approximately 76,000 square feet.

Based on available information, it appears that the assessed property has been used for agricultural or residential purposes for at least 54 years.

The current owners of record for each TMK are:

- TMK: (1) 9 - 4 - 55: 146 Moanalua Congregational Christian Church of American-Samoa.
- TMK: (1) 9 - 4 - 55: 61 (por.) Tony D. Andres Trust.
- TMK: (1) 9 - 4 - 34: 43 (por.) Geoffrey P. Fagaragan, Imelda F. Fagaragan.
- TMK: (1) 9 - 4 - 02: 28 (por.) Moanalua Congregational Christian Church of American-Samoa.
- TMK: (1) 9 - 4 - 132: 100 (por.) Taylor T. Tran, Jennifer V. Tran.

Prior property history follows in Tables 2 through 6:

TABLE 2: PROPERTY OWNERSHIP HISTORY: TMK(1) 9-4-55: 146	
Date	**Owner**
Prior to 1947	James Robinson Estate as part of TMK (1) 9-4-02: 1.
1947	Caroline J. Robinson Trust Estate et al as part of TMK (1) 9-4-02: 1.
1959	James Robinson Heirs et al as part of TMK (1) 9-4-02: 17.
May 1959	James Robinson Limited et al as part of TMK (1) 9-4-02: 17.
June 1959	Caroline J. Robinson Trust Estate, James L. P. Robinson Trust Estate, Mark A. Robinson Trust Estate, Mark A. Robinson & Mary K. H. Robinson Trust, James Robinson Limited Partnership Trust as part of TMK (1) 9-4-02: 17.
October 1987	Caroline J. Robinson Limited Partnership, Mark A. Robinson Trust Estate, Mark & Mary Robinson Trust, James L. P. Robinson Limited Partnership Trust, Waikele Lands Limited.
May 1999	Moanalua Congregational Christian Church of American-Samoa, Waikele Land Ltd.
September 2000 to present	Moanalua Congregational Christian Church of American-Samoa.

TABLE 3: PROPERTY OWNERSHIP HISTORY: TMK(1) 9-4-55: 61 (por.)	
Date	**Owner**
Prior to 1947	James Robinson Estate as part of TMK (1) 9-4-02: 1.
1947	Caroline J. Robinson Trust Estate et al as part of TMK (1) 9-4-02: 1.
1959	James Robinson Heirs et al as part of TMK (1) 9-4-02: 17.
May 1959	James Robinson Limited et al as part of TMK (1) 9-4-02: 17.
June 1959	Caroline J. Robinson Trust Estate, James L. P. Robinson Trust Estate, Mark A. Robinson Trust Estate, Mark A. Robinson & Mary K. H. Robinson Trust, James Robinson Limited as part of TMK (1) 9-4-02: 17.
February 1969	Caroline J. Robinson Trust Estate et al (with a lease to Tony D. Andres, Delores B. Andres) as part of TMK (1) 9-4-02: 17.
June 1984	Caroline J. Robinson Limited Partnership et al (with a lease to Tony D. Andres, Delores B. Andres).
February 1986	Caroline J. Robinson Limited Partnership et al (with a lease to Tony D. Andres).
July 1987	Caroline J. Robinson Limited Partnership, Mark A. Robinson Trust Estate, Mark & Mary Robinson Trust, James L. P. Robinson Limited Partnership Trust, Waikele Lands Limited (with a lease to Tony D. Andres).
December 1988	Caroline J. Robinson Limited Partnership, Mark A. Robinson Trust Estate, Mark & Mary Robinson Trust, James L. P. Robinson Limited Partnership (with a lease to Tony D. Andres).
July 1989	Housing Finance and Development Corporation (with a lease to Tony D. Andres).
July 1989	Tony D. Andres.
May 1998 to present	Tony D. Andres Trust.

TABLE 4: PROPERTY OWNERSHIP HISTORY: TMK(1) 9-4-132: 100 (por.)	
Date	**Owner**
Prior to 1947	James Robinson Estate as part of TMK (1) 9-4-02: 1.
1947	Caroline J. Robinson Trust Estate et al as part of TMK (1) 9-4-02: 1.
October 1957	James Robinson Heirs et al as part of TMK (1) 9-4-02: 17.
May 1959	James Robinson Limited et al as part of TMK (1) 9-4-02: 17.
June 1959	Caroline J. Robinson Trust Estate, James L. P. Robinson Trust Estate, Mark A. Robinson Trust Estate, Mark A. Robinson & Mary K. H. Robinson Trust, James Robinson Limited as part of TMK (1) 9-4-02: 17.
December 1976	Caroline J. Robinson Trust Estate, James L. P. Robinson Trust Estate, Mark A. Robinson Trust Estate, Mark A. Robinson & Mary K. H. Robinson Trust, James Robinson Limited (with a lease to VSM Ventures) as part of TMK (1) 9-4-02: 28.
July 1978	Caroline J. Robinson Trust Estate, James L. P. Robinson Trust Estate, Mark A. Robinson Trust Estate, Mark A. Robinson & Mary K. H. Robinson Trust, James Robinson Ltd. (with leases to Tecon Services Inc. and Waitec Development Inc.) as part of TMK (1) 9-4-02: 28.
1981	Caroline J. Robinson Limited Partnership, James L. P. Robinson Trust Estate, Mark A. Robinson Trust Estate, Mark A. Robinson & Mary K. H. Robinson Trust, James Robinson Limited (with a lease to Waitec Development Inc.) as part of TMK (1) 9-4-02: 38.
June 1982	Waikele Lands Limited (with a lease to Waitec Development Inc.) as part of TMK (1) 9-4-02: 38.
1986	James L. P. Robinson Limited Partnership, James L. P. Robinson Limited Partnership Trust (with a lease to Waitec Development Inc.) as part of TMK (1) 9-4-02: 38.
May 1987	Caroline J. Robinson Limited Partnership, Mark A. Robinson Trust Estate, Mark & Mary Robinson Trust, James L. P. Robinson Limited Partnership Trust, Waikele Lands Limited (with leases to Lee C.M. Sonomura and Alva S. Watanabe).
July 1987	Caroline J. Robinson Limited Partnership, Mark A. Robinson Trust Estate, Mark & Mary Robinson Trust, James L. P. Robinson Limited Partnership, Waikele Lands Limited (with leases to Lee C.M. Sonomura and Alva S. Watanabe).
December 1988	Caroline J. Robinson Limited Partnership, Mark A. Robinson Trust Estate, Mark & Mary Robinson Trust, James L. P. Robinson Limited Partnership (with a lease to Lee C.M. Sonomura and Alva S. Watanabe).
September 1989	Housing Finance and Development Corporation (with a lease to Lee C.M. Sonomura and Alva S. Watanabe).
August 1989	Lee C.M. Sonomura, Alva S. Sonomura.
December 1990 to present	Taylor T. Tran, Jennifer V. Tran

TABLE 5: PROPERTY OWNERSHIP HISTORY: TMK(1) 9-4-02: 28	
Date	Owner
Prior to 1947	James Robinson Estate as part of TMK (1) 9-4-02: 1.
1947	Caroline J. Robinson Trust Estate et al as part of TMK (1) 9-4-02: 1.
1959	James Robinson Heirs et al as part of TMK (1) 9-4-02: 17.
May 1959	James Robinson Limited et al as part of TMK (1) 9-4-02: 17.
June 1959	Caroline J. Robinson Trust Estate, James L. P. Robinson Trust Estate, Mark A. Robinson Trust Estate, Mark A. Robinson & Mary K. H. Robinson Trust, James Robinson Limited Partnership Trust as part of TMK (1) 9-4-02: 17.
1977	Caroline J. Robinson Trust Estate, James L. P. Robinson Trust Estate, Mark A. Robinson Trust Estate, Mark A. Robinson & Mary K. H. Robinson Trust, James Robinson Limited Partnership Trust as part of TMK (1) 9-4-02: 17 (with leases to HSM Ventures, Tecon Services Inc. and Waitec Development Inc.).
1978	Caroline J. Robinson Trust Estate, James L. P. Robinson Trust Estate, Mark A. Robinson Trust Estate, Mark A. Robinson & Mary K. H. Robinson Trust, , Waikele Lands Limited as part of TMK (1) 9-4-02: 17.
October 1987	Caroline J. Robinson Limited Partnership, Mark A. Robinson Trust Estate, Mark & Mary Robinson Trust, James L. P. Robinson Limited Partnership Trust, Waikele Lands Limited.
May 1999	Moanalua Congregational Christian Church of American-Samoa, Waikele Land Ltd.
September 2000 to present	Moanalua Congregational Christian Church of American-Samoa.

TABLE 6: PROPERTY OWNERSHIP HISTORY: TMK(1) 9-4-34: 43 (por.)	
Date	Owner
Prior to 1947	James Robinson Estate as part of TMK (1) 9-4-02: 1.
1947	Caroline J. Robinson Trust Estate et al as part of TMK (1) 9-4-02: 1.
1959	James Robinson Heirs et al as part of TMK (1) 9-4-02: 17.
May 1959	James Robinson Limited et al as part of TMK (1) 9-4-02: 17.
June 1959	Caroline J. Robinson Trust Estate, James L. P. Robinson Trust Estate, Mark A. Robinson Trust Estate, Mark A. Robinson & Mary K. H. Robinson Trust, James Robinson Limited as part of TMK (1) 9-4-02: 17.
July 1962	Caroline J. Robinson Trust Estate et al (with a lease to Ronald L. Obrey and Lurline A. Obrey).
1963	Caroline J. Robinson Limited Partnership et al (with a lease to Ronald L. Obrey and Lurline A. Obrey).
July 1977	Hawaii Housing Authority (with a lease to Ronald L. Obrey and Lurline A. Obrey).
July 1977	Ronald L. Obrey, Lurline A. Obrey.
December 1991	Ronald L. Obrey Trust, Lurline A. Obrey Trust.
July 2000 to present	Geoffrey P. Fagaragan, Imelda F. Fagaragan.

5.0 Results of Investigation

5.1 Previous Investigations

No previous environmental site assessments are known to exist for the subject property.

5.2 Field Investigation

On November 2, 2000, Edward K. Noda and Associates, Inc. performed a survey/inspection of the assessed properties and the surrounding area. The results are discussed below.

- At the time of the field investigation, the site is ninety percent covered with asphaltic concrete and is currently an old unused cane haul road (Photo 1). The remainder of the Site is covered by vegetation.
- Sanitary wastes generated in the vicinity of the assessed properties are disposed of through the municipal sewer system.
- At present, there are no pits, landfills, open or closed dumps for disposal of solid waste on the Site. Solid waste generated at the site is placed in bags and containers and removed by a refuse service. There is a trench at the site for drainage.
- No fill ports, vent pipes, product dispensers or other evidence of underground fuel storage tanks were observed at the site during the site inspection.
- The site survey identified 2 abandoned motor vehicles along the alignment.
- The site survey identified rain run off which displays a petroleum product sheen flowing onto the Site from the H-1 Freeway.
- No electrical transformer vaults (a potential source of polychlorinated biphenyls) were identified at the site.

5.3 Adjacent Site and Vicinity Observations

Along with the site survey, a reconnaissance of the area within a ¼ mile radius of the site was conducted. The property is situated in an area which is zoned R-5 for residential use. The area immediately adjacent to the Site consist of single family residents and the H-1 Freeway which passes over a portion of the Site. The remainder of the area predominantly includes single and multi-family housing. A limited number of small businesses are located at the southern ¼ mile boundary. Included in these businesses is the Ewa Repair Shop (previously a Unocal 76 Service Station) which was the site of a leaking underground storage tank (discussed in the following section).

5.4 Results of Regulatory Agency List Review and File Research

Research was undertaken to identify off-site facilities, within one (1) mile of the assessed property, which may present adverse environmental effects on the assessed property. Table 6 (on the next page) provides a summary of facilities on Federal and State environmental database listings.

