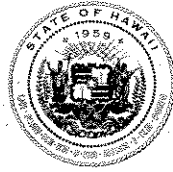


COPY



EXECUTIVE CHAMBERS
HONOLULU

November 24, 1992

JOHN WAIHEE
GOVERNOR

MEMORANDUM

TO: The Honorable Robert P. Takushi, Comptroller
Department of Accounting and General Services

SUBJECT: Final Environmental Impact Statement for the Liliha Civic Center,
Honolulu, Oahu

92 NOV 30 10:30 AM
OFFICE OF THE CLERK
DEPT. OF ACCOUNTS

I am pleased to accept the Final Environmental Impact Statement for the Liliha Civic Center as satisfactory fulfillment of the requirement of Chapter 343, Hawaii Revised Statutes. This environmental impact statement will be a useful tool in the process of deciding if the action described therein should be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws and does not constitute an endorsement of the proposed action.

When the decision is made regarding the proposed action itself, I expect the appropriate legislative bodies and governmental agencies to consider if the societal benefits justify the economic, social, and environmental impacts which will likely occur. These impacts are adequately described in the statement and, together with the comments made by reviewers, provide useful analysis of the proposed action.

JOHN WAIHEE

cc: Honorable John C. Lewin

1992 - Oahu -
FEIS - Liliha
Civic

**ORIGINAL
FILE COPY**

LILIHA CIVIC CENTER

**FINAL
ENVIRONMENTAL IMPACT STATEMENT**

Prepared for:

**STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND
GENERAL SERVICES**

AND

OKITA KUNIMITSU & ASSOCIATES, INC.

Prepared by:

WILSON OKAMOTO & ASSOCIATES, INC.

November 1992

LILIHA CIVIC CENTER
Final
Environmental Impact Statement

Honolulu, Oahu

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


Proposing Agency:

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING
AND GENERAL SERVICES

Accepting Authority:

GOVERNOR, STATE OF HAWAII

Responsible Official:



Robert P. Takushi, Comptroller

10-20-92

Date

Prepared by:

Wilson Okamoto & Associates, Inc.

November 1992

TABLE OF CONTENTS

	<u>Page</u>
PROJECT SUMMARY	i - i
SECTION 1 - INTRODUCTION	1 - 1
1.1 Introduction and Background	1 - 1
1.2 Project Location	1 - 2
1.3 Existing Uses	1 - 2
1.4 Land Ownership	1 - 4
SECTION 2 - DESCRIPTION OF THE PROPOSED PROJECT	2 - 1
2.1 Liliha Civic Center	2 - 1
2.2 Liliha Civic Center Phase I	2 - 8
2.3 Liliha Civic Center Phase II	2 - 8
2.4 State Offices	2 - 14
2.4.1 Loft and Finished Spaces	2 - 14
2.4.2 Parking	2 - 15
2.5 Non-Profit Offices	2 - 15
2.5.1 Loft and Finished Spaces	2 - 15
2.5.2 Parking	2 - 16
2.6 OR&L Building	2 - 16
2.7 Project Need	2 - 16
2.8 Design Character	2 - 17
2.9 Project Costs and Development Schedule	2 - 18
SECTION 3 - DESCRIPTION OF THE EXISTING ENVIRONMENT	3 - 1
3.1 Physical Environment	3 - 1
3.1.1 Climate	3 - 1
3.1.2 Topography, Geology and Soils	3 - 2
3.1.3 Hydrology	3 - 2
3.1.4 Hazardous Materials	3 - 3
3.1.5 Flora and Fauna Resources	3 - 4
3.1.6 Air Quality	3 - 4
3.1.6.1 Existing Ambient Air Quality	3 - 5
3.1.7 Noise	3 - 6
3.1.8 Archaeological and Historical Resources	3 - 7

TABLE OF CONTENTS (Con't.)

	<u>Page</u>
3.2 Socio-Economic Environment	3 - 8
3.2.1 Profile of the Existing Community	3 - 8
3.2.2 Population	3 - 10
3.2.3 Housing	3 - 10
3.3 Transportation and Infrastructure Systems	3 - 12
3.3.1 Roadway System	3 - 12
3.3.1.1 Existing Traffic Conditions	3 - 14
3.3.1.2 Existing Levels of Service	3 - 15
3.3.2 Infrastructure Systems and Public Services	3 - 19
3.3.2.1 Water System	3 - 19
3.3.2.2 Wastewater System	3 - 19
3.3.2.3 Drainage System	3 - 19
3.3.2.4 Solid Waste Disposal System	3 - 19
3.3.2.5 Electrical and Communication Systems	3 - 20
3.3.2.6 Police, Fire, and Medical Services	3 - 20
SECTION 4 - RELATIONSHIP TO LAND USE PLANS, POLICIES AND CONTROLS	4 - 1
4.1 State of Hawaii	4 - 1
4.1.1 Hawaii State Plan	4 - 1
4.1.2 State Functional Plans	4 - 2
4.1.2.1 Human Services Functional Plan	4 - 3
4.1.2.2 Historic Preservation Functional Plan	4 - 3
4.1.3 State Land Use Classification	4 - 4
4.2 City and County of Honolulu	4 - 4
4.2.1 Oahu General Plan	4 - 4
4.2.2 Development Plan	4 - 6
4.3.3 Land Use Ordinance	4 - 10
4.3.4 List of Required Permits and Approvals	4 - 12

TABLE OF CONTENTS (Con't.)

	<u>Page</u>
SECTION 5 - PROBABLE IMPACTS AND MITIGATION MEASURES	5 - 1
5.1 Overview	5 - 1
5.2 Physical Environment	5 - 1
5.2.1 Short-term Impacts	5 - 1
5.2.1.1 Flora and Fauna Resources	5 - 1
5.2.1.2 Air Quality	5 - 1
5.2.1.3 Soils and Hazardous Materials	5 - 2
5.2.1.4 Noise and Vibration	5 - 4
5.2.1.5 Archaeological and Historical Resources	5 - 5
5.2.2 Long-term Impacts	5 - 6
5.2.2.1 Flora and Fauna Resources	5 - 6
5.2.2.2 Air Quality	5 - 6
5.2.2.3 Visual Resources	5 - 11
5.3 Socio-Economic Environment	5 - 13
5.3.1 Employment and Economy	5 - 13
5.3.2 Public Safety	5 - 13
5.3.3 Displacement	5 - 14
5.4 Transportation and Infrastructure Systems	5 - 15
5.4.1 Traffic	5 - 15
5.4.1.1 Trip Generation	5 - 15
5.4.1.2 Traffic Assignment and Projected LOS	5 - 15
5.4.1.3 Projected Traffic Impacts	5 - 18
5.4.2 Proposed Honolulu Rapid Transit System	5 - 20
5.4.3 Public Services and Utilities	5 - 22
5.4.3.1 Water System	5 - 22
5.4.3.2 Wastewater System	5 - 23
5.4.3.3 Drainage System	5 - 23
5.4.3.4 Solid Waste Disposal	5 - 23
5.4.3.5 Power and Communication Systems	5 - 24
5.4.3.6 Police and Fire Protection	5 - 25

TABLE OF CONTENTS (Con't.)

	<u>Page</u>
SECTION 6 - ALTERNATIVES TO THE PROPOSED ACTION	6 - 1
SECTION 7 - SHORT-TERM USES VS. LONG-TERM PRODUCTIVITY . . .	7 - 1
SECTION 8 - IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES	8 - 1
SECTION 9 - PROBABLE ADVERSE ENVIRONMENTAL IMPACTS WHICH ARE UNAVOIDABLE	9 - 1
SECTION 10 - UNRESOLVED ISSUES	10 - 1
SECTION 11 - LIST OF PARTIES CONSULTED IN THE PREPARATION OF THE DEIS	11 - 1
SECTION 12 - LIST OF PARTIES COMMENTING ON THE DEIS	12 - 1
SECTION 13 - LIST OF PREPARERS	13 - 1
SECTION 14 - REFERENCES	14 - 1

APPENDICES

Appendix A Phase I Environmental Site Assessment, Harding Lawson Associates,
February 1992

Appendix B Air Quality Analysis, Environmental Technologies, Inc., March 1992.

Appendix C Historical Literature and Documents Search, Aki Sinoto Consulting,
March 1992.

Appendix D Traffic Impact Report, Austin Tsutsumi and Associates, Inc.,
March 1992.

LIST OF FIGURES

<u>Figure Number</u>		<u>Page</u>
1-1	Location Map	1 - 3
2-1	Liliha Civic Center Proposed Master Plan	2 - 2
2-2	Phase I Site Plan	2 - 5
2-3	Final Phase Site Plan	2 - 7
2-4	Phase I Northeast Elevation	2 - 9
2-5	Phase I Southwest Elevation	2 - 10
2-6	Phase I Southeast Elevation	2 - 11
2-6	Phase I Building Section A	2 - 12
2-7	Phase I Building Section B	2 - 13
3-1	Neighborhood Statistical Program Areas	3 - 9
3-2	Roadway Map	3 - 13
3-3	Existing Traffic Volumes and LOS	3 - 18
4-1	State Land Use District Map	4 - 5
4-2	Development Plan Land Use Map	4 - 8
4-3	Development Plan Public Facilities Map	4 - 9
4-4	Zoning Map	4 - 11
5-1	Preliminary Landscape Development Plan	5 - 7
5-2	1997 Traffic Volumes and LOS Without Project	5 - 16
5-3	1997 Traffic Volumes and LOS With Project	5 - 17
5-4	Proposed Honolulu Rapid Transit System (Kaaahi Street Station)	5 - 21

LIST OF TABLES

<u>Table Number</u>		<u>Page</u>
2-1	Liliha Civic Center Phase I & II	2 - 1
2-2	Phase I Buildings	2 - 14
3-1	1990 Demographic Characteristics by Neighborhood Board Area	3 - 11
3-2	Levels of Service (LOS) Criteria for Signalized Intersections	3 - 15
3-3	Levels of Service (LOS) Criteria for Unsignalized Intersections	3 - 16
3-4	Existing Level of Service for AM and PM Peak Hours	3 - 17
5-1	Worst-Case 1-Hour CO Impacts Near Liliha Civic Center	5 - 9
5-2	Worst-Case 8-Hour CO Impacts Near Liliha Civic Center	5 - 10
5-3	1997 Level of Service With and Without Project For AM and PM Peak Hours	5 - 18

Liliha Civic Center

PROJECT SUMMARY

SUMMARY SHEET

Project: Liliha Civic Center

Proposing Agency: State of Hawaii
Department of Accounting and General Services

Accepting Authority: Governor, State of Hawaii

Location: Honolulu, Oahu, Hawaii

Tax Map Key: 1-5-7:1, 14, 15, 18, 57, 58, 60 to 78

Land Area: Approximately 5.64 acres

Land Owner: State of Hawaii

Existing Uses: Small offices, warehouses, produce companies, and the historic Oahu Railway and Land Company (OR&L) depot building

Proposed Uses: Civic center/office complex with approximately 358,216 net square feet of office space, to house State agencies and non-profit organizations, and approximately 1,266 automobile parking stalls.

State Land Use Classification: Urban

Development Plan (DP) Land Use Designation: Commercial Emphasis Mixed Use
Commercial - Industrial Emphasis Mixed Use
Public Facility

DP Public Facilities Designation: Transit Corridor programmed for commencement of land acquisition and/or construction beyond six years.
Rapid Transit programmed for commencement of land acquisition and/or construction beyond six years.
Also, the site is currently in the process of being designated for a Government Building.

City and County of Honolulu Zoning: Community Business Mixed Use (BMX-3) and Industrial-Commercial Mixed Use (IMX-1)

This Final Environmental Impact Statement (FEIS) was prepared to assess and disclose the environmental consequences of the development of the Liliha Civic Center at Iwilei, Oahu.

Proposed by the Department of Accounting and General Services (DAGS), the Liliha Civic Center is a State office complex intended to consolidate various State departments and agencies presently occupying State office or lease space. The Liliha Civic Center is intended for service type agencies primarily serving the Downtown-Kalihi regional area. A variety of service-oriented agencies will be made more convenient for the public through the consolidation of such regional-oriented agencies.

Located at the site of the Oahu Railway and Land (OR&L) Company building, the project site is bounded by North King Street to the north and east and Iwilei Road to the south. Encompassing approximately 5.64 acres, the Liliha Civic Center will ultimately consist of two major office buildings which will be occupied by State and non-profit organizations. When fully developed, the Liliha Civic Center will provide approximately 358,216 net square feet (SF) of new office space. Parking for approximately 1,266 cars will also be provided in parking structures occupying lower levels of the two office towers. The proposed Liliha Civic Center will be integrated with and designed to complement the historic OR&L building, which will be retained as-is on the project site.

Development of the Civic Center is anticipated to occur in two phases. Phase I will include office space for State agencies, non-profit organizations, a seven-level parking structure and an at-grade parking lot. State agencies will occupy six floors above and seven floors adjoining the parking structure. Non-profit agencies will occupy four floors of office space on the Diamond Head end of the parking garage.