TABLE 7: SUMMARY OF FACILITIES ON FEDERAL AND STATE ENVIRONMENTAL DATABASES

FEDERAL/STATE ENVIRONMENTAL DATABASE	FACILITIES
US EPA National Priorities List[1] (NPL)	0
US EPA CERCLIS[2]	2
US EPA Resource Conservation and Recovery Act Treatment, Storage and Disposal Facilities[3] (RCRA-TSD)	0
US EPA Resource Conservation and Recovery Act Violations and Enforcement Actions[4] (RCRA-Viol)	2
US EPA Resource Conservation and Recovery Act Generators[5] (RCRA-GNRTR)	3
Emergency Response Notification System[6] (ERNS)	0
Hawaii Department of Health UST/AST List	49
Hawaii Department of Health Leaking UST List	20
Hawaii Department of Health Solid Waste Facilities	0
Hawaii Department of Health Release Log (SPILLS)	8

1 The US EPA National Priorities List (NPL) is the EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Federal Superfund Program.

2 The US EPA CERCLIS Database is a compilation of sites which have been investigated or are currently under investigation for a release or threatened release of hazardous substances in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund).

3 The US EPA RCRA TSD Database is a program which monitors facilities involved in the transportation, storage and disposal of hazardous substances.

4 The US EPA RCRA Viol Database is a program which monitors facilities which are or have been under investigation for violations and may be subject to enforcement action.

5 The US EPA RCRA GNRTR Database is a program which monitors facilities which are registered small or large quantity generators of hazardous waste.

6 The Emergency Response Notification System (ERNS) is a nation-wide database with listings of reported releases/spills of oil and hazardous substances.

Of the facilities identified, there are no listed facilities in the immediate vicinity (within one half mile) that are or have been involved in the generation or transportation of hazardous materials/wastes.

Of the leaking underground storage tank facilities identified, the following facilities are in the immediate vicinity, i.e., within one quarter mile of the assessed property:

- Unocal 76 SS L 5177 (currently Ewa Repair Shop)
  94-303 Waipahu Street
  (Cleanup Completed)

6.0 Discussion and Conclusions

A Phase I Environmental Site Assessment was conducted on the planned Village Park Connector Road alignment extending from Loaa Street to Kupuna Loop along a portion of an old cane haul road in the area of Waipahu, Oahu, Hawaii, Oahu, Hawaii and legally identified by Tax Map Keys (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.), (1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.) was undertaken by Edward K. Noda and Associates, Inc. to investigate for the presence of petroleum products and other environmentally hazardous substances/wastes at the site.

The Phase I Environmental Site Assessment indicates that:

- No previous environmental site assessments are known to exist for the subject facility.
- The site survey identified 2 abandoned motor vehicles along the alignment (Photos 5 and 6).
- The site survey identified rain run off which displays a petroleum product sheen flowing onto the Site from the H-1 Freeway (Photo 7).
- No electrical transformer vaults, or other suspect sources of PCB, were identified at the site.
- A review of state environmental databases indicates 1 facility within one quarter of a mile of the assessed property has reported a release or leak from underground storage tanks to the Hawaii Department of Health. This facility has completed cleanup activities.
- A review of federal and state environmental databases also indicates there are no listed facilities within one half mile that are generators of hazardous materials/wastes.

In view of the above, and based on a review of available information, the following may be concluded:

- There was no direct evidence of hazardous substance/ waste surface contamination at the property.

- There is some potential of surface petroleum hydrocarbon contamination at the property, resulting from rain runoff from the H-1 Freeway.

To address the environmental concerns identified by this Phase I Environmental Site Assessment, it is recommended that:

- Surface soil samples of the property, near the H-1 Freeway, be analyzed for non-volatile petroleum product.

7.0 Limitations and Conditions

Although this Phase I Environmental Site Assessment provides information on the relative presence or absence of suspected environmental contaminants at the investigated site, it should not be construed as a final statement regarding environmental conditions at the assessed facility or the subject property.

The information set forth is based solely on the agreed upon scope of services. This information is based on personal observation, researching of public documentation, and data provided by others. The presence of subsurface contamination, asbestos containing materials, lead-based paints, radioactive materials, and biological hazards were not specifically investigated.

Given the often obscure and elusive nature of hazardous substances it is never possible to absolutely dismiss the possibility of site contamination, even with exhaustive sampling and testing. Edward K. Noda and Associates, Inc. expressly disclaim any and all liability representations, expressed, or implied, contained in, or for omissions from this report, or any other written or oral communication which might be interpreted as establishing the total extent of all liability present at the subject property.

Our services have been performed with the usual thoroughness and competence of the consulting profession, in accordance with the standards for professional services at this time. No other warranty or representation, either expressed or implied, is included or intended.

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Published References

1. City and County of Honolulu, Real Property Tax Division, Historical Records for TMKs (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61, (1) 9 - 4 - 34: 43 and (1) 9 - 4 - 132: 100.

2. State of Hawaii, Department of Health, Solid & Hazardous Waste Branch, List of Permitted Solid Waste Facilities (SWLF), 05/99.

3. State of Hawaii, Department of Health, Solid & Hazardous Waste Branch, Underground Storage Tank Section, List of Underground Storage Tank Facilities (UST), 07/00.

4. State of Hawaii, Department of Health, Solid & Hazardous Waste Branch, Underground Storage Tank Section, List of Underground Storage Tank Releases (LUST), 07/00.

5. U.S. Environmental Protection Agency, CERCLIS Listing, 04/00.

6. U.S. Environmental Protection Agency, Emergency Response Notification System Listing (ERNS), 08/99.

7. U.S. Environmental Protection Agency, List of Open Dump Sites, 05/99.

8. U.S. Environmental Protection Agency, National Priorities List (NPL), 04/00.

9. U.S. Environmental Protection Agency, RCRA Facility Listing, 03/00.

10. U.S. Department of Agriculture, Soil Conservation Service, "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii." 1972.

11. Macdonald, Gordon A., Abbot, Agatin T., and Peterson, Frank L., "Volcanoes in the Sea - The Geology of Hawaii", University of Hawaii Press, 1983.

12. Mink, John F. and Lau, Stephen L., "Aquifer Identification and Classification for Oah'u, Ground water Protection Strategy for Hawai'i, February 1990, Water Resources Research Center, University of Hawaii at Manoa, Honolulu.

Map and Other Geographical References

1. U.S. Geological Survey, "Schofield Barracks and Waipahu Quadrangles", 7.5 Minute Series, Topographic Map, 1983.

2. U.S. Department of Agriculture, "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii", 1972.

3. Department of Health, State of Hawaii, "Underground Injection Control Map, Schofield Barracks (O-5) and Waipahu (O-9) Quadrangles, 1983.

4. Federal Emergency Management Agency, "Flood Insurance Rate Map", Number 150001-0110 D, September 30, 1995.

APPENDIX A - FIGURES

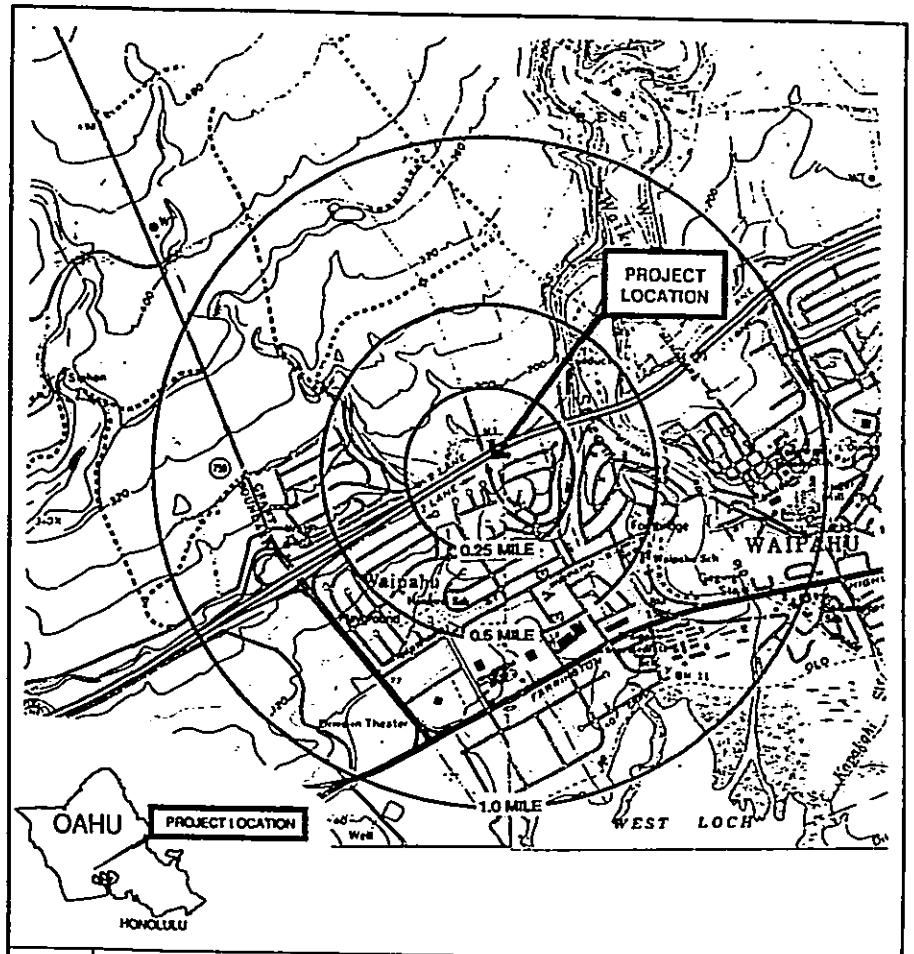
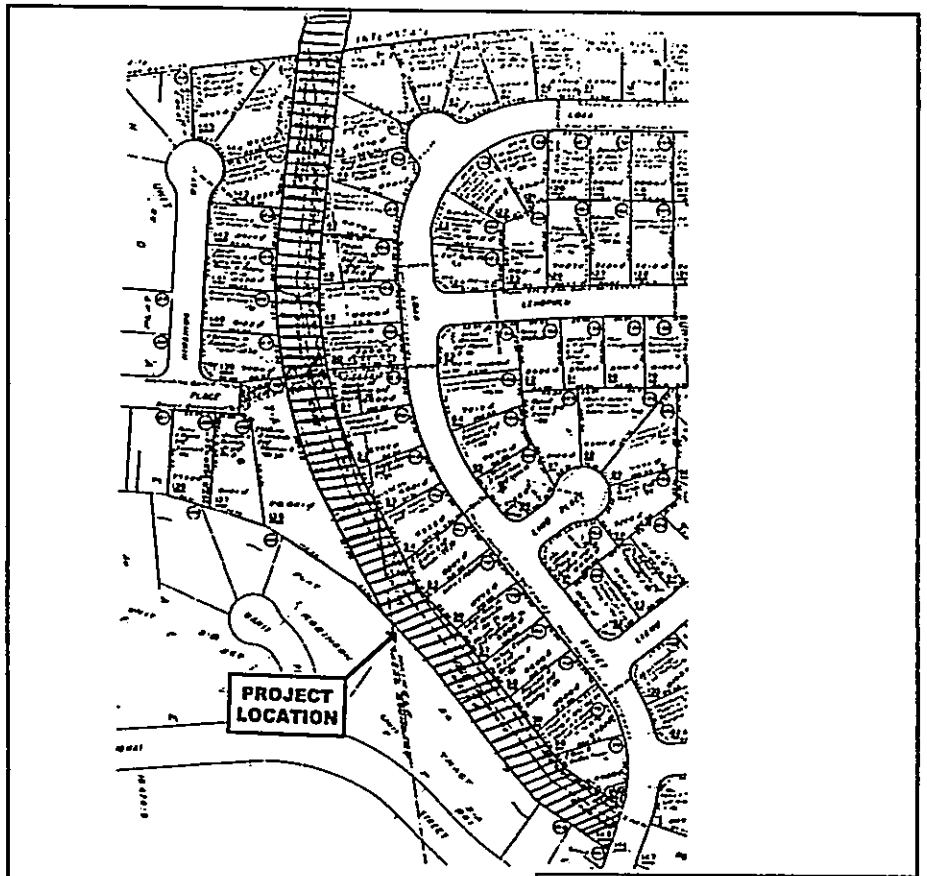


FIGURE 1 - LOCATION MAP

REFERENCE: USGS "Schofield Barracks & Waipahu Quadrangles", 7.5 Minute Series, Topographic Map

PREPARED BY: C. BROWN		Edward K. Noda and Associates, Inc.
PROJECT NUMBER: 2208-00F	DATE: NOVEMBER 2000	



FIRST TAXATION DISTRICT			
9	4	55	146 & 61 (por.)