Phase I will provide a total of 205,316 net square feet of new office space and parking for 789 cars. Upon receipt of the required permits and the appropriation of construction funds, construction is expected to commence in July 1993 and continue for approximately 42 months until January 1997. Preliminary construction costs for Phase I are estimated

at approximately \$66.4, million of which approximately \$52.2 million is attributable to unimproved loft space and about \$14.2 million to tenant improvements.

Phase II will provide a total of 152,900 net square feet of office space and parking for about 477 cars. Preliminary costs for the construction of Phase II are estimated at approximately \$52.7, million of which approximately \$43.2 million is attributable to unimproved loft space and about \$9.5 million to tenant improvements. The construction of Phase II is tentatively planned for sometime after 1997. The above costs are expressed in 1993 dollars and exclude contingencies, inspection, and hazardous waste removal costs.

Alternatives to the proposed action include "no-action" and an alternative configuration. The no-action alternative would involve no changes to the existing use of the site, and the existing businesses would remain. Construction-related impacts and construction costs would be avoided, however, the demand for additional State office space would not be satisfied. The alternative site configuration would offer the same total project area, but would defer greater density to Phase II of the project. Total floor area and project costs for Phase I would be reduced.

There are primarily two unresolved issues regarding the project including: a. the status of the Honolulu Rapid Transit system relative to the project site; and b. the finalization of design details.

The proposed project is permitted under its State Land Use Urban designation, and no boundary reclassification is required. It is also consistent with the existing zoning designations, as office buildings and parking structures are considered principal uses in both IMX-1 and BMX-3 zones. The project is compatible with the Development Plan Land Use map designation of Commercial-Industrial Emphasis Mixed Use and Public Facility, however, a DP Public Facilities map amendment to place a Government Building symbol on the map will be required.

The development of the project site is expected to result in a number of short- and long-term impacts to the physical and socio-economic environments, and infrastructure

systems. During the short-term, impacts on the physical environment will typically occur as a result of demolition and construction activity, while long-term impacts will primarily be associated with the operation of the Civic Center. The following is a summary of the probable impacts and appropriate mitigation measures related to the project.

ARCHAEOLOGY: A Historic Literature and Documents Search (Appendix B) was conducted to determine possible areas of archaeological significance on the project site. According to the study, the proposed project is situated on the site of an ancient fish pond known as Kuwili Fish Pond, and there is the potential of exposing burials, floral, faunal and other cultural remains associated with aquaculture activities. Archaeological analysis of core samples and associated records, and assessment of the proposed construction blueprints will be undertaken along with archaeological testing, monitoring and data recovery as may be necessary.

AIR QUALITY: According to the Air Quality Analysis (Appendix C), short-term direct and indirect air quality impacts are anticipated primarily from construction activity. The study recommends a dust-control plan in compliance with the Department of Health regulations during the construction phase. In the long-term, the proposed project will increase motor vehicle traffic on nearby roadways principally resulting in increased air pollutants.

HISTORIC RESOURCES: During the short-term construction period, vibration-related damage may affect the existing OR&L building, which is listed on the State Register of Historic Places. Excessive dust from construction activity may also impact the building. Careful monitoring before and during construction will signal potential problems as soon as possible, and appropriate mitigative measures can be implemented as needed.

DISPLACEMENT: The redevelopment of the project site will result in the displacement of existing industrial tenants. Approximately 11 tenants (private and government) on month-to-month leases will be affected by the redevelopment. However, because the project will be phased, the cancellation of leases can occur incrementally as the development proceeds, allowing the tenants to operate at the site as long as possible. Tenants will be kept informed of any impending plans of the proposed project.

TRAFFIC: The proposed project will generate additional vehicular traffic in the vicinity of the project site, however, increased traffic would occur regardless of whether the Civic Center is built. Based on recommendations of the Traffic Impact Report (Appendix D), several measures are proposed to mitigate potential traffic impacts including providing multiple accessways, adjusting traffic signal phasing, widening a segment of Dillingham Boulevard, and restricting parking on selected roads.

Liliha Civic Center

Section 1

INTRODUCTION

**SECTION 1
INTRODUCTION****1.1 Introduction and Background**

This Final Environmental Impact Statement (FEIS) was prepared in support of the proposed Liliha Civic Center in the Iwilei area of Downtown Honolulu, Oahu. The Liliha Civic Center is a State office complex proposed to consolidate various State departments and agencies presently occupying offices in Downtown Honolulu. In addition to accommodating State agencies, a portion of the complex will provide office space for non-profit agencies. Within the project site, the Liliha Civic Center will retain the existing historic Oahu Railway and Land (OR&L) building and develop a new office complex behind it in two major phases. When fully developed, the Liliha Civic Center will provide approximately 358,216 net square feet (SF) of new office space and approximately 1,266 automobile parking stalls.

The Liliha Civic Center project is subject to the EIS requirements set forth by Chapter 343, Hawaii Revised Statutes (HRS) and Chapter 200 of Title 11, Administrative Rules, Subchapter 6(b), based on the proposed use of State land and funds. This document is being processed as an agency action by the State Department of Accounting and General Services (DAGS) based on a determination that the proposed project may have a significant effect on the environment.

Development of the office complex will provide some economies of scale in land use and development costs by locating various government and non-profit social service agencies within a master planned development at a single site.

1.2 Project Location

The proposed project will be located in Iwilei on approximately 5.64-acres of land defined by Tax Map Keys (TMK) 1-5-7:1, 14, 15, 18, 57, 58, and 60 through 78. The site is bounded by North King Street to the north and east and Iwilei Road to the south (See Figure 1-1). Vehicular access to the project site is via North King Street and Iwilei Road. A third access point will be provided on Kaaahi Street off Dillingham Boulevard.

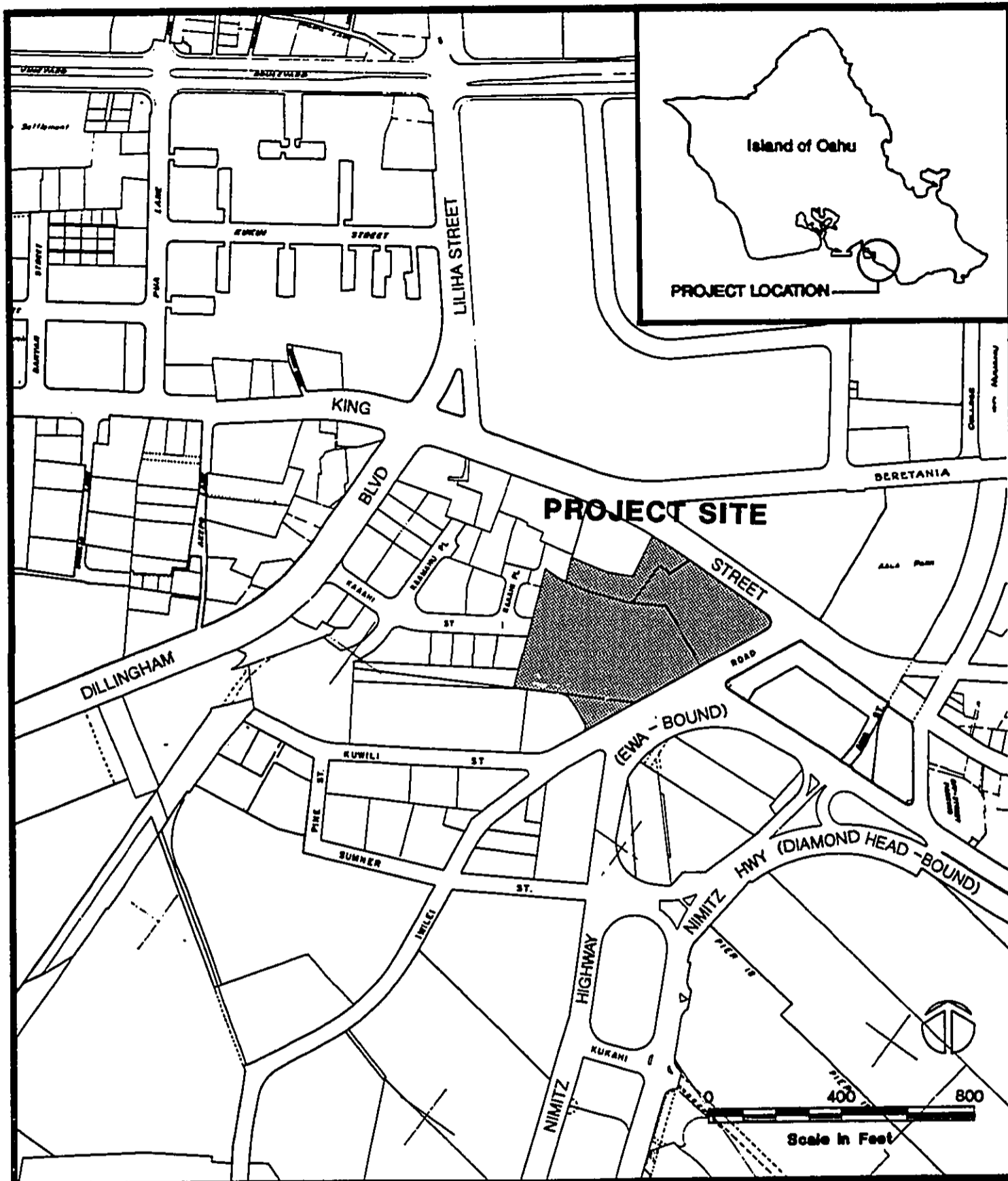
The surrounding environment may be characterized as a light industrial and commercial business area, although there are a number of other uses which also neighbor the project site. Aala Park and the Kukui Gardens housing project are located directly across the proposed project site on King Street, while an open, at-grade parking lot is across Iwilei Road (the City plans to develop this parking lot for housing). The City has recently completed its River-Nimitz housing development at the corner of Nimitz Highway and River Street. The City and County of Honolulu, Department of Housing and Community development is proposing to renovate the existing Von Hamm Textiles Building located at the corner of Kaaahi Street and Kaamahu Place. A homeless center is planned to occupy the building once renovation is completed.

1.3 Existing Uses

Existing structures and uses on the project site include:

- ▶ The OR&L Building - A two-story structure occupied by three State agencies (Hawaii Housing Authority Kalihi-Palama Service Center, Honolulu Community Action Program, and Department of Human Services), Catholic Charities, and St. Francis Medical Center. The building (Site No. 80-14-1380) has been listed on the State Register of Historic Places since June 17, 1987, and was "Determined Eligible" on the National Register of Historic Places since August 17, 1987.
- ▶ The Fruit and Vegetable warehouse - A one-story structure occupied by six produce companies.
- ▶ The Kalihi-Palama Culture & Arts (K-P) Building - A two-story structure occupied by the Kalihi-Palama Culture & Arts Society and the King Kamehameha Celebration Commission. This building (identical historic site number) is also listed on the State Register of Historic Places and is "Determined Eligible" on the National Register of Historic Places.
- ▶ Former gasoline station - A one-story structure currently occupied by the Honolulu Community Action Program.
- ▶ Former paint shop - A one-story structure currently unoccupied.

In addition, two parking areas are available for the OR&L building on the property -- fronting King Street and Iwilei Road.



LILHA
CIVIC CENTER

Fig. 1-1
LOCATION MAP

Prepared by :
Wilson Okamoto & Associates, Inc.

1.4 Land Ownership

The project site is owned by the State of Hawaii and is leased to various produce, commercial and light-industrial business, as well as to State agencies. On April 26, 1991, the State Board of Land and Natural Resources set aside by Governor's Executive Order approximately 200,000 square feet of State-owned land for the Liliha Civic Center.

Existing tenants on the project site include the Honolulu Community Action Program, the Hawaii Housing Authority, State Department of Health, State Department of Human Services, and approximately eight produce and light-industrial businesses on revocable permit status.