100 50 0 100 200

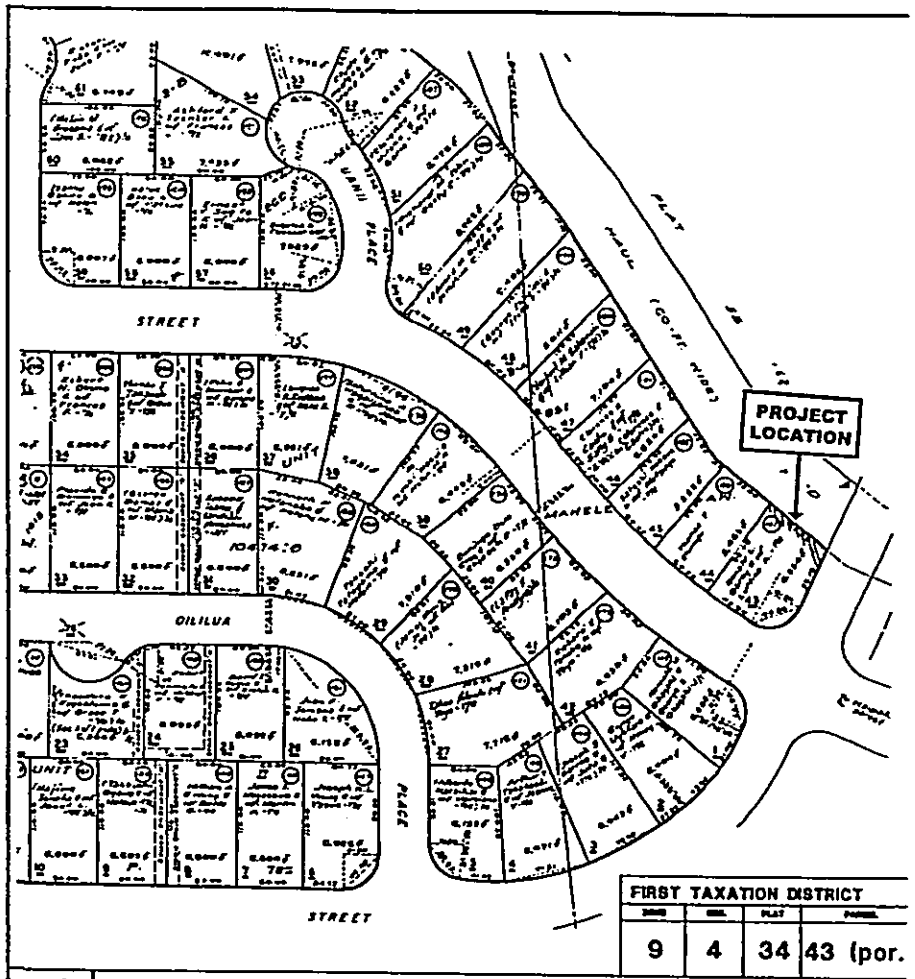
APPROXIMATE SCALE IN FEET

NORTH

FIGURE 2A - TMK LOCATION MAP

REFERENCE: C&C of Honolulu, Real Property Tax Division, Tax Maps For TMK: (1) 9-4-55: 146 and 61 (por.) ; © 2000, Experian Information Solutions, Inc.

PREPARED BY: C. BROWN		
PROJECT NUMBER: 2208-00F	DATE: NOVEMBER 2000	Edward K. Noda and Associates, Inc.



FIRST TAXATION DISTRICT			
9	4	34	43 (por.

100 50 0 100 200

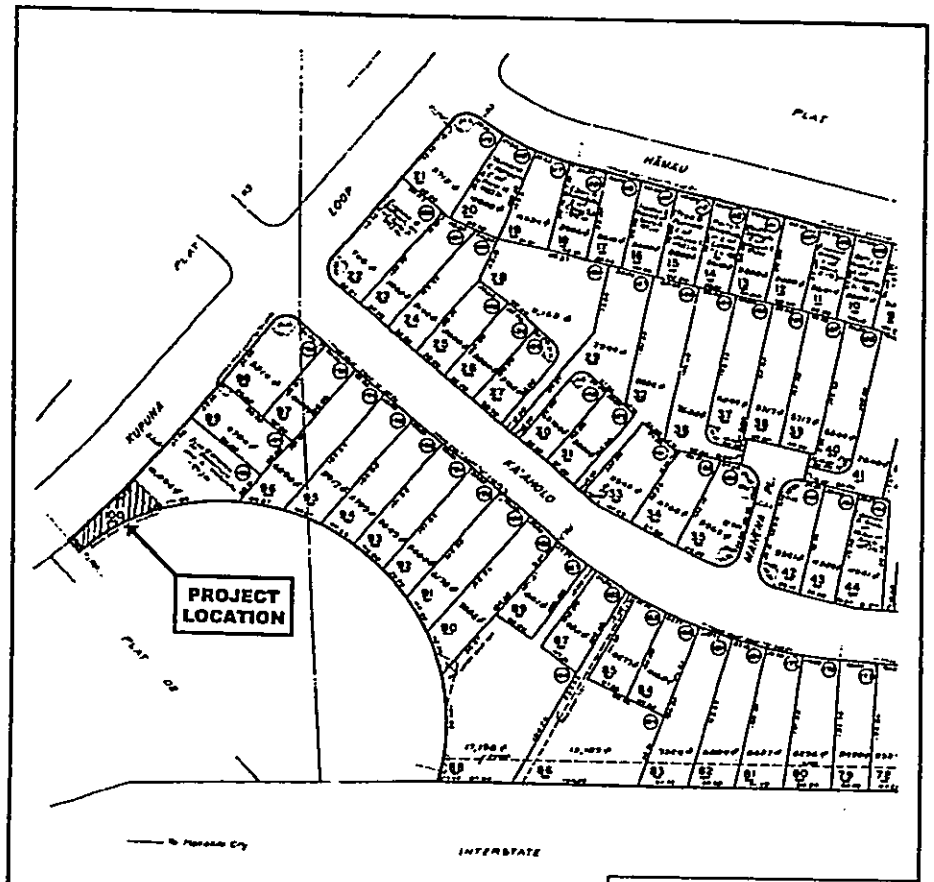
APPROXIMATE SCALE IN FEET

NORTH

FIGURE 2B - TMK LOCATION MAP

REFERENCE: C&C of Honolulu, Real Property Tax Division, Tax Maps For TMK: (1) 9-4-34: 43 (por.) ; © 2000, Experian Information Solutions, Inc.

PREPARED BY: C. BROWN		
PROJECT NUMBER: 2208-00F	DATE: NOVEMBER 2000	Edward K. Noda and Associates, Inc.



FIRST TAXATION DISTRICT			
9	4	132	100 (por.)

NORTH

100 50 0 100 200

APPROXIMATE SCALE IN FEET

FIGURE 2C - TMK LOCATION MAP

REFERENCE: C&C of Honolulu, Real Property Tax Division, Tax Maps For TMK: (1) 9-4-132: 100 (por.) ; © 2000, Experian Information Solutions, Inc.

PREPARED BY: C. BROWN		Edward K. Noda and Associates, Inc.
PROJECT NUMBER: 2208-00F	DATE: NOVEMBER 2000	

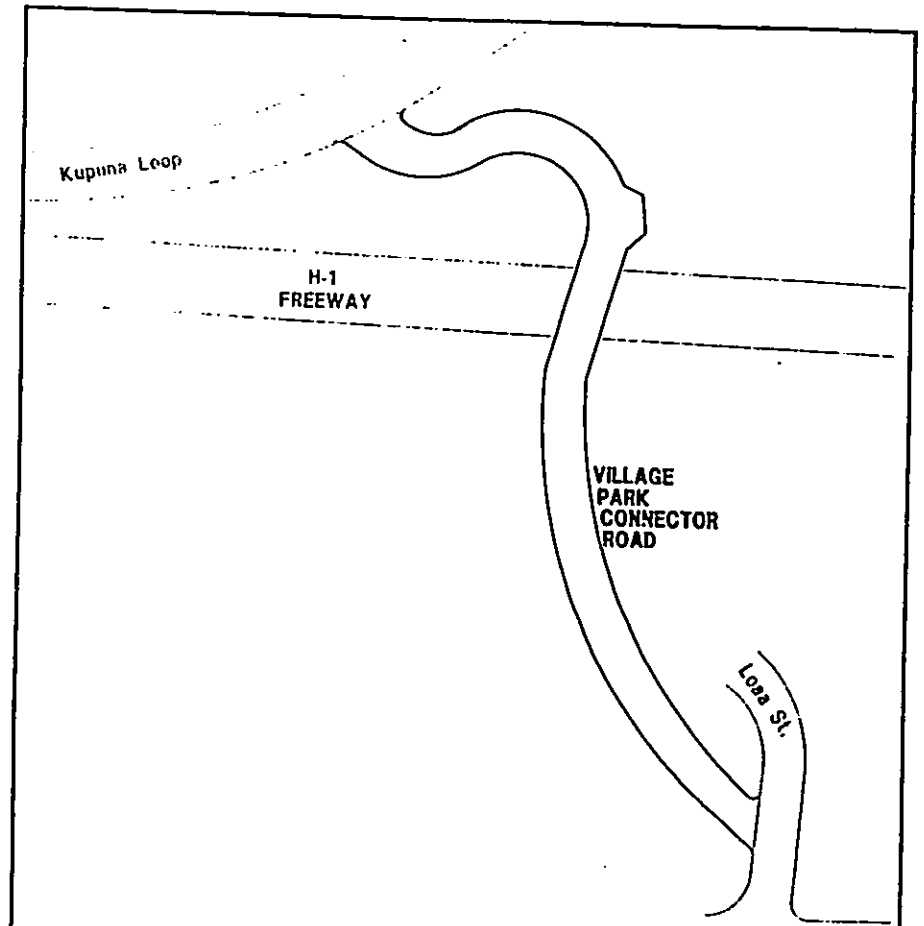
FIRST TAXATION DISTRICT			
9	4	02	28 (por.)

NORTH

FIGURE 2D – TMK LOCATION MAP

REFERENCE: C&C of Honolulu, Real Property Tax Division, Tax Maps For TMK: (1) 9–4–02: 28 (por.) ; © 2000, Experian Information Solutions, Inc.

PREPARED BY: C. BROWN		Edward K. Noda and Associates, Inc.
PROJECT NUMBER: 2208–00F	DATE: MARCH 2001	

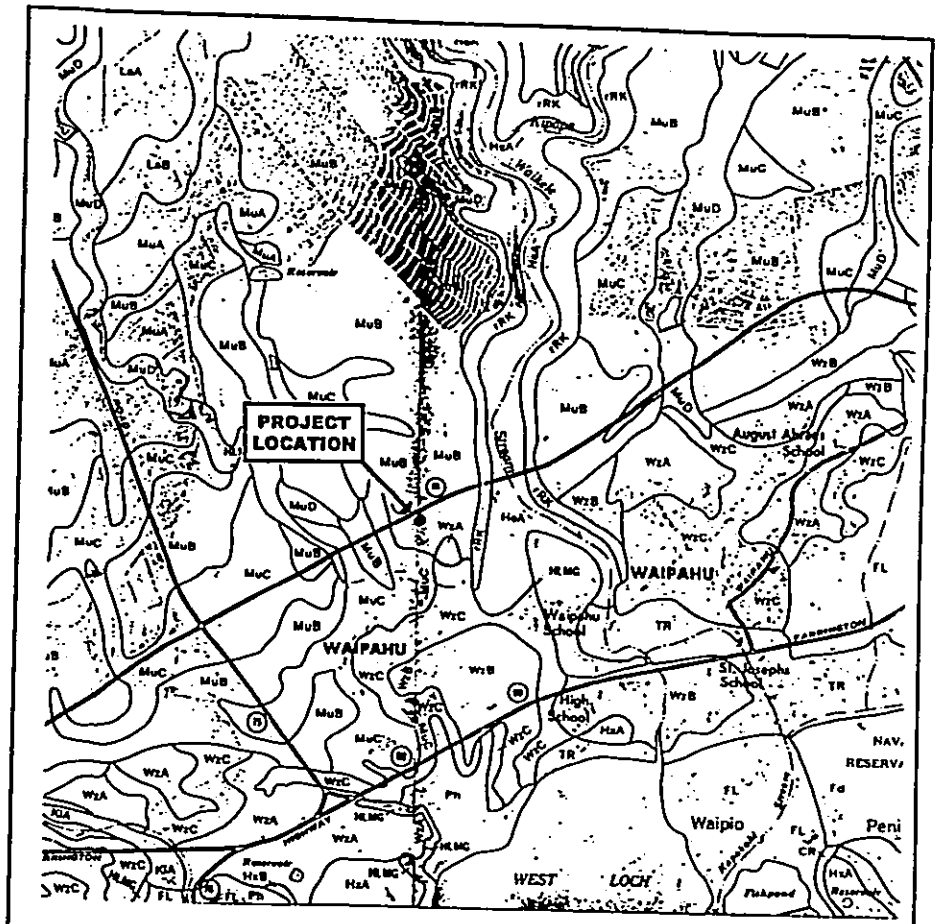


NOT TO SCALE

FIGURE 3 - SITE PLAN

VILLAGE PARK CONNECTOR ROAD, WAIPAHU, OAHU, HAWAII

DRAWN BY: C. BROWN		Edward K. Noda and Associates, Inc.
PROJECT NUMBER: 2208-00F	DATE: NOVEMBER 2000	



MuB = Molokai Silty Clay Loam

2000 1000 0 2000 4000

GRAPHIC SCALE IN FEET

FIGURE 4 - SOIL CLASSIFICATION MAP

REFERENCE: U.S.D.A., 1972, "SOIL SURVEY OF ISLANDS OF KAUAI, OAHU, MAUI, MOLOKAI and LANAI, STATE OF HAWAII"

PREPARED BY: C. BROWN		Edward K. Noda and Associates, Inc.
PROJECT NUMBER: 2208-00F	DATE: NOVEMBER 2000	

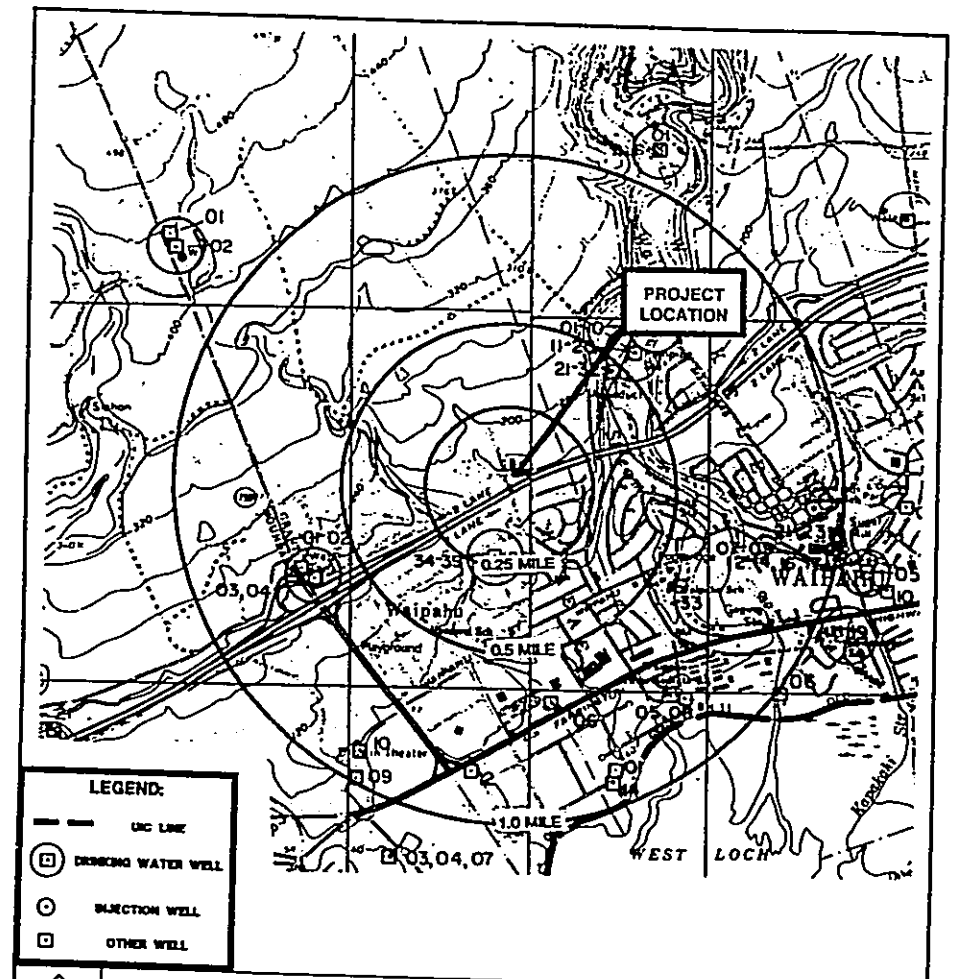


FIGURE 5 - UNDERGROUND INJECTION CONTROL MAP

Reference: State of Hawaii, Department of Health, "Underground Injection Control Map, Schofield Barracks (O-5) & Waipahu (O-9) Quadrangles," 1983

PREPARED BY: C. BROWN		Edward K. Noda and Associates, Inc.
PROJECT NUMBER: 2208-00F	DATE: NOVEMBER 2000	

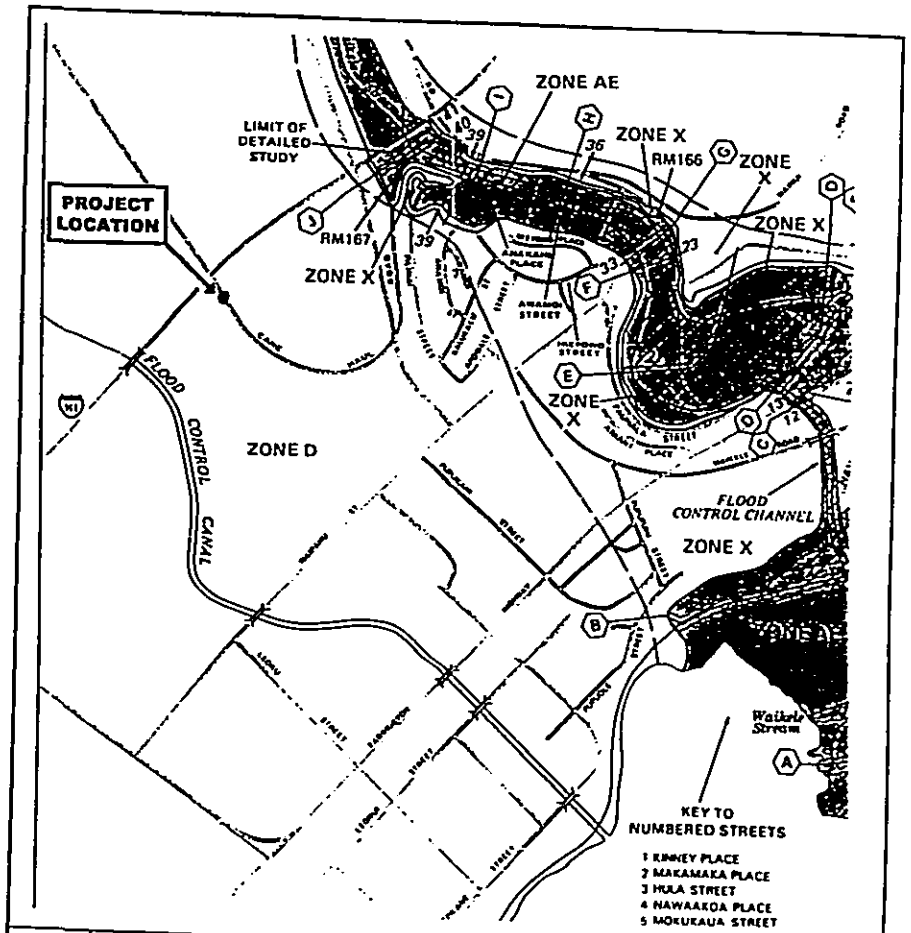


FIGURE 6 - FLOOD INSURANCE RATE MAP

REFERENCE: FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP, NO. 150001 0110D, SEPTEMBER 30, 1995

PREPARED BY: C. BROWN		Edward K. Noda and Associates, Inc.
PROJECT NUMBER: 2208-00F	DATE: NOVEMBER 2000	

APPENDIX B

SITE PHOTOGRAPHS

Photo 1: View of Cane Haul Road at H-1 Freeway
Photo taken by: C. Brown

Photo 2: View of Property TMK (1) 9 - 4 - 132: 100
Photo taken by: C. Brown

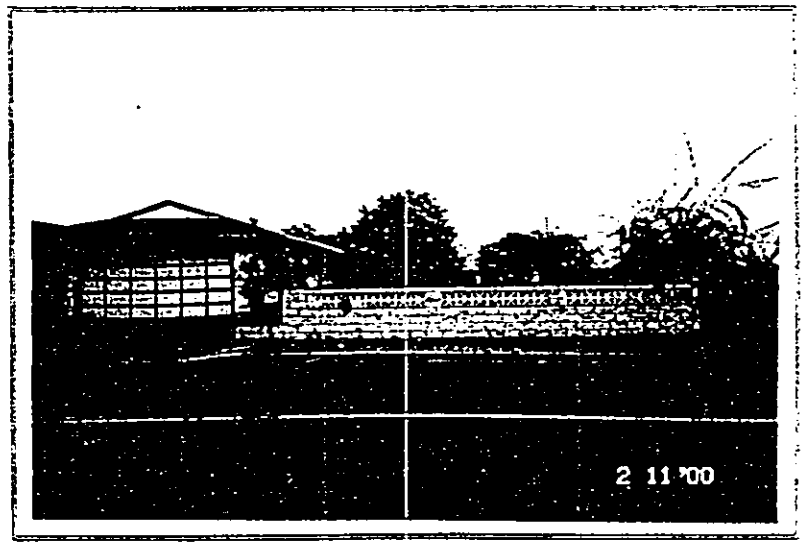


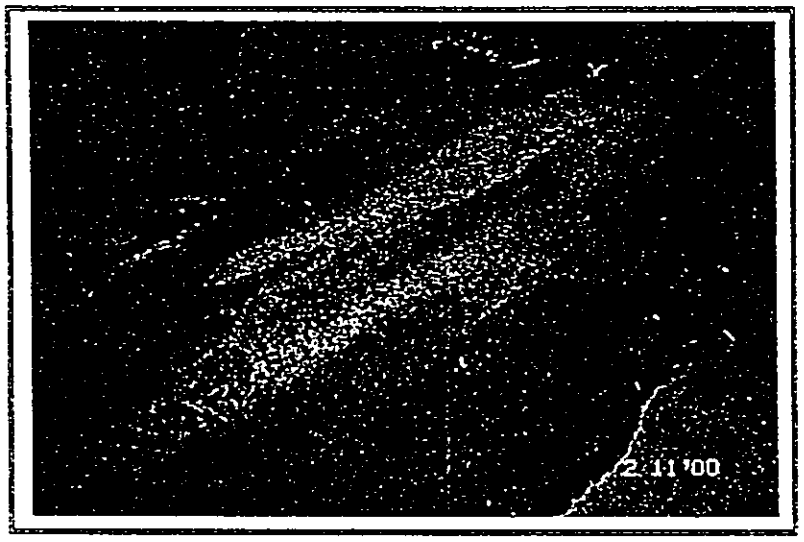
Photo 3. View of Property TMK (1) 9 - 4 - 55: 6
Photo taken by: C. Brown

Photo 4: View of Property TMK (1) 9 - 4 - 34: 43
Photo taken by: C. Brown

Photo 5. Abandoned Vehicle under H-1 Freeway
Photo taken by: C. Brown

Photo 6. Abandoned Vehicle south of H-1 Freeway
Photo taken by: C. Brown

Photo 7: Petroleum Product Sheen Flowing onto the Site from the H-1 Freeway
Photo taken by: C. Brown



APPENDIX G

LIMITED SOIL SAMPLING
by Edward K. Noda & Associates, Inc.