Liliha Civic Center

Section 2

PROJECT DESCRIPTION

**SECTION 2
PROJECT DESCRIPTION**

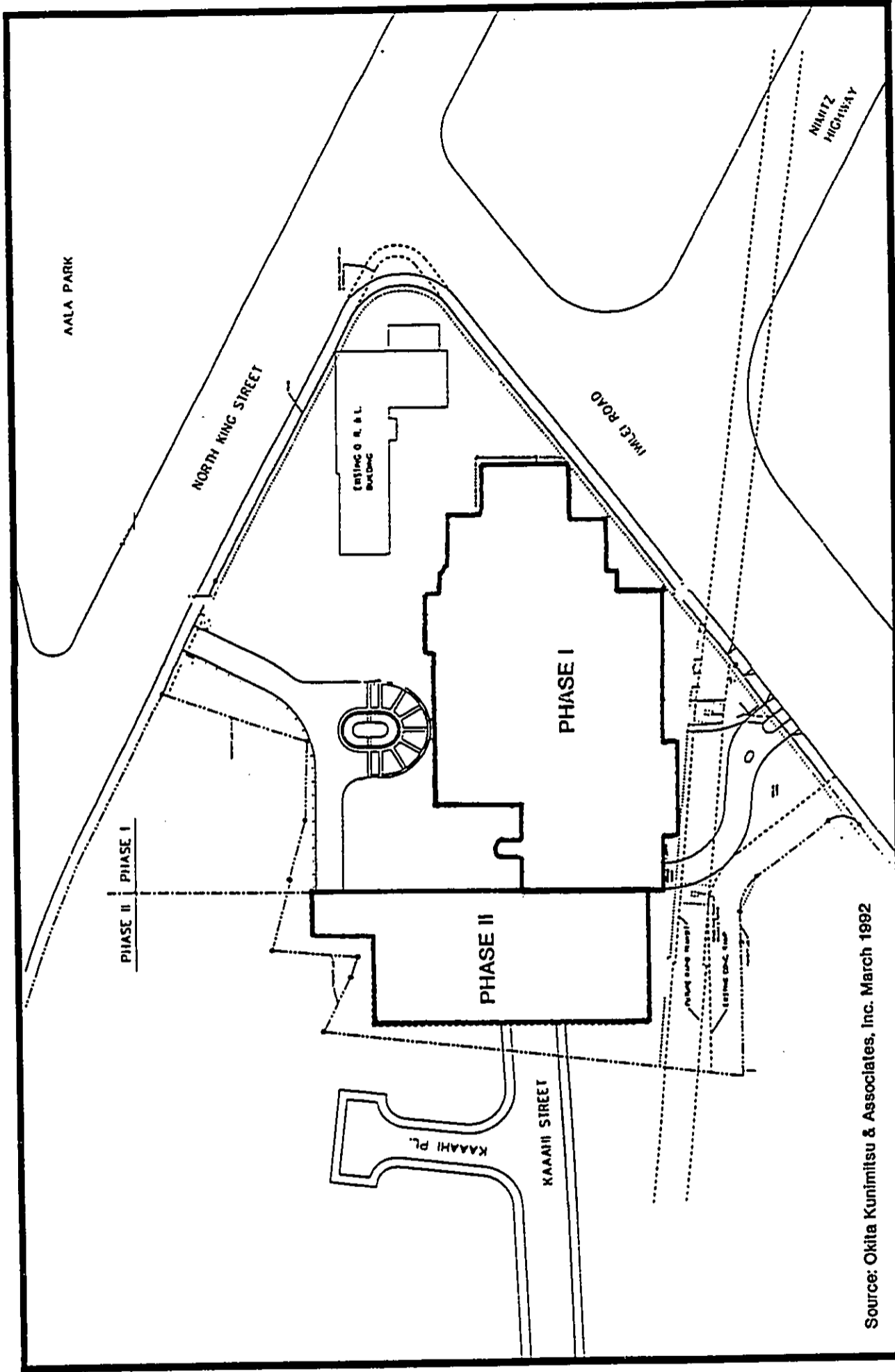
2.1 Liliha Civic Center

The Liliha Civic Center is a State office complex proposed to consolidate various State departments and agencies presently occupying offices in Downtown Honolulu. In addition to accommodating State agencies, a portion of the complex will provide office space for non-profit agencies. Within the project site, the Liliha Civic Center will retain the historic OR&L building and develop a new office complex behind it in two major phases. When fully developed, the Liliha Civic Center will provide approximately 358,216 net square feet (SF) of new office space and approximately 1,266 automobile parking stalls for State and non-profit agencies. The complex will provide a total area of approximately 496,000 gross square feet of office space. The two major phases include those described in Table 2-1 and Figure 2-1.

Table 2-1 LILIHA CIVIC CENTER PHASE I & II			
	PHASE I 1997	PHASE II (FUTURE)	TOTAL
State Agencies Office Space			
Gross SF	247,525	191,125	438,650
Net SF*	181,200	152,900**	334,100
Non-Profit Agencies Office Space			
Gross SF	37,350	0	37,350
Net SF	24,116	0	24,116
Parking			
Parking Structure Stalls	623	477	1,100
At-Grade (Phase I only)	166		166
Existing OR&L Building			
Gross SF	20,000	0	20,000
Net SF	17,000	0	17,000

* Net square feet, excluding elevators, corridors, restrooms, electrical/mechanical rooms, stairs, columns, shafts, ducts, and exterior walls.

** Estimate based on 0.80 of gross SF.



Source: Okita Kunimitsu & Associates, Inc. March 1992

LILIIHA
CIVIC CENTER

Fig. 2-1
 Liliha Civic Center Proposed Master Plan

Prepared by :
 Wilson Okamoto & Associates, Inc.

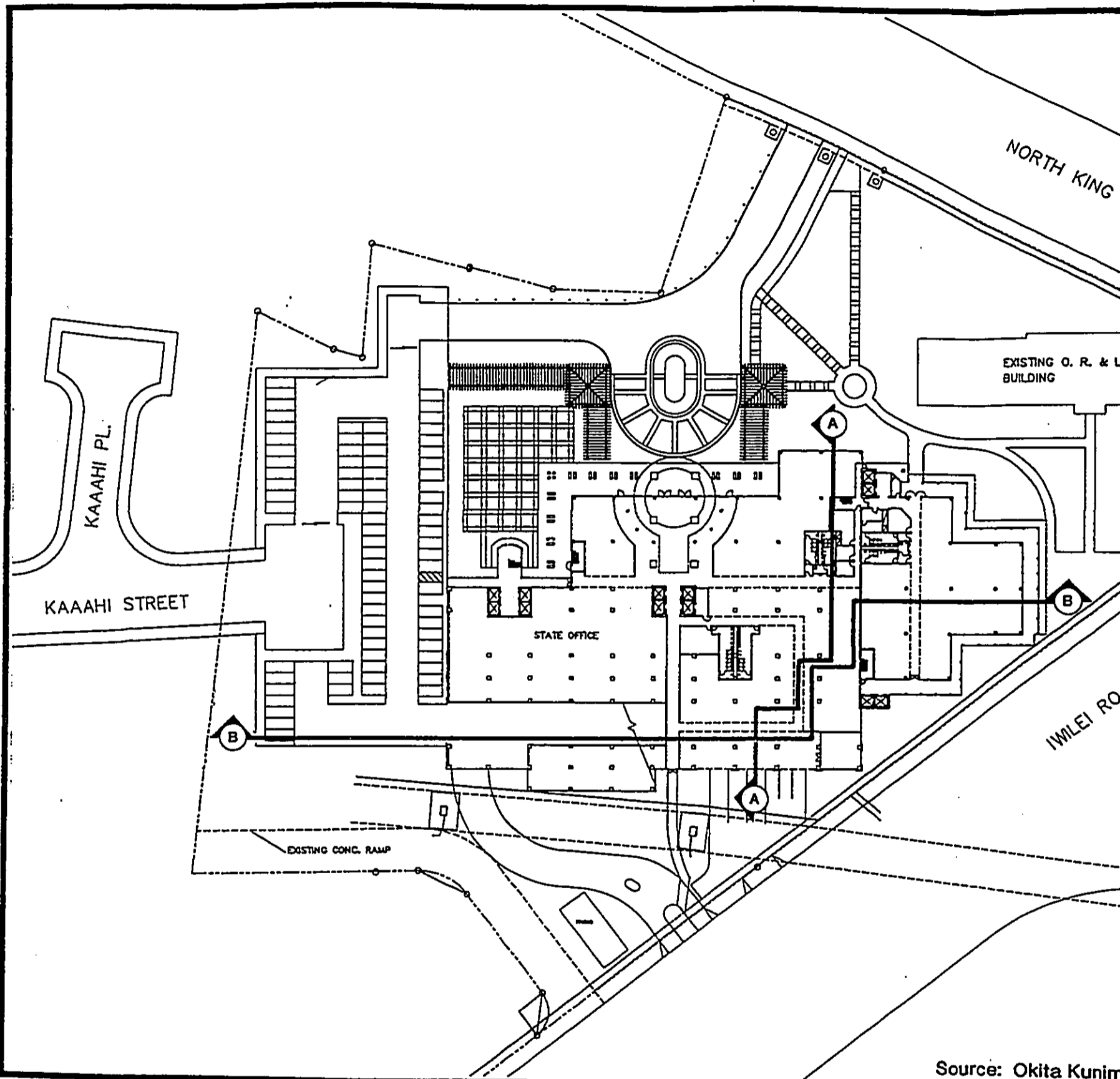
The Phase I building will be comprised of three office sections, with a stepped tower design that provides ground-level office space for public contact agencies, multi-level public and employee parking, and lower and upper levels of office space. There will be a total of approximately 205,316 net SF of new office space in addition to about 17,000 net SF of existing office space in the OR&L Building, and parking for approximately 789 cars. Maximum building height is 150 feet. State government offices and non-profit organizations will occupy Phase I.

Phase II represents a future expansion phase on the ewa end of the site which will provide additional State agency office space and parking. This phase is anticipated to provide approximately 152,900 net SF of office space and about 477 parking stalls. (See Figures 2-2 and 2-3). Maximum building height is 150 feet. State government offices will occupy Phase II.

The existing OR&L Building was listed on the Hawaii Register of Historic Places on June 17, 1987 (Site No. 80-14-1380), and was "Determined Eligible" on the National Register of Historic Places since August 17, 1987. The building will be retained and incorporated in the overall site design. The OR&L Building is expected to continue to house public and non-profit community service agencies. Except for the OR&L Building, all other existing structures on the site will be demolished.

The overall project design theme integrates both functional requirements and aesthetics. The design provides for optimal use of the developable area in a scale and architectural style complementary to the historic OR&L Building and surrounding mixed uses. The tiled roofs, roof overhangs, and walkway/waiting arcades are intended to retain an historic architectural flavor.

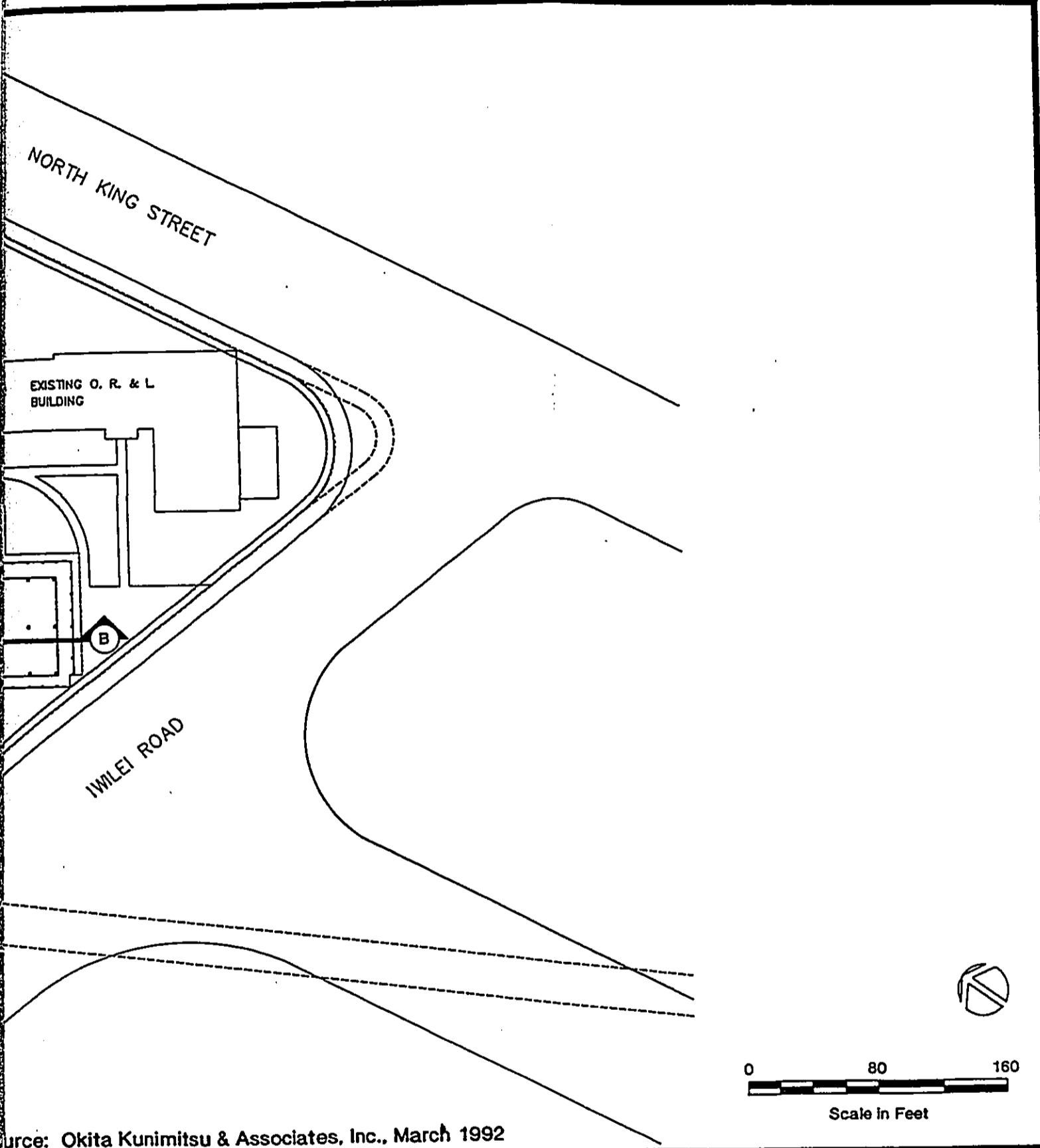
Vehicular access to the Liliha Civic Center will be provided from North King Street, Iwilei Road, and Kaaahi Street off of Dillingham Boulevard. Providing access at three locations on three different thoroughfares will help disperse traffic to available streets surrounding the site. Traffic impacts are discussed further in Section 5.