Limited Soil Sampling
Village Park Connector Road
Waipahu, Oahu, Hawaii
TMKs: (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.), (1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.)

PREPARED FOR:

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Project No. 2208-01F
October 2001

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WAIPAHU, OAHU, HAWAII
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(1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.)

Executive Summary

A Limited Soil Sampling was conducted on the planned Village Park Connector Road alignment extending from Loaa Street to Kupuna Loop along a portion of an old cane haul road in the area of Waipahu, Oahu, Hawaii by Edward K. Noda and Associates, Inc. (EKNA) at the request of Engineering Concepts, Inc., 1150 South King Street, Suite 700, Honolulu, Hawaii 96814. This report has been prepared for the use of Engineering Concepts, Inc., and their clients. This report is for specific application to the properties legally identified by Tax Map Keys (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.), (1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.).

The purpose of the Limited Soil Sampling was to determine the presence of petroleum products along the planned road alignment.

This investigation indicates that:

- A previous site survey identified two (2) abandoned motor vehicles along the alignment.
- A previous site survey identified rain runoff which displays a petroleum product sheen flowing onto the Site from the H-1 Freeway.
- All eight (8) of the near surface soil samples taken on the Site indicated some detectable levels of petroleum products and constituents. The most prominent petroleum product detected was Total Petroleum Hydrocarbons as Oil and Grease (TPH-O&G). Constituents detected were Benzo(a)pyrene and Fluoranthene.

In view of the above, and based on a review of available information, the following may be concluded:

- The abandoned motor vehicles and/or past rain runoff flowing onto the Site from the H-1 Freeway have not caused levels of petroleum contamination of the surface soils above the Hawaii Department of Health's Tier I Action Levels for Soil and Ground Water (ALSG) along the Village Park Connector Road alignment.

LIMITED SOIL SAMPLING
VILLAGE PARK CONNECTOR ROAD
WAIPAHU, OAHU, HAWAII
TMKs: (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.),
(1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.)

1.0 Introduction

A Limited Soil Sampling was conducted on the planned Village Park Connector Road alignment extending from Loaa Street to Kupuna Loop along a portion of an old cane haul road in the area of Waipahu, Oahu, Hawaii (Figure 1) by Edward K. Noda and Associates, Inc. (EKNA) at the request of Engineering Concepts, Inc., 1150 South King Street, Suite 700, Honolulu, Hawaii 96814. This report has been prepared for the use of Engineering Concepts, Inc., and their clients. This report is for specific application to the properties situated at Tax Map Keys (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.), (1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.).

1.1 Purpose

The purpose of this Limited Soil Sampling was to determine the possible presence of petroleum products along the planned Village Park Connector Road alignment.

1.2 Involved Parties

The parties involved in the compilation and preparation of this ESA are:

Client Points of Contact: Mr. Kay Muranaka, V.P., Engineering Concepts, Inc.

EKNA Project Manager: Mr. Dayton E. Fraim, P.G., P.E.
Senior Engineering Geologist

EKNA Site Assessor: Mr. Charles G. Brown

1.3 Scope of Work

This project was limited to obtaining eight (8) samples of the near-surface soils at selected locations along the proposed Village Park Connector Road alignment. Particular attention was paid to the area near the H-1 Freeway.

Analysis of the samples was to be performed by a qualified laboratory for the following analytes:

- Total Petroleum Hydrocarbons as Gasoline (TPH-G);

- Total Petroleum Hydrocarbons as Diesel Fuel (TPH-D);
- Total Petroleum Hydrocarbons as Oil and Grease (TPH-O&G);
- Semi-Volatile Organic Compounds (SVOC).

The work has been conducted in general accordance with accepted industry standards, accepted local practices and a professional standard of care.

2.0 General Site Characteristics

2.1 Site Location

The subject properties are situated between Loaa Street to Kupuna Loop along a portion of an old cane haul road in the area of Waipahu, on the island of Oahu, Hawaii. The properties are legally identified by TMKs: (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.), (1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.). The general location of the properties and their vicinity are shown on Figures 1, 2A, 2B, 2C and 2D.

2.2 Adjacent Properties

The subject properties are situated in the Waipahu and Village Park areas of Oahu (Figures 2A, 2B, 2C and 2D). Land use in the area immediately surrounding the site is predominately residential.

The properties are bordered by residential property, vacant property and a small portion of the H-1 Freeway.

2.3 Site Description and Current Site Use

The subject property encompass an area of approximately 76,000 square feet. At present, the site is occupied by a currently unused, paved cane haul road and small portions of residential lots.

The subject properties are unoccupied by any structure. The majority of the site is paved with asphaltic concrete.

3.0 Environmental Setting

3.1 Regional Physiographic Conditions

The ground surface elevation of the site is on the order of about one-hundred twenty (120) feet above mean sea level. The topography in the region of the site slopes gently down towards Pearl Harbor (Pacific Ocean) in a southerly direction.

3.2 Soil Conditions

The surface soils in the area of the site generally consist of well drained soils formed in material weathered from basic igneous rock. These soils have been classified by the U.S. Department of Agriculture, Soil Conservation Service as Molokai Silty Clay Loam 3 to 7 percent slopes (MuB)(Figure 4). Runoff is slow to medium and the erosion hazard is slight to moderate.

3.3 Regional Geology

The island of Oahu is composed largely of the weathered remnants of two extinct shield volcanoes - Waianae and Koolau. Koolau is the younger of the two and forms the eastern two-thirds of the island. After the cessation of the main shield building phase of Koolau, erosion deposited alluvial materials on the lower flanks of the volcano.

After the cessation of Waianae's shield building activity, lava flows from Koolau continued to bank against Waianae's eastern flank forming a broad plateau between the two (2) volcanoes. This plateau is referred to as the Schofield Plateau, which consists of a thick sequence of residual soils and saprolite over the parent rock. The base of the stratigraphic section is the Koolau Basalts. The project site is situated over a thick wedge of alluvium and other sediments on the southern flank of the Schofield Plateau.

3.4 Surface Hydrology

The majority of the land area at the site is paved. Surface runoff generated at the site drains towards Loaa Street where it is intercepted by the City and County of Honolulu drainage system.

The nearest surface water bodies are Waikele Stream and Pearl Harbor West Loch which connect to the Pacific Ocean. Waikele Stream is about 2,200 feet east of the site and Pearl Harbor West Loch is about 3,300 feet to the southeast.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, the assessed properties are located in an area in which flood hazards are undetermined (Zone D)(Figure 6).

3.5 Ground Water Hydrology

The site is situated in an area with significant ground water discharge. Ground water occurring in this portion of the aquifer is currently exploited for drinking water purposes. According to the University of Hawaii Water Resources Research Center Technical Report #179 (Mink & Lau, 1990), the ground water underlying the site is considered to be a significant source of drinking water. According to aquifer classification records, the property is situated over two (2) aquifers as shown in Table 1. The aquifers are basal aquifers where a layer or lens of fresh water is

situated on top of sea water following the Ghyben-Herzberg principal. Ground water flow in the aquifers is generally towards the south-southeast

Table 1: Aquifer Classification System		
Aquifer	Caprock Aquifer	Basalt Aquifer
Aquifer Code	30203116	30203121
Island Code	3 - Oahu	3 - Oahu
Aquifer Sector	02 - Pearl Harbor	02 - Pearl Harbor
Aquifer System	03 - Waipahu	03 - Waipahu
Aquifer Type, hydrogeology	1 - Basal	1 - Basal
Aquifer Condition	1 - Unconfined	2 - Confined
Aquifer Type, geology	6 - Sedimentary	1 - Flank
Status Code	12211	12212
Development Stage	1 - Currently Used	1 - Currently Used
Utility	2 - Ecologically Important	2 - Ecologically Important
Salinity (in mg/L Cl)	2 - Low (250 - 1,000)	2 - Low (250 - 1,000)
Uniqueness	1 - Irreplaceable	1 - Irreplaceable
Vulnerability to Contamination	1 - High	2 - Moderate

The assessed properties are situated upgradient (mauka) of the Underground Injection Control Line (UIC) in this area of Oahu. As described below, the utility of the ground water immediately beneath the properties has been evaluated in accordance with revised guidelines presented in DOH's policy statement entitled "Determination of Ground Water Utility at Leaking Underground Storage Tank Sites", September 19, 1995.

In accordance with the DOH guidelines, the University of Hawaii Water Resources Research Center (WRRC) report for Oahu (Mink and Lau, 1990) was used to determine the utility of the ground water at the Site. The report indicates that the ground water located immediately beneath the Site is part of the Waipahu Basal aquifer systems for the Island of Oahu, as described in Table 1 (see Appendix D for explanation of codes).

Based on the DOH Underground Injection Control Maps for Schofield Barracks (O-5) and Waipahu (O-9)(Figure 5), there are twenty eight (28) known public drinking water supply wells within a one (1) mile radius of the assessed property. These wells are located between ¼ and ¾ mile to the northeast, south and southwest from the assessed property. The wells are upgradient, cross gradient and downgradient of the site. DOH records do not indicate the presence of any individual or municipal disposal wells within a one (1) mile radius of the assessed property.

4.0 Sampling and Analysis

On October 9, 2001, Edward K. Noda and Associates, Inc. collected eight (8) near-surface soil samples for analysis. The following describes soil sampling and data gathering procedures used during this sampling. The objective was to collect representative samples that provided reliable and accurate data on the petroleum hydrocarbon concentrations in the soils underlying the former tank site.

4.1 Sampling Rationale

To characterize the current concentrations of petroleum related parameters in the surface soils along the Village Park Connector Road alignment, eight (8) near surface soil samples were collected. Each sample was obtained from nominal depths ranging between 0 to 1 feet below existing ground surface (bgs).

One soil sample was taken from each sample location noted in Figure 3.

All samples were screened visually for signs of contamination and soil samples were field tested by the Ambient Temperature Headspace (ATH) test. Samples were preserved by chilling and transported under chain-of-custody to Oceanic Analytical Laboratory for analyses.

4.2 Soil Sampling Methodology

Soils samples were collected with the use of hand sampling equipment. The sampler utilized a 2.5-inch O.D. dual tube sampler that was 12 inches in length and lined with metal liners, 6 inches in length. Soil enters the sampler as the sampler is driven through the sample interval.

The sample drive began at the soil surface and was driven down to approximately 1.2 feet below the soils surface. The sampler was slightly overdriven so that adequate sample would be retained in the sampler.

The ends of the sample tubes were covered with Teflon™ sheeting and capped to prevent loss of samples and to minimize the loss of semi-volatiles, if present, from the soil matrix. Each soil sample was labeled with a unique sample number, sample date and time, sampler's initials, analyses required and project name, EKNA project number and then covered with clear packing tape to prevent the label from detaching during transport. The sample tubes were then placed in a Zip-Loc™ bag to:

1) Keep the two (2) tubes for each individual sample together and minimize the potential that one of the tubes may be misplaced.

2) Minimize cross-contamination from other potentially contaminated samples and minimize contamination that may be introduced by excess moisture from melting ice or condensation.

3) Minimize the potential of samples contaminating ancillary sample management equipment such as coolers or reusable ice substitute packs.

Samples were placed in coolers with ice substitute (Blue Ice™ or similar) or wet ice in double bags to preserve the samples. The coolers were lined with plastic to minimize contamination of the coolers by substances which may be present in the samples. The coolers were also lined with absorbent paper on the bottom of the coolers to absorb condensate.

All soil samples were preserved by chilling. Immediately after collecting the soil samples, EKNA delivered the samples to Oceanic Analytical Laboratory for prompt analyses. Each sample was carefully logged in and accompanied with the proper chain of custody.

4.3 Sample Handling

All samples were collected, stored and transported to the laboratory in accordance with accepted industry sampling and analysis practices.

Complete sample labels were affixed to the sample containers, i.e., metal liners, and the samples were sealed in plastic bags. Each sample label was covered with clear tape to secure and protect the label.

Samples were collected under a strict Chain of Custody (COC) protocol. Sample collection was in accordance with the following protocol:

- Samples were collected using precleaned equipment, e.g., sampler, liners, bottles, etc.,
- Samples were logged onto the COC forms with the following information:
  - date of sample collection,
  - time of sample collection,
  - test method for analyses; and,
  - the sampler's initials.
- Each sample was labeled with a unique sample number and other pertinent information required on the label.
- A strict Chain of Custody (COC) was maintained for all samples (copies of the completed COC forms and the analytical results are provided in Appendix B).
- After collection, all samples were preserved as appropriate to the sample matrix and target analyte.
- All samples were submitted to the laboratory within 2 hours of collection.

4.4 Organic Vapor Measurements

The soil samples were analyzed in the field for organic vapor concentrations by the Ambient Temperature Headspace Test. Each soil sample was collected into a clean, eight-ounce polyethylene bag such that the soil occupied approximately one-half the volume of the bag. Upon collection, each bag was sealed and allowed to equilibrate with ambient air temperatures for approximately fifteen minutes. Organic vapor concentrations were measured in the field by inserting the tip of a portable photo-ionization detector (PID) into each bag. The PID used was a Mini Rae PGM-76 (Serial No. 201006) with a 10.6 eV lamp. The PID was calibrated prior to sampling using a calibration gas with 100 parts per million (ppm) isobutylene concentration. All soil samples were analyzed for organic vapor concentrations and a summary of the analyses results are provided below in Table 2. Readings of over 50 ppm are generally considered to be an indication of gross contamination by organic compounds, such as petroleum products. One (1) sample encountered a PID reading greater than 50 ppm.

The ATH test data were reviewed in comparison to the data from the fixed laboratory. In general, the samples with ATH values in excess of 50 ppm showed elevated TPH or detectable concentrations of volatiles or semi-volitiles. No strict correlation could be developed for the data set, however, this review does indicate that the ATH test is generally a valid screening method.

Table 2: Summary of Ambient Temperature Headspace Analysis

Sample	Depth (Feet)	Date	Time (24 Hours)	Organic Vapor Concentration (ppm)
2208-S-01	0-1	10/09/01	0819	2.7
2208-S-02	0-1	10/09/01	0840	0.1
2208-S-03	0-1	10/09/01	0901	3.4
2208-S-04	0-1	10/09/01	0922	3.4
2208-S-05	0-1	10/09/01	0941	0.4
2208-S-06	0-1	10/09/01	1005	0.0
2208-S-07	0-1	10/09/01	1026	0.8
2208-S-08	0-1	10/09/01	1050	1.1

Notes: Depth shown in feet below existing grade.
Vapor concentrations are expressed in parts per million (ppm).
Concentrations in boldface lettering indicates concentrations greater than 50 ppm.
NA Not Analyzed due to insufficient sample.

4.5 Analytical Methods

A small amount of the sample was used for the ATH analyses and the remainder of the sample was contained in the metal sampling tube with each end lined with a Teflon™ sheet and capped. The samples were then placed in a cooler and chilled with ice and/or ice substitute and transported to and analyzed in, a laboratory for the analytes. The methods and method reporting limits are indicated in Table 3. The action levels are in accordance with DOH requirements.

Table 3: Analytical Methods

Analyte	Preparation Method	Analytical Method	Method Reporting Limit	Hawaii DOH ALSG*
TPH as Gasoline (TPH-G)	CA LUFT	EPA 8015M	5 - 250 mg/kg	2,000 mg/kg
TPH as Diesel Fuel (TPH-D)	CA LUFT	EPA 8015M	5 - 250 mg/kg	5,000 mg/kg
TPH as Oil and Grease (TPH-O&G)	CA LUFT	EPA 418.1 or 413.1	5 - 250 mg/kg	5,000 mg/kg
Polynuclear Aromatic Hydrocarbons: Benzo(a)pyrene, Acenaphthene, Naphthalene and Fluoranthene (PAH-BANF)	EPA 3550A	EPA 8310	Benzo(a)pyrene 0.017 - 2.5 mg/kg Acenaphthene 0.17 - 99 mg/kg Naphthalene 0.17 - 49 mg/kg Fluoranthene 0.017 - 4.9 mg/kg	Benzo(a)pyrene 1.0 mg/kg Acenaphthene 18.0 mg/kg Naphthalene 41.0 mg/kg Fluoranthene 11.0 mg/kg

* DOH Action Levels for Soil and Ground Water, Drinking Water Threatened, Rainfall ≤200cm/year.

4.6 Contamination Control

Soil sampling equipment was cleaned by washing and scrubbing in a solution of Alconox™ and water followed by two (2) tap water rinses, a distilled water rinse and a light rinse with laboratory-grade isopropyl alcohol.

To minimize potential of cross-contamination during sample handling, field personnel that handled samples changed gloves between samples. Gloves and other personal protective equipment (PPE) were contained and managed as solid waste.

4.7 Analytical Data

During the site characterization, eight (8) soil samples were collected and analyzed for specific petroleum compounds. Soil sample locations are provided on the site plan drawing in Figure 3. The samples were analyzed in accordance with Hawaii DOH guidelines. The results of the laboratory analyses are shown in Table 4.

4.7.1 Total Petroleum Hydrocarbons as Gasoline (TPH-G)(EPA 8015MG)

TPH-G was not encountered in any of the eight (8) samples at concentrations greater than the Method Reporting Limit (MRL) or the Hawaii Department of Health's Tier I Action Levels for Soil and Ground Water (ALSG). The MRL for TPH-G in this soil sampling was 1.0 mg/kg.

4.7.2 Total Petroleum Hydrocarbons as Diesel Fuel (TPH-D)(EPA 8015MD)

TPH-D was not encountered in any of the eight (8) samples at concentrations greater than the MRL or the ALSG. The MRL for TPH-D in this soil sampling was 100 mg/kg.

4.7.3 Total Petroleum Hydrocarbons as Oil and Grease (TPH-O&G)(EPA 418.1 or 413.1)

TPH-O&G was encountered in all eight (8) samples at concentrations greater than the MRL but less than the ALSG. The highest concentration of TPH-O&G encountered in this soil sampling was 1,040 mg/kg.

4.7.4 Polynuclear Aromatic Hydrocarbons (PAH-BANF)(EPA 8310)

Acenaphthene and naphthalene were not encountered in any of the eight (8) samples at concentrations greater than the MRL or the ALSG. The MRL for acenaphthene in this soil sampling was 0.0333 mg/kg. The MRL for naphthalene in this soil sampling was 0.0333 mg/kg. Benzo(a)pyrene was encountered in three (3) of the eight (8) samples at concentrations greater than the MRL but less than the ALSG. The highest concentration of benzo(a)pyrene encountered in this soil sampling was 0.0331 mg/kg. Fluoranthene was encountered in five (5) of the eight (8) samples at concentrations greater than the MRL but less than the ALSG. The highest concentration of fluoranthene encountered in this soil sampling was 0.0894 mg/kg.

Table 4: EKNA Laboratory Analytical Test Results

Analyte & EPA Method No. / SAMPLE ID#	2208-S-01	2208-S-02	2208-S-03	2208-S-04	MRL	HI-ALSG
TPH - GASOLINE (TPH-G)(EPA 8015M)	<1.00	<1.00	<1.00	<1.00	1.00	2,000
TPH - DIESEL FUEL (TPH-D)(EPA 8015M)	<25.0	<25.0	<5.0	<25.0	5.0-25.0	5,000
TPH - OIL & GREASE (TPH-O&G)(EPA 418.1 OR 413.1)	100	693	107	684	50.0	5,000
PAH - BENZO(a)PYRENE (EPA 8310)	<0.00658	<0.0327	<0.00660	<0.0325	0.00658-0.0327	1
PAH - ACENAPHTHENE (EPA 8310)	<0.00658	<0.0327	<0.00660	<0.0325	0.00658-0.0327	18
PAH - NAPHTHALENE (EPA 8310)	<0.00658	<0.0327	<0.00660	<0.0325	0.00658-0.0327	41
PAH - FLUORANTHENE (EPA 8310)	<0.00658	<0.0327	0.0106	<0.0325	0.00658-0.0327	11
SAMPLE ID#	**2208-S-05**	**2208-S-06**	**2208-S-07**	**2208-S-08**		
TPH - GASOLINE (TPH-G)(EPA 8015M)	<1.00	<1.00	<1.00	<1.00	1.00	2,000
TPH - DIESEL FUEL (TPH-D)(EPA 8015M)	<5.0	<25.0	<5.0	<100	5.0-100	5,000
TPH - OIL & GREASE (TPH-O&G)(EPA 418.1 OR 413.1)	95.1	1,040	138	788	50.0-100	5,000
PAH - BENZO(a)PYRENE (EPA 8310)	0.00733	<0.0333	0.0113	0.0331	0.00667-0.0331	1
PAH - ACENAPHTHENE (EPA 8310)	<0.00667	<0.0333	<0.00667	<0.0331	0.00667-0.0331	18
PAH - NAPHTHALENE (EPA 8310)	<0.00667	<0.0333	<0.00667	<0.0331	0.00667-0.0331	41
PAH - FLUORANTHENE (EPA 8310)	0.0523	0.0633	0.0320	0.0894	0.00667-0.0331	11

Tier I ALSG = Hawaii Department of Health's Tier I Action Levels for Soil and Ground Water assuming <200 cm/year rainfall, drinking water source threatened.
All samples are reported as parts per million (ppm or mg/kg or mL/L) unless otherwise noted. All samples collected 10/09/01, and analyzed within their respective holding times.
Hits above the DOH-ALSG are typed in BOLD lettering.

5.0 Discussion and Conclusions

A Limited Soil Sampling was conducted on the planned Village Park Connector Road alignment extending from Loaa Street to Kupuna Loop along a portion of an old cane haul road in the area of Waipahu, Oahu, Hawaii, Oahu, Hawaii and legally identified by Tax Map Keys (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61 (por.), (1) 9 - 4 - 34: 43 (por.), (1) 9 - 4 - 02: 28 (por.) and (1) 9 - 4 - 132: 100 (por.) was undertaken by Edward K. Noda and Associates, Inc. to investigate for the presence of petroleum products at the site.

This investigation indicates that:

- A previous site survey identified two (2) abandoned motor vehicles along the alignment.
- A previous site survey identified rain runoff which displays a petroleum product sheen flowing onto the Site from the H-1 Freeway.
- All eight (8) of the near surface soil samples taken on the Site indicated some detectable levels of petroleum products and constituents. The most prominent petroleum product detected was Total Petroleum Hydrocarbons as Oil and Grease (TPH-O&G). Constituents detected were Benzo(a)pyrene and Fluoranthene.

In view of the above, and based on a review of available information, the following may be concluded:

- The abandoned motor vehicles and/or past rain runoff flowing onto the Site from the H-1 Freeway have not caused levels of petroleum contamination of the surface soils above the Hawaii Department of Health's Tier I Action Levels for Soil and Ground Water (ALSG) along the Village Park Connector Road alignment.

6.0 Limitations and Conditions

Although this Limited Soil Sampling provides information on the relative presence or absence of suspected environmental contaminants at the investigated site, it should not be construed as a final statement regarding environmental conditions at the assessed facility or the subject property.

The information set forth is based solely on the agreed upon scope of services. This information is based on personal observation, researching of public documentation, and data provided by others. The presence of subsurface contamination, asbestos containing materials, lead-based paints, radioactive materials, and biological hazards were not specifically investigated.

Given the often obscure and elusive nature of hazardous substances it is never possible to absolutely dismiss the possibility of site contamination, even with exhaustive sampling and testing. Edward K. Noda and Associates, Inc. expressly disclaim any and all liability representations, expressed, or implied, contained in, or for omissions from this report, or any other written or oral communication which might be interpreted as establishing the total extent of all liability present at the subject property.

Our services have been performed with the usual thoroughness and competence of the consulting profession, in accordance with the standards for professional services at this time. No other warranty or representation, either expressed or implied, is included or intended.

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Environmental Physicist

Dayton E. Fraim, P.G., P.E.
Senior Engineering Geologist

REFERENCES

Published References

1. City and County of Honolulu, Real Property Tax Division, Historical Records for TMKs (1) 9 - 4 - 55: 146, (1) 9 - 4 - 55: 61, (1) 9 - 4 - 34: 43 and (1) 9 - 4 - 132: 100.
2. U.S. Department of Agriculture, Soil Conservation Service, "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii." 1972.
3. Macdonald, Gordon A., Abbot, Agatin T., and Peterson, Frank L., "Volcanoes in the Sea - The Geology of Hawaii", University of Hawaii Press, 1983.
4. Mink, John F. and Lau, Stephen L., "Aquifer Identification and Classification for Oah'u, Ground water Protection Strategy for Hawai'i, February 1990, Water Resources Research Center, University of Hawaii at Manoa, Honolulu.
5. Edward K. Noda and Associates, Inc. C.N. 2208-00F, Phase I Environmental Site Assessment, Village Park Connector Road, March 9, 2001.