Source: Okita Kunim

LILIHA
CIVIC CENTER

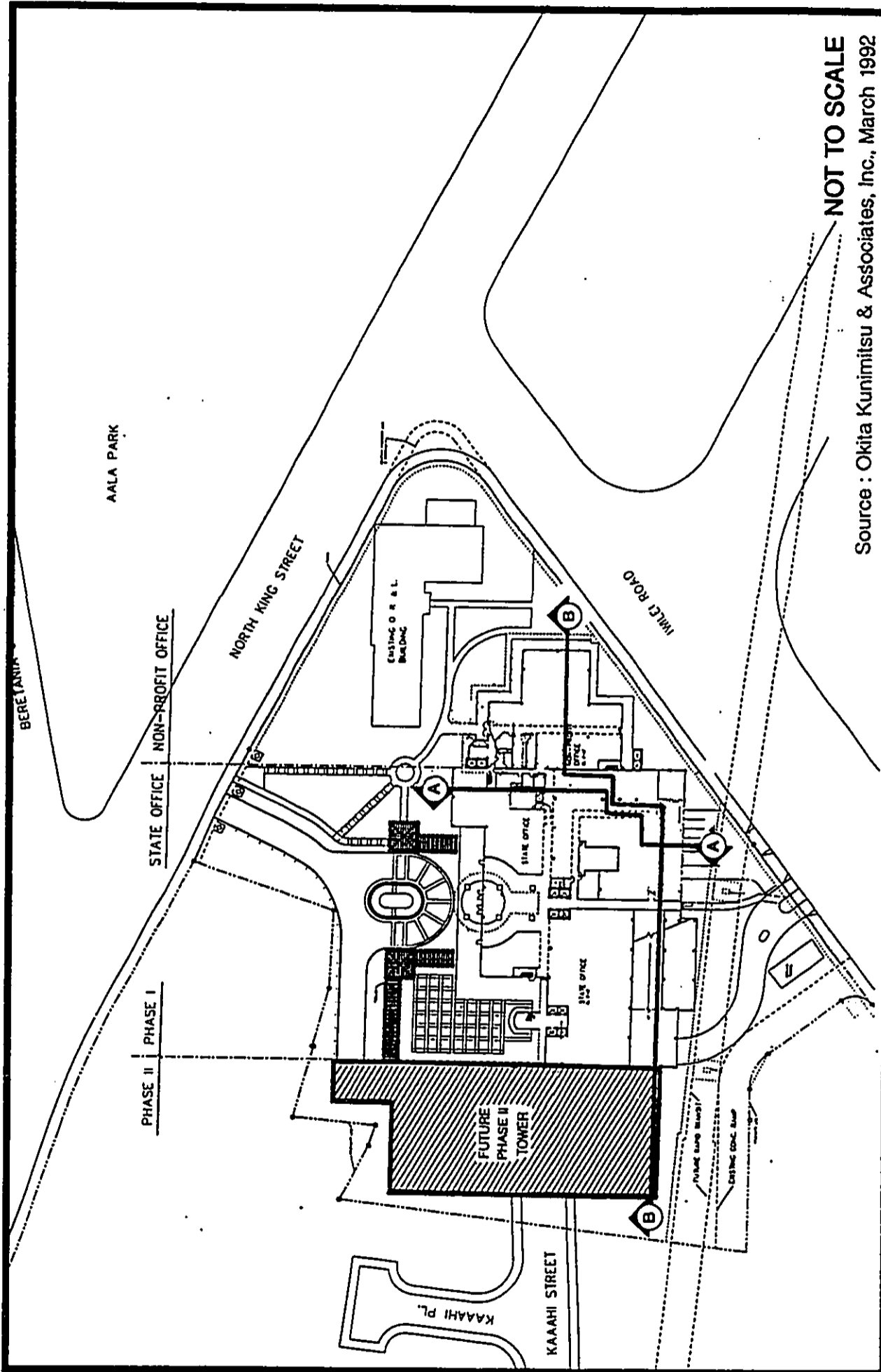
Fig. 2-2
SITE PLAN (PHASE I)



Source: Okita Kunimitsu & Associates, Inc., March 1992

2-2
N (PHASE I)

Prepared by :
Wilson Okamoto & Associates, Inc.



NOT TO SCALE
Source : Okita Kunimitsu & Associates, Inc., March 1992

LILJHA
CIVIC CENTER

Fig. 2-3
FINAL PHASE SITE PLAN

Prepared by :
Wilson Okamoto & Associates, Inc.

The proposed Honolulu Rapid Transit route is planned to be located along the makai boundary of the site and, if developed, would provide an alternative transportation mode. Project design and location of the mass transit guideway alignment through the project site have been coordinated with the City and County of Honolulu Office of Rapid Transit.

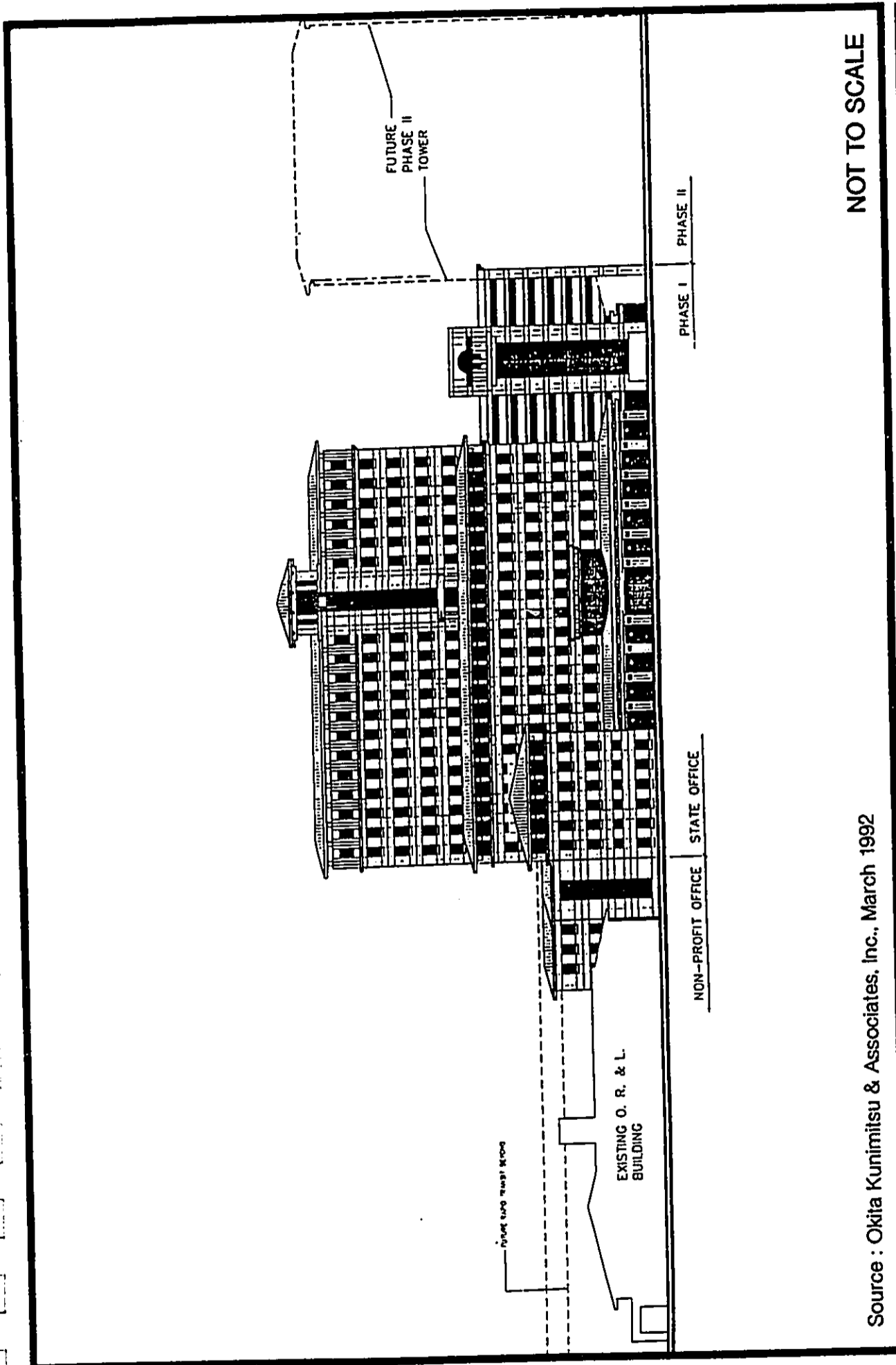
2.2 Liliha Civic Center Phase I

The Phase I building will consist of three office sections offering a total of approximately 205,316 net SF of floor area as depicted in Table 2-2 (See Figures 2-4 through 2-6 for building elevations, and Figures 2-7 and 2-8 for building sections). One section, offering a total of approximately 24,116 net SF on four floors, is planned for tenancy by various non-profit organizations. The non-profit organizations to be occupying the Center will be determined by the Honolulu Community Services Center (a non-profit umbrella agency).

The other two sections would house State offices and parking. On the mauka side of the project site, 7 stories would be developed exclusively for State offices, with an average of approximately 11,525 net SF of office space per floor. On the makai side, 12 stories would be constructed including a ground floor of office space, 7 levels of public and employee parking, and 6 floors of office space above the parking structure. The upper office levels would have an average of approximately 16,755 net SF per floor. The parking structure will accommodate approximately 623 stalls. An additional 166 at-grade stalls will be provided by paving the open area planned for the Phase II complex.

2.3 Liliha Civic Center Phase II

Phase II of the Liliha Civic Center will be developed on the ewa end of the project site atop the Phase I at-grade parking lot. The Phase II building will consist of a single 12-story structure with provisions for about 152,900 net SF (shown in Table 2-2), and is planned for occupancy exclusively by State agencies. Office spaces will occupy the first and second floors, as well as the seventh through twelfth floors. Approximately 477 parking spaces will be provided on the ground level and on the third to eighth levels of the 12-story complex.

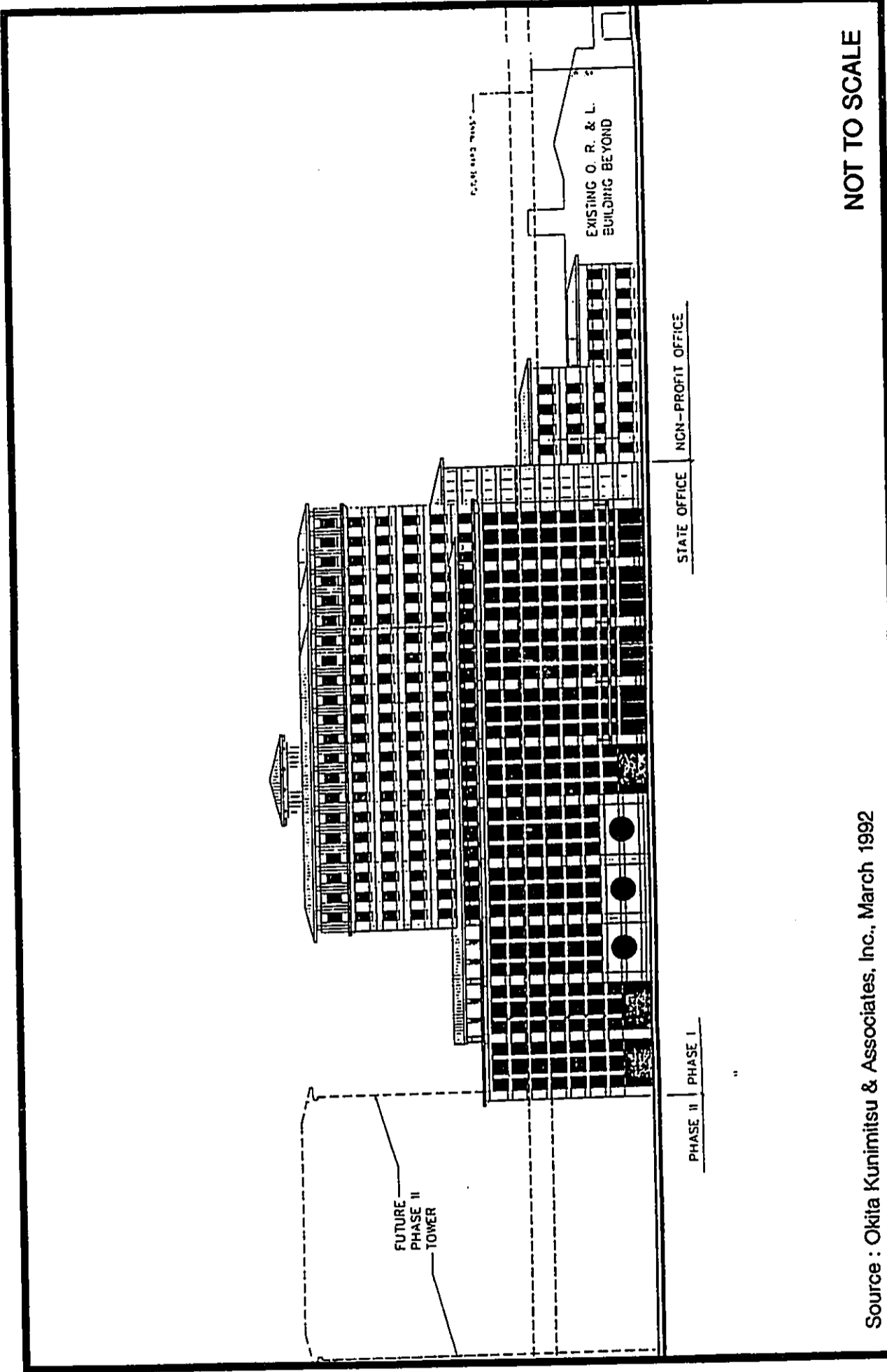


Source : Okita Kunimitsu & Associates, Inc., March 1992

LILJHA
CIVIC CENTER

Fig. 2-4
NORTHEAST ELEVATION

Prepared by :
Wilson Okamoto & Associates, Inc.



NOT TO SCALE

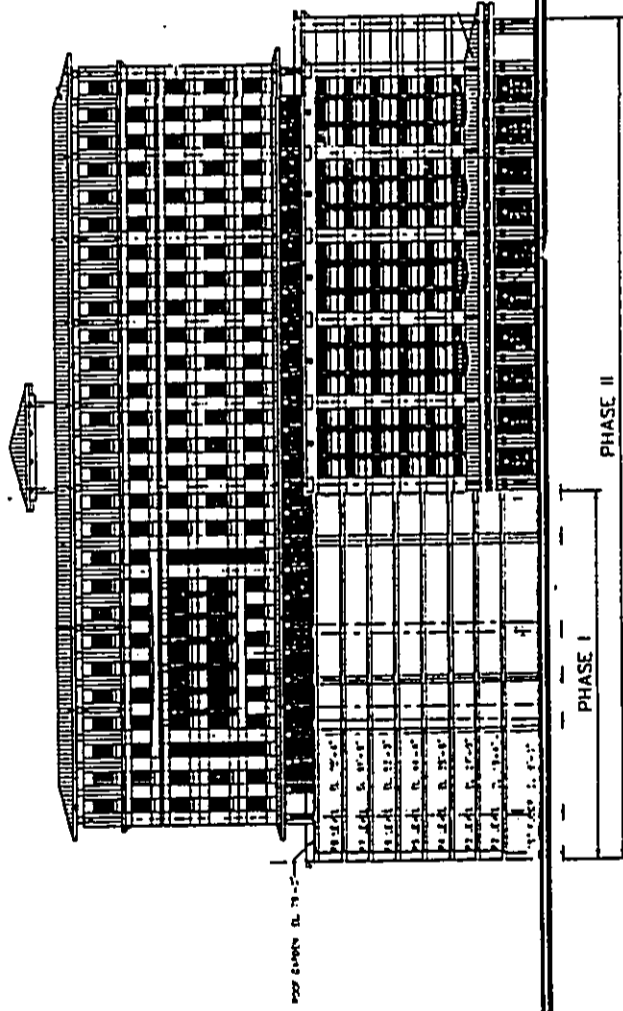
Source : Okita Kunimitsu & Associates, Inc., March 1992

L.L.J.H.A.
CIVIC CENTER

Fig. 2-5
 SOUTHWEST ELEVATION

Prepared by :
 Wilson Okamoto & Associates, Inc.





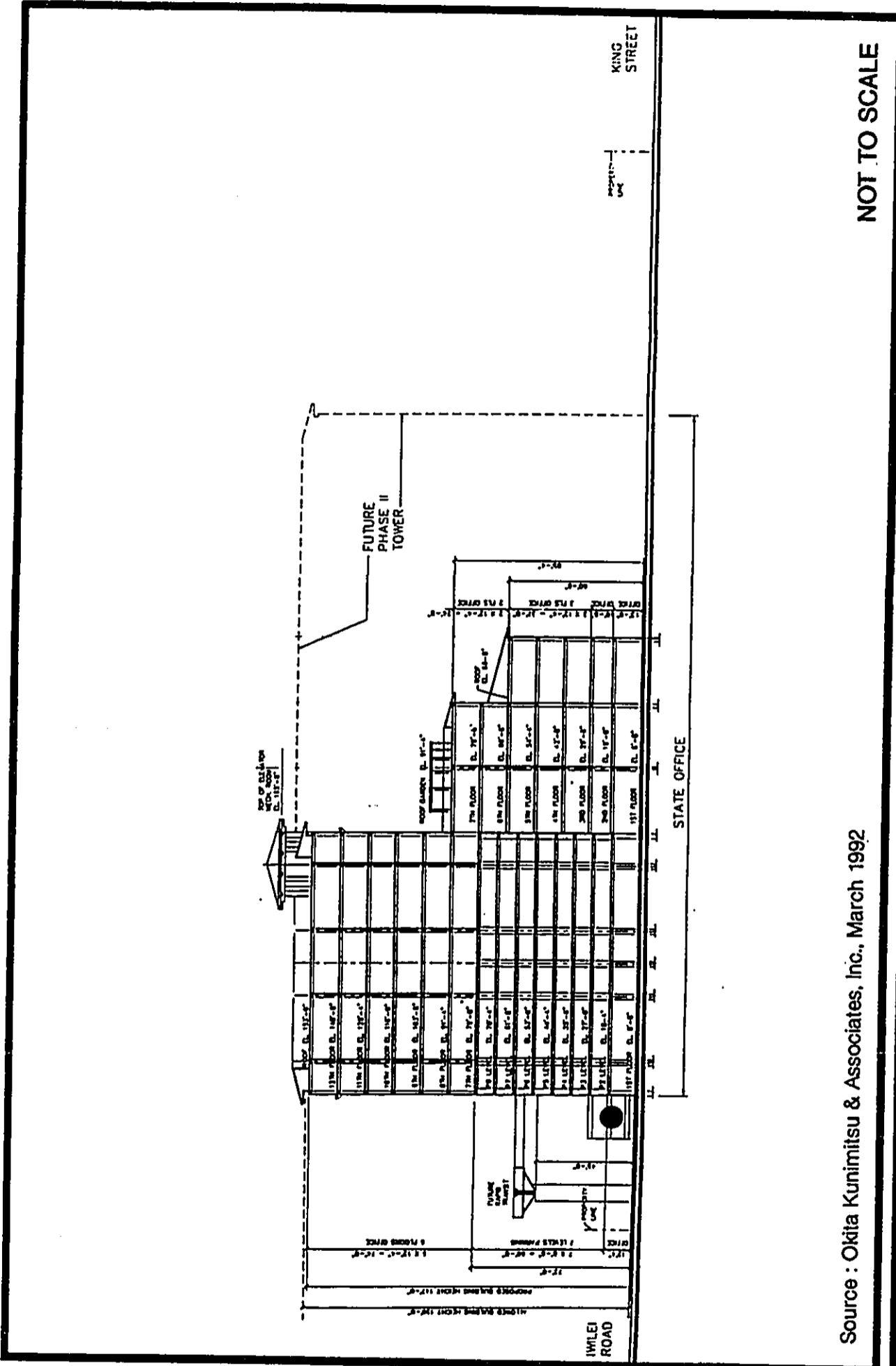
NOT TO SCALE

Source : Okita Kunimitsu & Associates, Inc. April 1992

LILIIHA
CIVIC CENTER

Fig. 2-6
SOUTHEAST ELEVATION

Prepared by :
Wilson Okamoto & Associates, Inc.



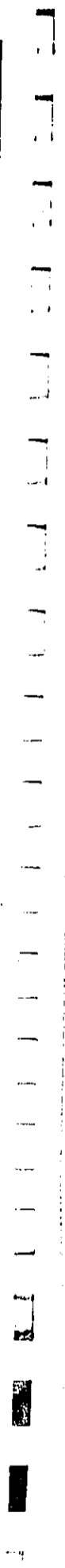
Source : Okita Kunimitsu & Associates, Inc., March 1992

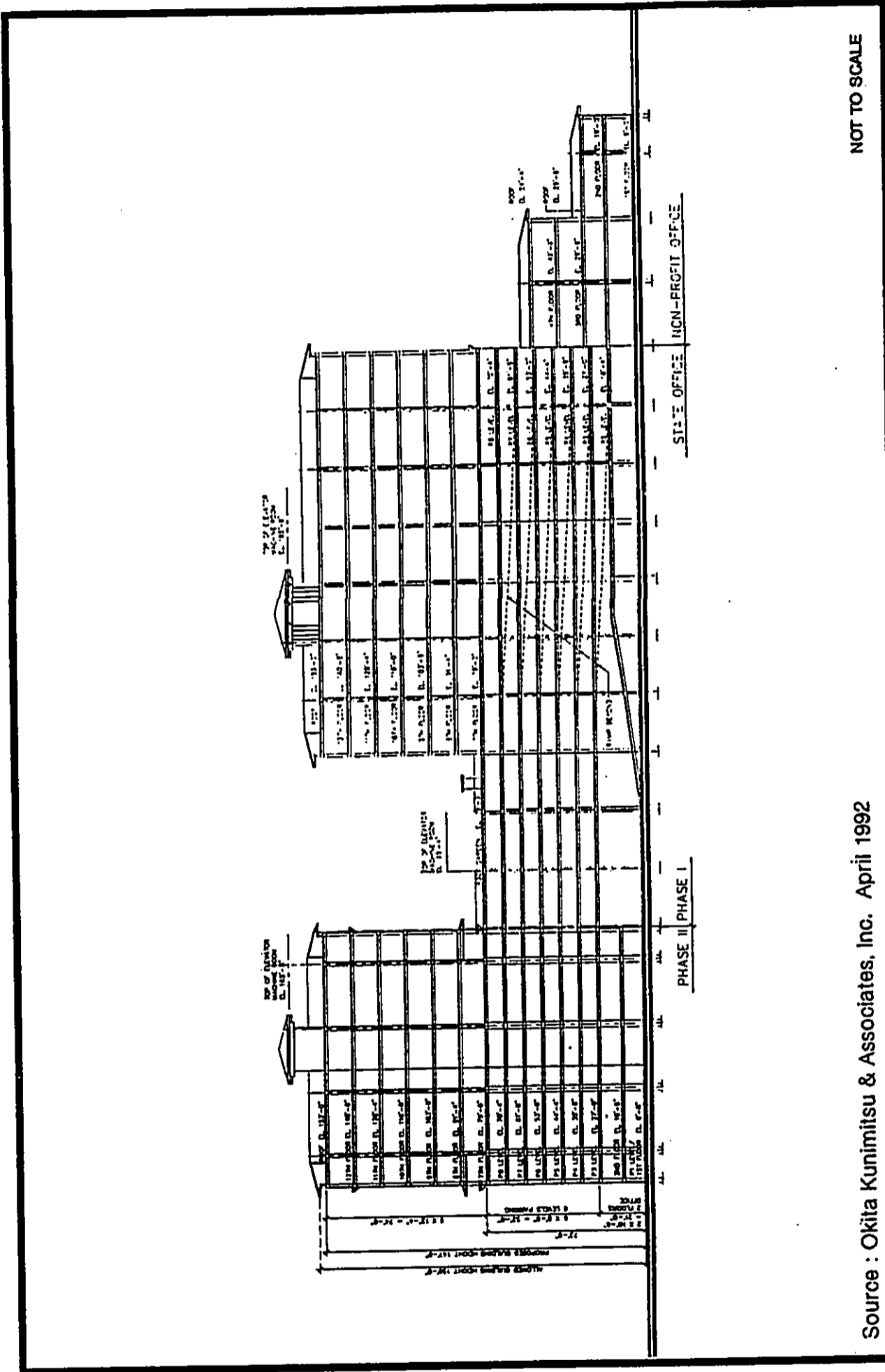
NOT TO SCALE

LILJHA
CIVIC CENTER

Fig. 2-7
BUILDING SECTION A

Prepared by :
Wilson Okamoto & Associates, Inc.





NOT TO SCALE

Source : Okita Kunimitsu & Associates, Inc. April 1992

LILIIHA
CIVIC CENTER

Fig. 2-8
BUILDING SECTION B

Prepared by :
Wilson Okamoto & Associates, Inc.