Map and Other Geographical References

1. U.S. Geological Survey, "Schofield Barracks and Waipahu Quadrangles", 7.5 Minute Series, Topographic Map, 1983.
2. U.S. Department of Agriculture, "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii", 1972.
3. Department of Health, State of Hawaii, "Underground Injection Control Map, Schofield Barracks (O-5) and Waipahu (O-9) Quadrangles, 1983.
4. Federal Emergency Management Agency, "Flood Insurance Rate Map", Number 150001-0110 D, September 30, 1995.

Appendix A - Figures

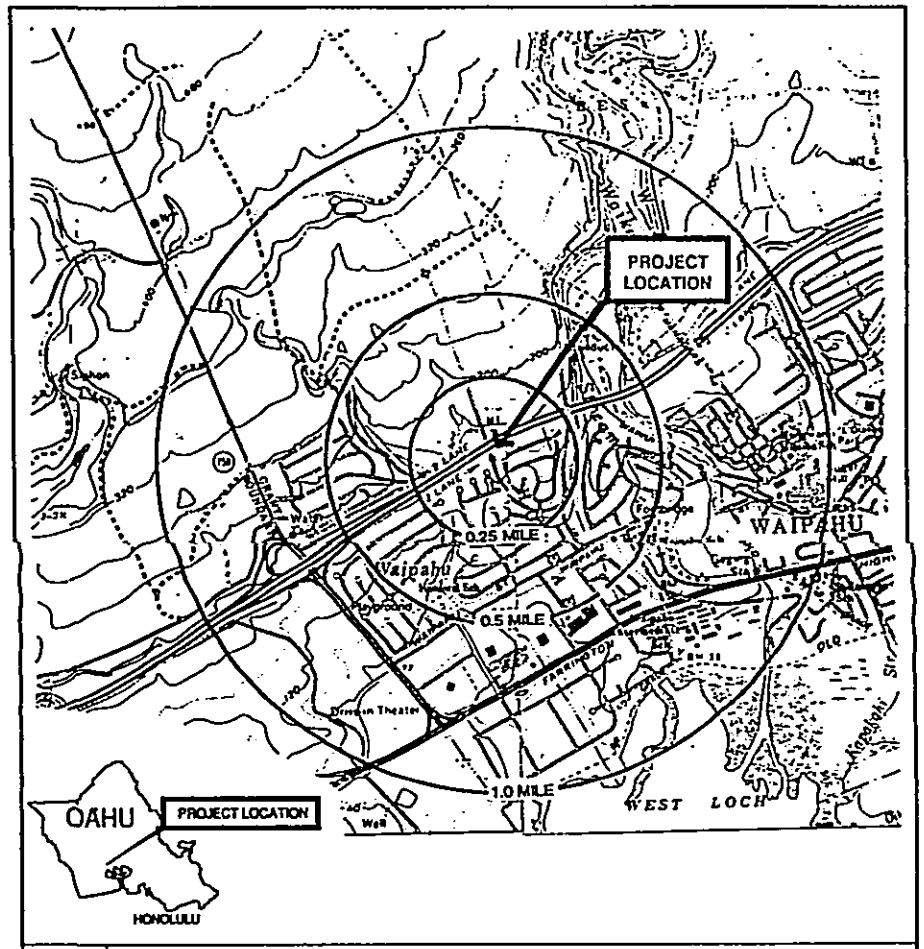

FIGURE 1 - LOCATION MAP

REFERENCE: USGS "Schofield Barracks & Waipahu Quadrangles", 7.5 Minute Series, Topographic Map

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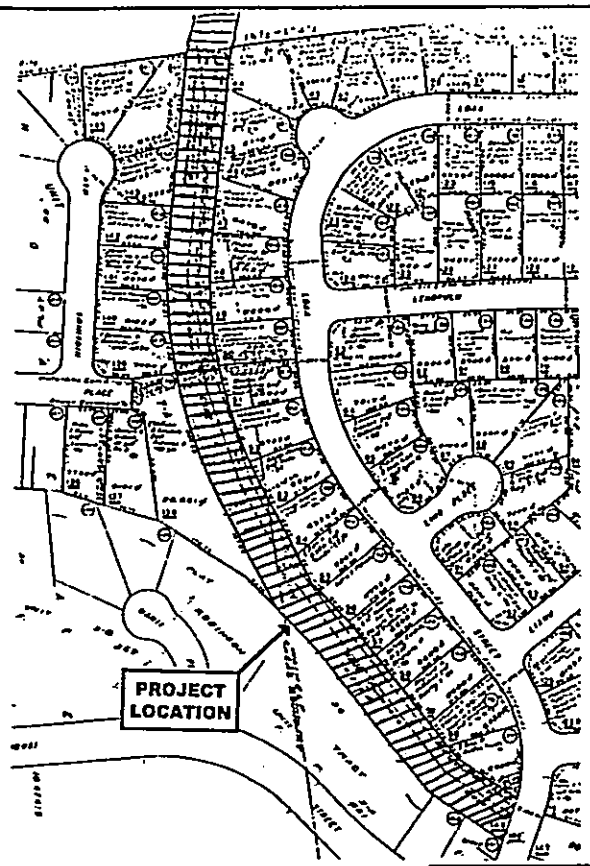
PROJECT NUMBER: 2208-00F	DATE: NOVEMBER 2000	



FIRST TAXATION DISTRICT			
9	4	55	146 & 61 (por.)

100 50 0 100 200

APPROXIMATE SCALE IN FEET

NORTH

FIGURE 2A - TMK LOCATION MAP

REFERENCE: C&C of Honolulu, Real Property Tax Division, Tax Maps For TMK: (1) 9-4-55: 146 and 61 (por.) ; © 2000, Experian Information Solutions, Inc.

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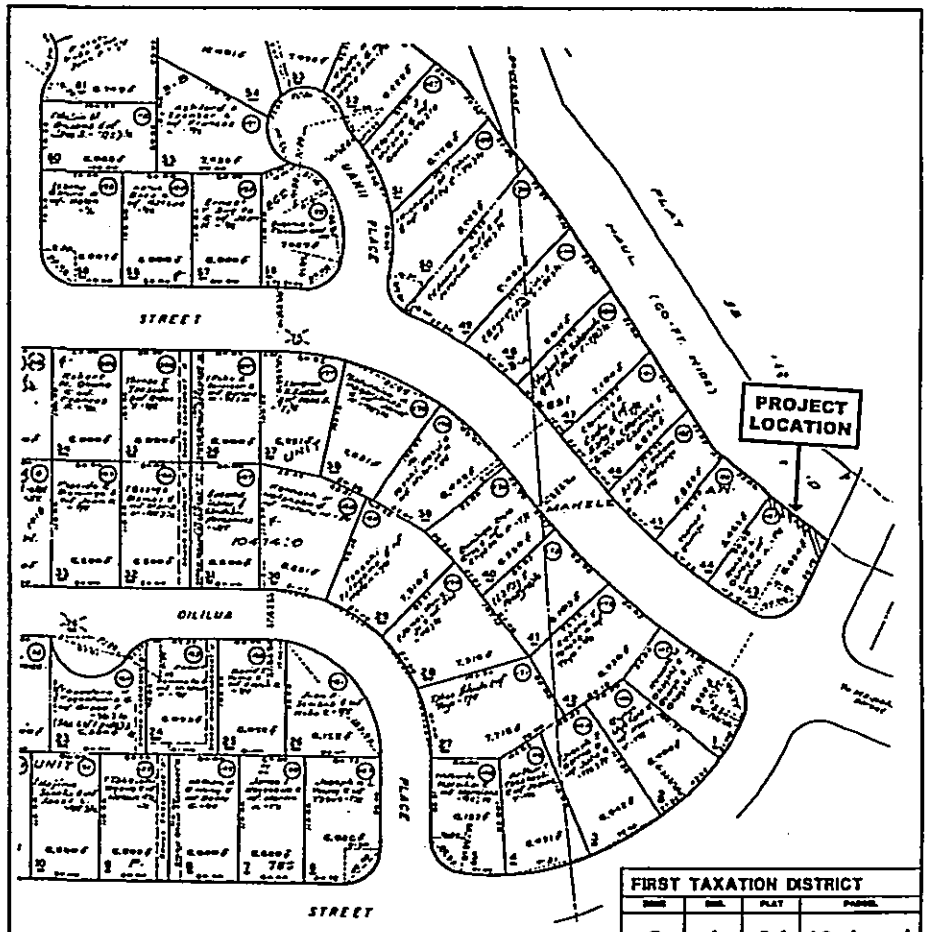

FIRST TAXATION DISTRICT			
9	4	34	43 (por.)

100 50 0 100 200

APPROXIMATE SCALE IN FEET

NORTH

FIGURE 2B - TMK LOCATION MAP

REFERENCE: C&C of Honolulu, Real Property Tax Division, Tax Maps For TMK: (1) 9-4-34: 43 (por.) ; © 2000, Experian Information Solutions, Inc.

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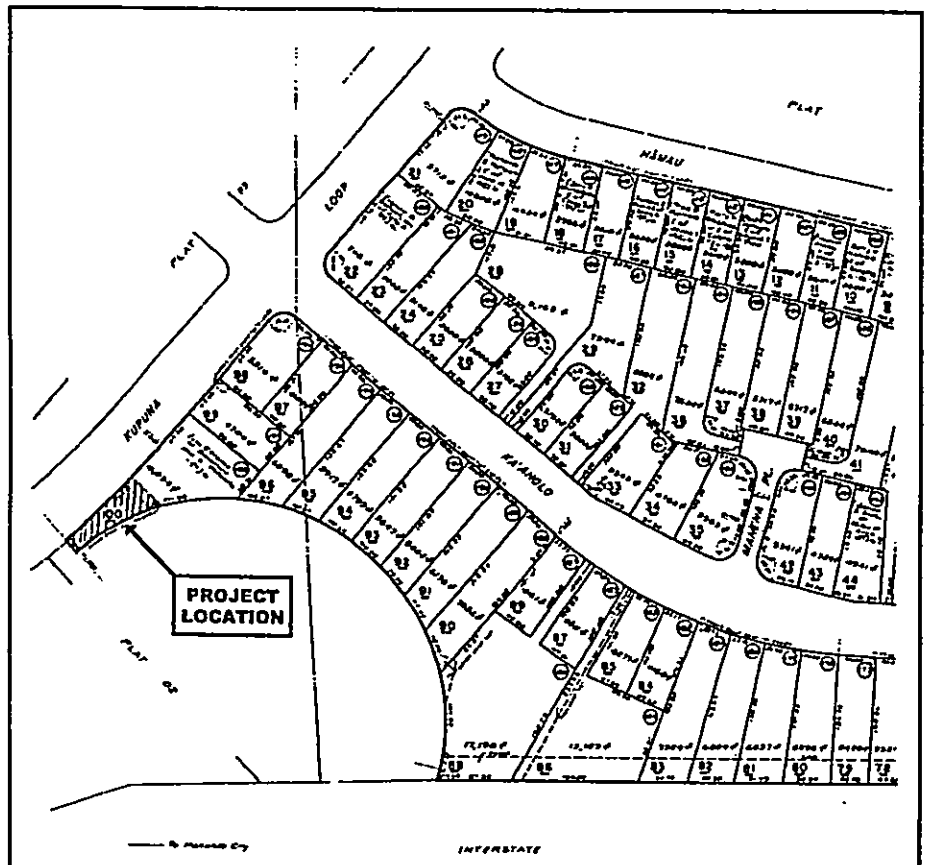

FIRST TAXATION DISTRICT			
ZONE	SEC.	PLAT	PARCEL
9	4	132	100 (por.)