Table 2-2 PHASES I & II				
SECTION	# OF FLOORS	PROPOSED OCCUPANT	GROSS AREA SF	NET AREA SF
P H A S E I				
1 (new)	7	State	121,276	80,671
2 (new)	6	State	126,249	100,529
3 (new)	4	Non-Profit	37,350	24,116
OR&L Bldg. (existg.)	2	Non-Profit	20,000	17,000
SUBTOTAL			304,875	222,316
P H A S E II				
1 (new)	8	State	191,125	152,900
TOTAL			496,000	375,216

2.4 State Offices

2.4.1 Loft and Finished Spaces

The State will complete the office spaces in two increments. First, the building will be constructed, then tenant improvements will be made to the unfinished loft spaces. Finished rooms and spaces will include: communications rooms, electrical rooms, mechanical rooms, restrooms, janitor rooms, mail rooms, stairways, elevators, employee lockers and showers, grounds maintenance room, janitor supply/storage room, maintenance shop, and public corridors and lobbies. The plans will incorporate special use areas such as conference rooms, staff lounges, custodian areas, security office, and blind vendor space. Interior tenant improvements will include: flooring finish; gypboard/metal stud partitions with finishing; ceiling and lights; doors and hardware; individual tenant air conditioning ducting; and electrical outlets.

2.4.2 Parking

Parking for employees and visitors of the Civic Center will be provided in the 7-level parking structure, which will accommodate approximately 623 spaces (including about 16 spaces for handicapped vehicles) on 255,370 SF. Employee parking will typically be on the upper levels and separated by card reader gate from the lower level public parking. Vehicular access into the parking areas will be through card readers or ticket dispensers from three access points (King, Kaaahi Streets and Iwilei Road) for visitors and staff. Exiting for employee vehicles will be through any of the three points. Visitor vehicles will only be allowed to exit via an attendant booth at the Iwilei access. Access to offices from the parking structure will be via parking elevators and will require transferring to office elevators at the ground level. A roof garden or exercise deck is planned over part of the Phase I parking structure.

Additional parking for staff and visitors in Phase I will be available at an on-grade parking area on the site of the future Phase II building. Approximately 166 stalls on 47,600 SF are planned for this parking area. Of this total, 2 will be designated as accessible stalls for disabled persons. Once Phase II is completed, however, a 477-stall parking structure will be available to employees and visitors of State offices.

Parking at both the structures and open area will be secured and closed to the public after business hours. After hours entry by staff will be controlled by access card system.

2.5 Non-Profit Offices**2.5.1 Loft and Finished Spaces**

As with the State offices, tenant spaces will be provided by DAGS in two increments, commencing with loft space followed by tenant improvements. Finished rooms and spaces to be provided include: mechanical rooms, electrical rooms, communications rooms, restrooms, janitor rooms, stairways, elevators, and public corridors and lobbies. All non-profit space will be administered by DAGS. Interior tenant improvements will include: flooring finish; gypboard/metal stud partitions with finishing; ceiling and lights; doors and hardware; individual tenant air conditioning ducting; and electrical outlets.

2.5.2 Parking

Staff and visitor parking for all non-profit offices will be provided in the Phase I parking structure during normal business hours. Pedestrian access to and from the parking structure will be via parking elevators to the ground level. Access to non-profit offices will require transferring to elevators serving the non-profit office section. The parking structure will be secured and closed to the public after business hours.

2.6 OR&L Building

No work is planned for the interior or exterior of the existing OR&L Building with the exception of new landscaping around the building. The existing on-grade air condensing equipment will be replaced with provisions for air conditioning from Phase I, as the proposed courtyard between the OR&L Building and the new facility would otherwise be obstructed. Existing tenants may continue to occupy the building during construction of the project.

2.7 Project Need

There is currently a severe State office space shortage as indicated by the amount of office space being leased by State agencies. DAGS estimates that State offices lease approximately 648,000 SF in private office space in the Downtown Honolulu area. There is also an indicated need for approximately 145,000 SF for expansion of existing offices. Therefore, there exists a total State office space need of 793,000 SF of additional office space in the Downtown area.

In undertaking the Liliha Civic Center project, a comparative analysis of leasing versus constructing a facility was undertaken by DAGS. Preliminary findings indicated that the State could realize substantial savings by constructing its own office building rather than continuing to lease private office space. The project site represents one of the last major undeveloped State parcels in the Downtown area, and could substantially reduce the need to lease private office space.

The proposed project is part of an overall State office building development program. The program has three components: the Capitol District buildings; the Liliha Civic Center; and the future Kapolei state office buildings. The Capitol District buildings are planned to be reserved for those agencies serving a statewide function. The Liliha Civic

Center is planned for those agencies serving a regional function. The future Kapolei office buildings are planned for those agencies serving a statewide function (that cannot be accommodated in the Capitol District) and a regional function.

The Liliha Civic Center is intended for service type agencies primarily serving the Downtown-Kalihi area. By allowing the consolidation of agencies serving regional needs, visits to multiple service agencies will be more convenient for the public. In addition, the Civic Center would better fit the needs of agencies which must presently adjust their programs to fit various office spaces when leasing private space.

2.8 Design Character

The architectural style is intended to complement the existing historic OR&L Building, as well as the site's mixed-use neighborhood fabric of residential, business, industrial and recreational park uses. The tiled roofs, roof overhangs and walkway/waiting arcades are used to retain an historic flavor, and recapture the historic respect of the OR&L Building during territorial days when it was a hub of downtown activity.

Building massing was used to reinforce historical references to elements of classical order of building design by creating a strong and substantial building base, terracing middle or body and a graceful distinctive top. The massing was also designed to locate the bulk of the floor area in the lower parts of the building which minimized the size of the tower.

Various architectural features of the OR&L Building were incorporated into the design of the project to make it consistent with the character of the historic building. These design elements include:

- ▶ Acknowledgement of the relevance of the scale of the OR&L Building by stepping the massing of the civic center and siting low-rise portions adjacent to the OR&L Building.
- ▶ Covered arcades at ground floor walkways along the Non-Profit and State offices.
- ▶ Modular precast concrete panels which replicate the solid appearance of the OR&L Building.

- ▶ Hipped roofs with similar slope and clay tile roofing where appropriate.
- ▶ Proportioned, recessed windows with divided panes in uniform rhythm with wall and column elements.
- ▶ Distinctive expression of the main high-rise stair and elevator core which recalls the OR&L Building's clock tower.

The building design reflects a neo-classic architectural style appropriate for its gateway location to Downtown Honolulu, with sensitivity to the vertical massing of structures. To provide maximum open space on the site, the complex is set back approximately 175 to 250 feet from King Street to create more open space for the Civic Center and neighborhood. It is also stepped back from 10 to 175 feet along Iwilei Road for aesthetic and functional purposes. The building complex will serve to mask the proposed rapid transit guideway from view off the major King Street entrance and public open spaces.

Landscaping will emphasize the project's open spaces, integrating interior and exterior spaces with courtyards, plazas, and sitting areas. A roof garden is planned atop the lower building's seventh floor.

2.9 Project Costs and Development Schedule

Preliminary costs for the construction of the Liliha Civic Center are estimated at approximately \$119.1¹ million of which about \$66.4 million (\$52.2 million for unimproved loft space and \$14.2 million for tenant improvements²) is attributable to Phase I and about \$52.7 million (\$43.2 million for unimproved loft space and \$9.5 million for tenant improvements) to Phase II. Costs for contingencies, inspection and hazardous waste removal are not included in these estimates.

¹ Based on gross square feet. Includes office space, parking, civil sitework and landscaping, in 1993 dollars.

² Includes flooring finish, gypsum partitions, ceiling and lights, doors and hardware, air conditioning ducting, and electrical outlets.

Construction of Phase I, including tenant improvement work, is scheduled to commence in July 1993 and is anticipated to continue for 3-1/2 years through January 1997, at which time the Civic Center would be ready for occupancy. The construction of Phase II is tentatively planned for sometime after 1997.

Liliha Civic Center

Section 3

**DESCRIPTION OF THE
EXISTING ENVIRONMENT**

**SECTION 3
DESCRIPTION OF THE EXISTING ENVIRONMENT**

3.1 Physical Environment

3.1.1 Climate

The climate of the Hawaiian Islands is generally moderate throughout most of the year, however differences in the climatological parameters occur from location to location. The mountainous topography contributes to significant differences in regional and local climate conditions.

On Oahu, the Koolau and Waianae Mountain Ranges are situated nearly perpendicular to the trade wind flow, which accounts for much of the local climatological variation on the island. The climate of the project vicinity is typical of the leeward coastal lowlands of Oahu. The area is characterized by abundant sunshine, persistent trade winds, relatively constant temperatures, moderate humidities, and the infrequency of severe storms.

The prevailing wind throughout the year is the northeasterly trade wind, although its frequency varies from more than 90 percent during the summer months to 50 percent in January. The average annual velocity of the wind is approximately 10 miles per hour.

The mean temperature measured at Honolulu International Airport in Honolulu ranges from 70 degrees Fahrenheit (°F) in the winter to 84°F in the summer. The temperatures in the downtown project area may be slightly higher than the airport due to localized urban heating effects. The average annual precipitation in the vicinity of the site is approximately 24 inches.

3.1.2 Topography, Geology and Soils

The project area is on the coastal plain of southeastern Oahu. This plain, formed on the eroded flanks of the Koolau volcano, is composed primarily of sedimentary rocks collectively known as caprock. The site is level with an elevation of approximately 10 feet above Mean Sea Level (MSL).

The U.S. Department of Agriculture Soil Conservation Service (USDA, 1972) has classified the soil in the study area as Ewa silty clay loam (EmA) and as mixed fill land (FL). The Ewa silty clay loam is a well-drained soil common on alluvial fans. The Ewa soil lies inland of the fill areas and is underlain by coral limestones at depths of 20 to 50 inches. Permeability is moderate, runoff is very slow, and the erosion hazard is no more than slight. The fill areas are found along the southeastern shores of Oahu, particularly in the Pearl Harbor and Honolulu areas adjacent to the ocean. The fill areas are composed of material dredged from the ocean or hauled from nearby areas, garbage and general material from other sources. This land type is used for urban development, including airports, housing areas, and industrial facilities.

The Land Study Bureau (LSB) has evaluated the quality or productive capacity of certain lands on Oahu for selected crops and overall suitability in agricultural use. A five-class productivity rating system was established with "A" representing the highest productivity and "E" the lowest. The project site is classified as "U" or Urban and is not rated for agricultural productivity.

3.1.3 Hydrology

The project site is situated above the Kalihi Aquifer System. Most of southern Oahu is underlain by an extensive basal aquifer. The upper part of the aquifer contains fresh water that floats on heavier sea water forming a lens-shaped body. Southern Oahu's coastal plain, which includes the site, is underlain by sedimentary deposits that form a caprock which retards the seaward movement of fresh groundwater from the basal aquifer.

This caprock extends along the coastline about 800 to 900 feet below sea level. The width and thickness of the caprock suggests that the basal potable water supply will be relatively unaffected by modifications near the coastline. This is supported by the fact that filling of most of Honolulu's salt marches and lowlands over the past 40 years with dredged marine deposits of high saline content has produced no deterioration in the quality of the basal water recovered by the Board of Water Supply's wells.

Nuuanu Stream, located approximately 0.10 mile east of the project site, is the nearest surface water body to the site. Nuuanu Stream is a perennial stream which is

channelized along its lower reaches and outlets into Honolulu Harbor. Honolulu Harbor is located about 0.24 miles south of the project site. According to the Hawaii Stream Assessment, Nuuanu Stream has limited aquatic resource value, but substantial riparian and recreational resource value. There are 8 archaeological sites along its reaches, but the stream is rated low in archaeological sensitivity.

According to the Flood Insurance Rate Map (FIRM, Community Panel Number 150001 0115 B revised September 4, 1990) prepared by the Federal Emergency Management Agency (FEMA), the entire project site is designated as Zone X, an area determined to be outside the 500-year flood plain.

There are no municipal potable water sources in close proximity to the project site. The Kalihi Pumping Station is located approximately one mile north of the project site. There are a number of industrial wells, including GASCO and Dole Foods wells. Within the project site, there is one well which is currently not in use. This is a 10-inch diameter well approximately 530 feet deep constructed in 1900 and is listed as owned by OR&L Company.

3.1.4 Hazardous Materials

During an on-site walk-through inspection conducted on February 7, 1992 by Harding Lawson Associates, the following items of potential environmental concern were noted:

- ▶ Suspected asbestos-containing materials in warehouse K-P, and service station buildings;
- ▶ 55-gallon drums with petroleum products (some leaking);
- ▶ Above-ground storage tank, 500-gallon capacity, marked "Fuel Oil", adjacent to No Ka Oi building;
- ▶ Fuel dispenser for two 4,000-gallon registered underground storage tanks (UST) at the former service station fronting King Street;
- ▶ An electrical transformer with suspected polychlorinated biphenyls (PCB);

- ▶ Two islands which may have been a fuel dispensing location with the presence of USTs undeterminable;
- ▶ Miscellaneous discarded materials including batteries, paint, and industrial chemicals.

3.1.5 Flora and Fauna Resources

As the project site and surrounding area are fully developed with urban and industrial-related uses, little habitat is available for terrestrial flora and fauna. There are no known Federal or State listed or candidate threatened or endangered plant or animal species on the project site.

Several plant species can be found within the project site including Pink Tecoma (*Tabebuia pentaphylla*), Plumeria (*Plumeria obtusa*, *P. sp.*), Coconut (*Cocos nucifera*), African Tulip (*Spathodea campanulata*), Autograph Tree (*Clusia rosea*), Manila Palm (*Veitchia merrilli*), Chinese Banyan (*Ficus reusa*) and Java Plum (*Eugenia cuminii*).

Species of cats and mice which are common to inner city environments are present at the site. Although the project site does not provide a habitat for native or endangered avifauna, species common to urban areas such as mynahs, finches, and doves are seen in the area.

3.1.6 Air Quality

An Air Quality Analysis was prepared for the project by Environmental Technologies, Inc. in March 1992, and is included as Appendix B. Ambient air quality concentrations are regulated by both National and State of Hawaii standards. The State Ambient Air Quality Standards (AAQS) have been patterned after the National AAQS and are currently established for six pollutants. These pollutants include: particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, and lead. State AAQS are defined by the Department of Health (DOH) in Chapter 11-59 of the Hawaii Administrative Rules, whereas National AAQS are defined by the Environmental Protection Agency (EPA) in Section 40, Part 50 of the Code of Federal Regulations.

The National AAQS are stated in terms of primary and secondary standards. The primary standards are designed to protect the public health with an adequate margin of safety, while secondary standards are designed to protect public welfare from any known or anticipated adverse pollutant effects. The State AAQS are given in terms of a single standard that is defined to protect public health and welfare as well as prevent significant deterioration of the ambient air quality.

3.1.6.1 Existing Ambient Air Quality

The existing air quality within the project area is primarily affected by mobile, industrial, natural, and distant agricultural sources. Nitrogen oxide and carbon monoxide emissions from motor vehicles on heavily-used Dillingham Boulevard and King Street affect ambient air quality on the project site (particularly during infrequent periods of southerly winds). In addition, air pollutants such as salt spray from the ocean, allergens produced by vegetation, dust and volcanic gases also affect the project area.

The Hawaiian Electric Company, Inc.'s (HECO) Honolulu Power Plant is located approximately 0.6 mile south of the project site. This steam-electric generating facility consists of two units fired by low sulfur fuel oil. The existing air quality in the project vicinity could be affected by nitrogen oxide and sulfur oxide emissions from the power plant's short boiler stacks. HECO plans to phase these units out and eventually terminate the plant between 1994 and 1996.

The State Department of Health (DOH) operates a network of air quality monitoring stations at various locations on Oahu. Air quality measurements were taken from the closest proximity to the project site for each of the regulated air pollutants and were reviewed for the period from 1985 to 1991.

Sulfur Dioxide (SO₂) - Monitored at the Campbell Industrial Park (several miles west of the project). No exceedance of the State or National 24-hour AAQS was recorded during the six-year period.

Particulate Matter (PM) - Monitored at the DOT building (about 1 mile northeast of the project). Recorded concentrations were well below the State standard.

Particulate Matter less than 10 Microns (PM-10) - Monitored at Kauluwela School near the project. Concentrations were well below the National standard.

Carbon Monoxide (CO) - Recorded at the DOH building on Punchbowl Street located less than 1 mile east of the project. Exceedances of the 1-hour ambient State standard occurred in 1985 through 1987, although exceedances of the 8-hour standard have not been recorded.

Ambient Ozone (O₃) - Measured at the Sand Island station approximately 0.5 mile northwest of the site. Exceedances of the State 1-hour standard have not occurred since 1985.

Ambient Lead - Recorded at the DOH building downtown, the average quarterly concentrations between 1985 and 1990 were at or below the detection limit. No exceedances have been recorded.

3.1.7 Noise

In the vicinity of the project site, ambient sound levels are influenced by vehicular traffic and industrial-related activities. The noise indicator widely used to assess environmental noise is the Day-Night Average Sound Level (Ldn), which incorporates the average sound level over a period of 24 hours with recognition to a greater human sensitivity for evening noise. According to standards set by the Environmental Protection Agency, noise exposure not greater than 65 Ldn would be compatible with office buildings and commercial retail uses, while noise levels between 65 and 75 Ldn would be marginally compatible. Noise levels greater than 75 Ldn are considered incompatible for these uses.

Representative noise levels were reviewed for proposed projects in proximity to the project site, including the Kekaulike Revitalization Project³ and the Smith-Maunakea Housing Project⁴, both located about 1/4-mile to the east. The noise measurements taken for the proposed Kekaulike Revitalization project, which is bounded by King, Maunakea, Hotel, and River Streets, indicated traffic noise levels between 65 and 75 Ldn. Noise measurements taken for the Smith-Maunakea Housing project, located on Nimitz Highway, revealed existing background noise levels of 60 to 65 Ldn.

³ *Wilson Okamoto and Associates, Kekaulike Revitalization Project, Final EIS, June 1991.*

⁴ *William E. Wanket, Inc., Smith-Maunakea Housing Final EIS, July 1991.*

3.1.8 Archaeological and Historical Resources

An Historical Literature and Documents Search was conducted by Aki Sinoto Consulting in March 1992 for the proposed project site and is included as Appendix C. Objectives of the literature search were threefold: 1) to determine pre-Contact and post-Contact land uses of the project area through documentation; 2) to evaluate the evidence indicating potential subsurface archaeological remains that may be impacted during development; and 3) to provide recommendations for further archaeological work, if any, for review. Significant findings of the report are presented herein.

According to the reconnaissance survey, the proposed project is situated on the site of an ancient fish pond known as Kuwili Fish Pond. Historically, enclosures along the coral banks of the pond were used for stocking fish, and for growing taro. Taro plots along the east bank of the pond were replaced by irrigated rice fields sometime between 1885 and 1890. Beginning in 1890, Kuwili Fish Pond was intermittently filled with dredged materials and coral from Nuuanu Stream and Honolulu Harbor, and filling of the pond was completed in 1901.

In the vicinity of the site, Harding Lawson and Associates' review of a 1897 Monsarrat map showed Kawa Pond situated south of the site across Iwilei Road, Oahu Jail southwest of the site, and rice fields situated to the west.

The first railway terminal was built on the project site in 1890 and the second terminal built in 1924-25. Kuwili Fish Pond and the walled enclosures appear to have been preserved beneath imported landfill materials. No major ground disturbing impacts to the fill have been recorded by OR&L Company, the owner and developer of the property between 1890 and 1951.

According to *Railroads of Hawaii* (Best, 1978), the OR&L Company's Honolulu station was built in 1889 by Benjamin F. Dillingham on land granted by King Kalakaua. A review of Sanborn Fire insurance maps, and a 1942 site plan from *Sugar Trains Pictorial* (Conde, 1975), indicated that a passenger depot and office building, a freight shed, a paint shop, a land department building, two garages, a truck scale, and truck and trailer stalls were located on the site, among other unidentified buildings.

The roundhouse, engine repair and machine shops, blacksmith and car shop, fumigating shed, truck and trailer stalls, and warehouses were on the property north and west of the project site. It is estimated that these buildings were razed in the 1950's.

OR&L ceased operations in 1947, but the Honolulu station remained active until 1962, serving the docks, cannery, and Kalihi stockyards. The State acquired approximately 5.6 acres of the Honolulu station in 1961 as a result of a lawsuit with Dillingham Corporation. After 1961, portions of the site and buildings were leased to various tenants. In 1972, the few remaining miles of track and switching operations were abandoned, and the railway disappeared in Honolulu.

The OR&L Building is currently listed on the State Register of Historic Places and is "Determined Eligible" on the National Register of Historic Places. The Kalihi-Palama Culture & Arts (K-P) Building is a small, two-story structure neighboring the OR&L Building on the project site. The K-P Building is also listed on the State Register of Historic Places and is "Determined Eligible" on the National Register of Historic Places.

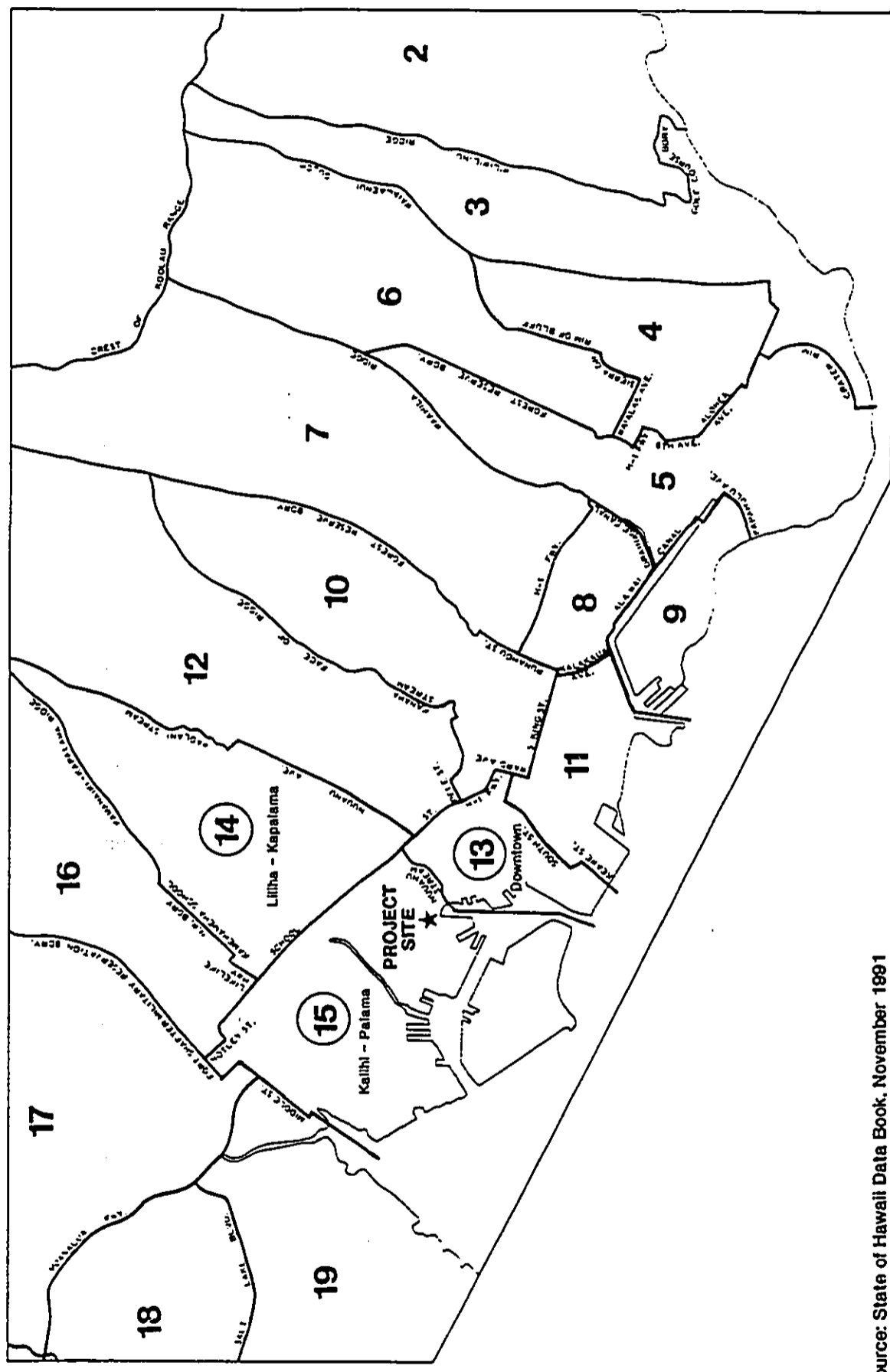
3.2 Socio-Economic Environment

The project site is situated near three major neighborhood areas: Kalihi-Palama (No. 15), Liliha-Kapalama (No. 14), and Downtown (No. 13) as highlighted in Figure 3-1. The summary of the socio-economic environment is based on preliminary demographic and housing data from the 1990 Census of Population and Housing.

3.2.1 Profile of the Existing Community

The project site lies ewa of Downtown Honolulu and is surrounded predominantly by commercial and industrial uses. Residential neighborhoods in the vicinity of the project site are primarily in the mauka areas. Low-rise and high-rise multi-family units lie just mauka of the project area above King and Beretania Streets, while single-family residences are generally above School Street.

The Liliha Civic Center site is near the eastern boundary of the Kalihi-Palama Neighborhood Board No. 15, which extends makai of School Street from Middle Street to Nuuanu Stream (Census Tracts 53 to 62). The proposed project site is within Census Tract 57.



Source: State of Hawaii Data Book, November 1991

LILIHA
CIVIC CENTER

Fig. 3-1
Neighborhood Statistical Program Areas

Prepared by :
Wilson Okamoto & Associates, Inc.

Adjacent neighborhoods include the Downtown Neighborhood Board No. 13 (Census Tracts 39 to 42, 51 and 52) and the Liliha-Kapalama Neighborhood Board No. 14 (Census Tracts 47 through 50).

3.2.2 Population

Although population has been increasing on Oahu over the past several decades, the rate of population growth has been steadily decreasing. The island-wide average annual population growth rate decreased from 2.3 percent in the 1960s, to 1.9 percent in the 1970s, to less than 1 percent in the 1980s.