NORTH

100 50 0 100 200

APPROXIMATE SCALE IN FEET

FIGURE 2C - TMK LOCATION MAP

REFERENCE: C&C of Honolulu, Real Property Tax Division, Tax Maps For TMK: (1) 9-4-132: 100 (por.) ; © 2000, Experian Information Solutions, Inc.

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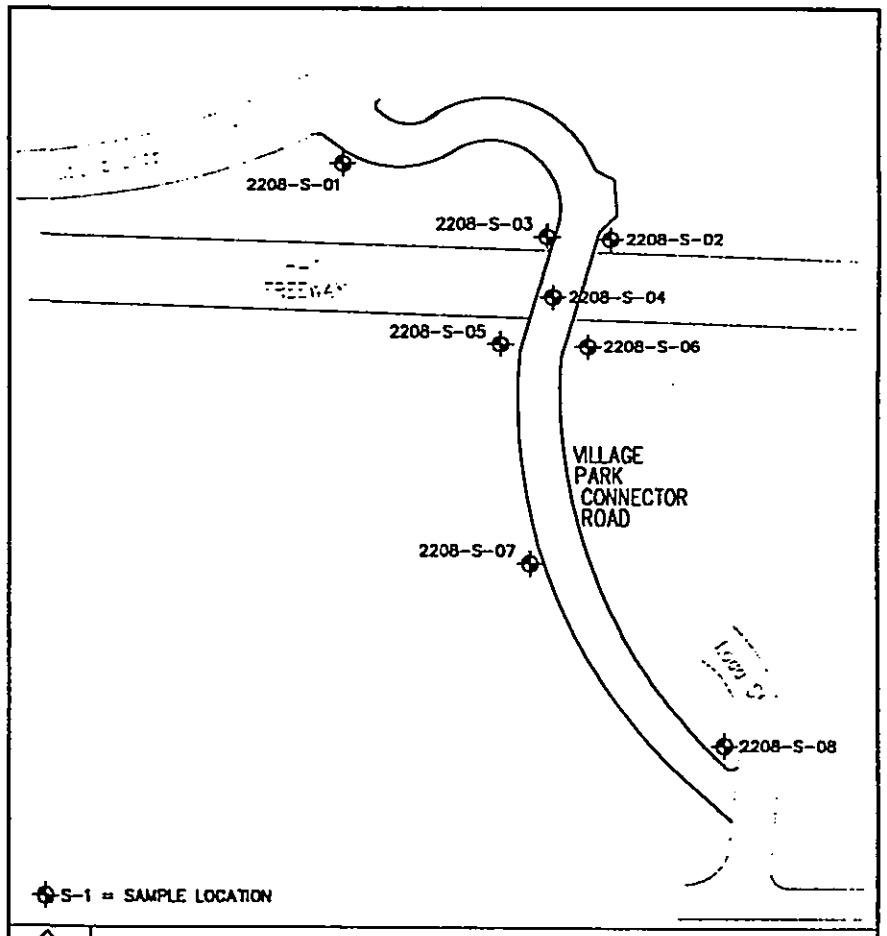
PROJECT NUMBER: 2208-00F	DATE: NOVEMBER 2000	



NORTH

NOT TO SCALE

FIGURE 3 – SAMPLE LOCATION

VILLAGE PARK CONNECTOR ROAD, WAIPAHU, OAHU, HAWAII

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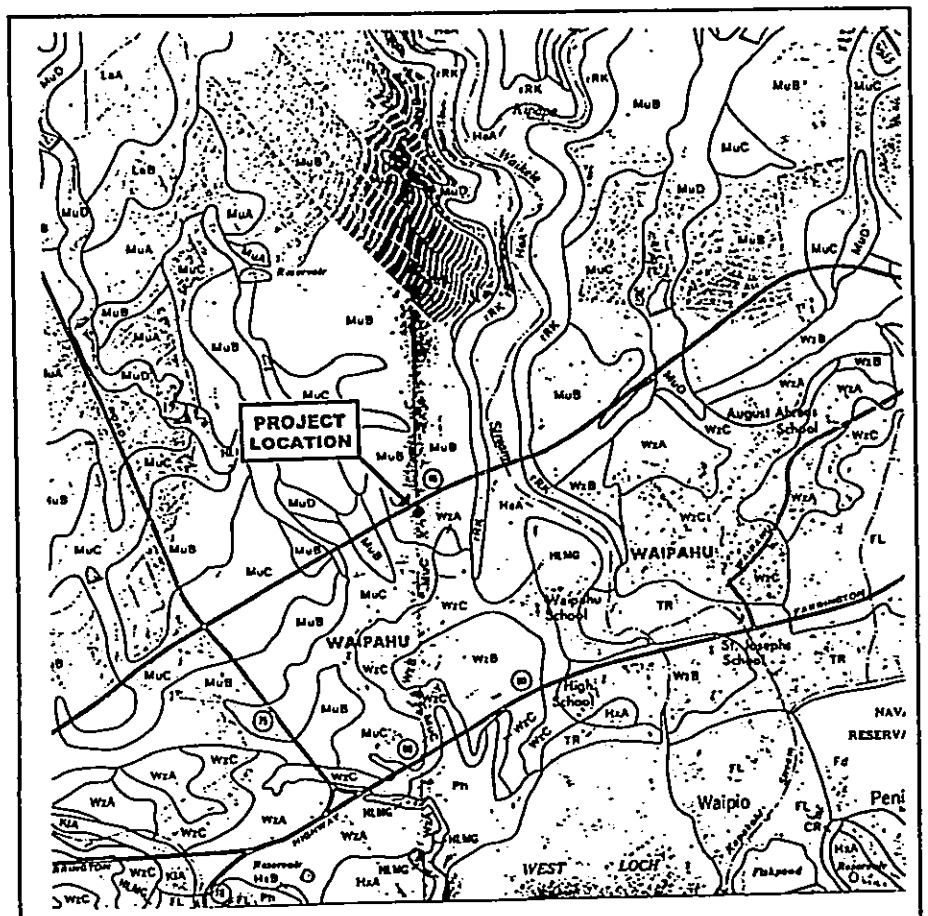

MuB = Molokai Silty Clay Loam

FIGURE 4 - SOIL CLASSIFICATION MAP

REFERENCE: U.S.D.A., 1972, "SOIL SURVEY OF ISLANDS OF KAUAI, OAHU, MAUI, MOLOKAI and LANAI, STATE OF HAWAII"

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PROJECT NUMBER: 2208-00F	DATE: NOVEMBER 2000	

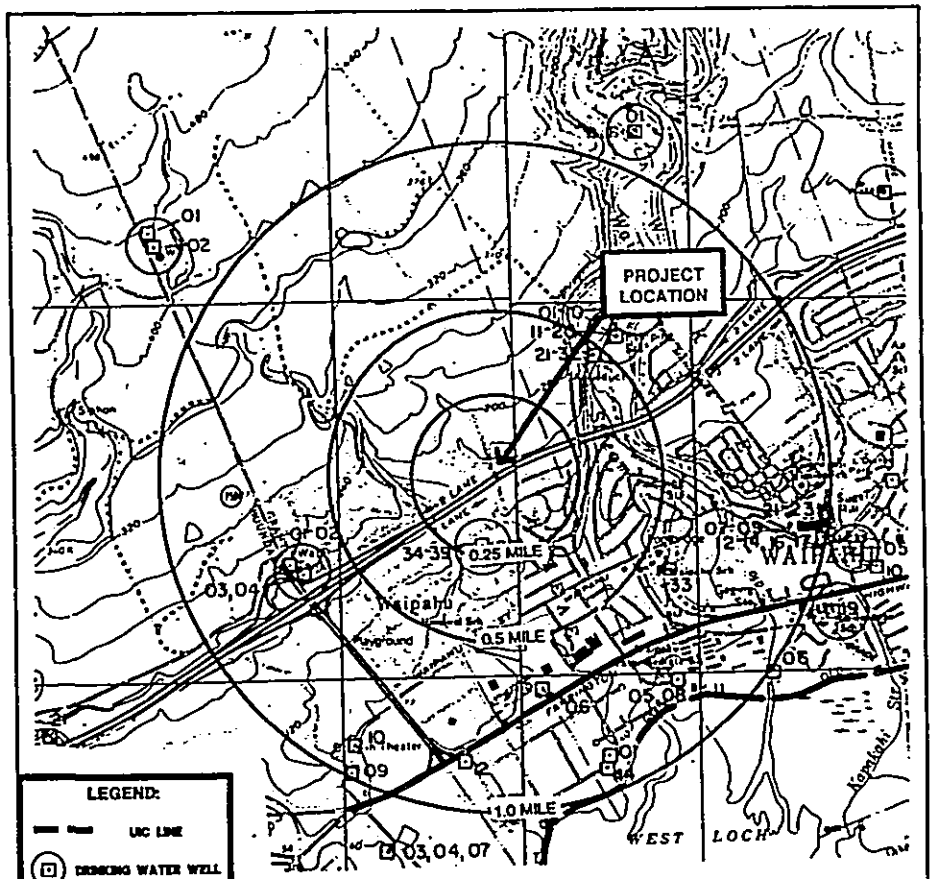

FIGURE 5 - UNDERGROUND INJECTION CONTROL MAP

Reference: State of Hawaii, Department of Health, "Underground Injection Control Map, Schofield Barracks (O-5) & Waipahu (O-9) Quadrangles," 1983

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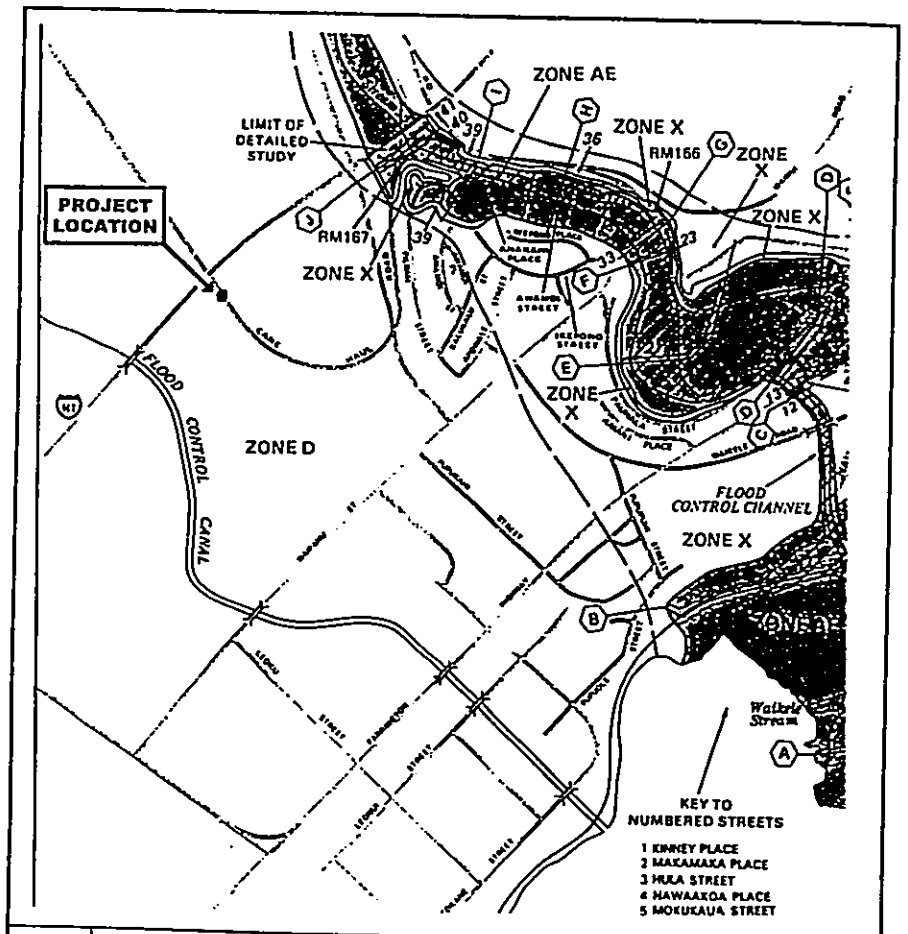

FIGURE 6 - FLOOD INSURANCE RATE MAP

REFERENCE: FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP, NO. 150001 0110D, SEPTEMBER 30, 1995

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PROJECT NUMBER: 2208-00F	DATE: NOVEMBER 2000	