In 1990, the resident population of Oahu was 836,231, approximately 75 percent of the State of Hawaii's total population. The Kalihi-Palama Neighborhood had a resident population of 40,147, virtually unchanged from its 1980 population of 40,144.

Table 3-1 presents a summary of the demographic and housing characteristics in the three neighborhood areas in 1990. Of the three neighborhood areas, Kalihi-Palama had by far the largest residential population, more than the combined population of the Liliha-Kapalama and Downtown neighborhoods.

Kalihi-Palama in general had a younger population than the other two neighborhoods, with more children under the age of 18 and less senior citizens over 65 years of age. Liliha-Kapalama had a fairly high median age and high proportion of senior citizens, about 25 percent of the total population.

Family households made up 75 percent of all households in Kalihi-Palama and Liliha-Kapalama, but only 44 percent in the Downtown area. This is reflected in the persons per household ratio, which averaged 3.5 in Kalihi-Palama and 3.0 in Liliha-Kapalama, and only 1.9 in Downtown.

3.2.3 Housing

In housing, the Downtown and Kalihi-Palama neighborhoods had a high number of multi-family units. Over 90 percent of all units in Downtown were in multi-family structures. By contrast, the Liliha-Kapalama area had a high proportion of single-family residential

Characteristics	Kalihi-Palama (Census Tracts 53,54,55,56,57, 57.99,58,59,60, 61,62.01,62.02)	Liliha-Kapalama (Census Tracts 47,48,49,50)	Downtown (Census Tracts 39,40,41,42, 51,52)	City & County of Honolulu
Total Population	40,147	18,530	13,465	836,231
Age				
Median age	33.2	41.8	39.5	32.2
Under 18 years	26.2%	17.8%	14.2%	24.5%
Over 65 years	14.1%	24.5%	18.2%	11.0%
Households				
Total households	10,877	5,759	6,610	265,304
Family households	75.8%	74.9%	43.7%	74.4%
Non-family households	24.2%	25.1%	56.5%	25.6%
Persons per household	3.5	3.0	1.9	3.02
Housing				
Total housing units	11,107	5,926	6,871	281,683
Occupied housing units	10,877	5,759	6,610	265,304
Owner occupied	27.4%	55.4%	21.3%	52.0%
Renter occupied	72.6%	44.6%	78.8%	48.0%
Units with more than 1 person per room	4,409 (40.5%)	1001 (17.4%)	1,238 (18.7%)	43,526 (16.4%)
Units In Structure				
1-unit, detached	2,486	3,104	99	9,653
1-unit, attached	738	639	51	28,914
2 to 4 units	1,448	562	182	19,384
5 to 9 units	1,222	294	270	18,285
10 or more units	4,993	1,212	6,167	84,378
Contract Rent				
Less than \$250	2,022	247	1,092	9,653
\$250 to \$499	3,353	890	1,214	27,231
\$500 to \$749	1,861	665	1,794	35,258
\$750 to \$999	317	364	778	20,019

Source: U.S. Bureau of the Census, Summary Tape File 1A

units, approximately 64 percent of all units in the neighborhood. Kalihi-Palama's housing stock was about 30 percent single-family and 70 percent multi-family units.

There was a high proportion of renter-occupied units in Kalihi-Palama and Downtown, 73 percent and 79 percent respectively. In Liliha-Kapalama, the majority of units were owner-occupied. Monthly rental rates in general were much lower in Kalihi-Palama than in the Downtown area.

One indicator of overcrowding is the number of persons per room. In Kalihi-Palama, over 40 percent of occupied units had more than one person per room. This compares with the islandwide average of only 16 percent with more than one person per room. In Liliha-Kapalama and Downtown, less than 20 percent of the units exhibited such overcrowding.

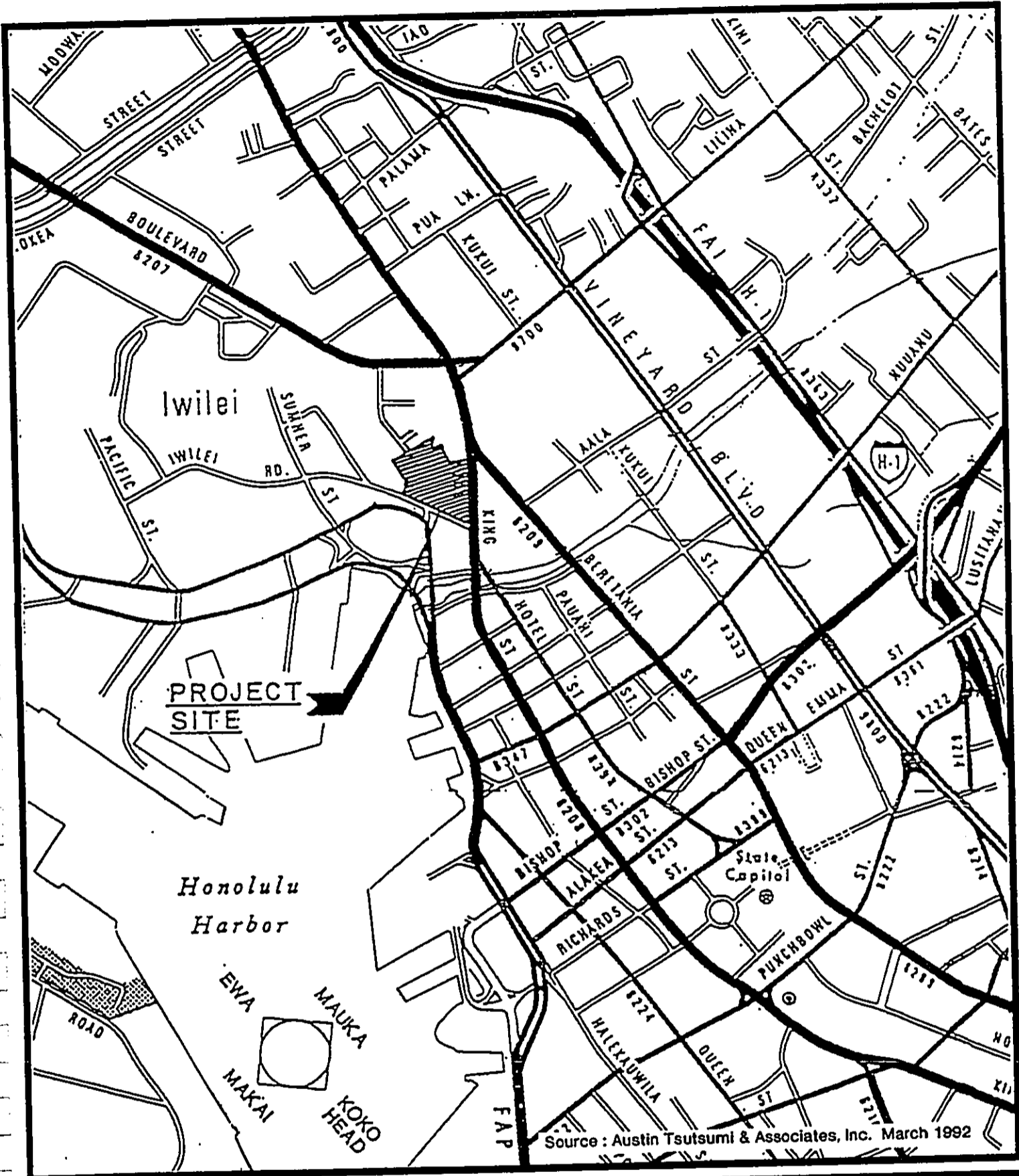
3.3 Transportation and Infrastructure Systems and Public Services

3.3.1 Roadway System

The project is near the confluence of major highways and arterials on the west edge of the Central Business District (CBD), which affects traffic efficiency in the area. Approximately 100 feet northwest of the site is the intersection of North King Street and Beretania Street, which is the west terminus of the main one-way couplet through downtown Honolulu. King Street generally runs east-bound and Beretania Street runs west-bound. Six hundred feet north of the project site is the major intersection of North King Street/Dillingham Boulevard/Liliha Street (See Figure 3-2).

North King Street in the area immediately fronting the site is a six-lane, two-way arterial street with four lanes for east-bound traffic and two lanes for west-bound traffic. The east-bound traffic is a mix of automobiles, buses and commercial vehicles, while the west-bound traffic consists primarily of buses from the Hotel Street bus mall and left-turn traffic from Iwilei Road.

Iwilei Road is a two-to-four-lane, two-way local road, with parking permitted along the south curb. Iwilei Road also provides access for west-bound Nimitz Highway traffic traveling toward the Kalihi and Liliha areas. A slip-ramp from west-bound Nimitz Highway feeds directly to Iwilei Road. Iwilei Road itself is approximately 2,500 feet



LILIIHA
 CIVIC CENTER

Fig. 3-2
 EXISTING
 ROADWAY MAP

Prepared by :
 Wilson Okamoto & Associates, Inc.

long and primarily serves commercial-industrial businesses, several private social agency centers and the Dole Cannery tourist center.

Kaaahi Street is a dead-end local street off Dillingham Boulevard, leading to the north boundary of the site. It is a two-lane, two-way street, with parking permitted on both sides, and serves a small commercial-industrial area.

Dillingham Boulevard is an arterial street between Middle and North King Streets. It is five lanes wide with two lanes in each direction, with a two-way, left-turn lane along much of its length. However, in the vicinity of the project site, from Kaaahi Street to King Street, Dillingham Boulevard has three east-bound lanes to King Street and two lanes west-bound. At the King Street intersection, in the east-bound direction, the right

lane is for right turns only, the center lane is an optional right turn-through lane, and the left lane is for through-traffic only, while left turns are prohibited.

Liliha Street is a major collector road in the mauka-makai direction and runs from the Pauoa-Nuuanu Valley areas to King Street. It conveys traffic from these valley communities, Vineyard Boulevard, and the H-1 Freeway to the makai areas.

3.3.1.1 Existing Traffic Conditions

A traffic survey was conducted on February 5 and 6, 1992 by Austin Tsutsumi and Associates, Inc. (See Appendix D) to determine the peak period of traffic turning movement volumes at the key intersections immediately adjacent to the project site.

Morning (AM) and afternoon (PM) peak hour traffic in the project area are very congested as a result of the convergence of major east-west streets at the Liliha Street/King Street/Dillingham Boulevard and King Street/Beretania Street intersections.

The intersection of King Street/Dillingham Boulevard/Liliha Street controls the quality of traffic flow in this area. Traffic conditions at this intersection affect

traffic flow at the intersections of Dillingham Boulevard/Kaaahi Street, King Street/Beretania Street, and King Street/Iwilei Road.

3.3.1.2 Existing Levels of Service

Intersection capacity analysis was performed using methods presented in the Highway Capacity Manual. The concept of Level of Service (LOS) describes facility operations on a letter basis from A to F, indicating a range of traffic conditions from excellent to unacceptable, respectively. Tables 3-2 and 3-3 briefly illustrate the six LOS for signalized and unsignalized intersections, respectively, and associated characteristics of each.

LOS	RANGE OF DELAY*	V/C Ratio ⁵	CHARACTERISTICS
A	Less than 5 seconds	0 - 0.61	Extremely favorable progression
B	5 to 15 seconds	0.61 - 0.70	Good progression or short cycles
C	15 to 25 seconds	0.71 - 0.80	Occasionally, vehicles may wait more than one red signal phase
D	25 to 40 seconds	0.81 - 0.90	Noticeable numbers of vehicles fail to clear the first green phase
E	40 to 60 seconds	0.91 - 1.00	Poor progression - vehicles often fail to clear the first green phase
F	More than 60 seconds	> 1.00	Oversaturation - arrival flow rates exceed the intersection capacity

* Per Vehicle

⁵ The Volume-to-Capacity Ratio is used to determine the level of service of the intersection. Volume is estimated using actual or projected traffic counts for a given period, while capacity is estimated based on the intersection's physical characteristics, traffic conditions, and control conditions.

LOS definitions for signalized intersections are defined in terms of *delay*, as measure of driver discomfort, frustration, fuel consumption and lost travel time. The criteria are stated in terms of the average delay per vehicle for a 15-minute analysis period. On the other hand, LOS definitions for unsignalized intersections are determined by the *reserve (or unused) capacity of a lane*. The potential capacity is determined by the size and frequency in gaps in conflicting traffic that can accommodate the demand. Thus, the reserve capacity reflects the number of vehicles that can proceed through the unsignalized intersection.

LOS	RESERVE CAPACITY ⁶ (PCPH)	CHARACTERISTICS
A	> 400	Little or no delay
B	300 - 399	Short traffic delays
C	200 - 299	Average traffic delays
D	100 - 199	Long traffic delays
E	0 - 99	Very long traffic delays
F	< 0	Extreme traffic delays

* Passenger Cars Per Hour

All intersections were analyzed using criteria for signalized intersections with the exception of the "T-intersection" of Iwilei Road and the Nimitz Highway west-bound slip ramp, for which criteria for unsignalized intersections was applied.

Existing Level of Service During AM Peak Hour

Results of the analysis for LOS during the AM peak hour (generally occurring between 7:15 and 8:15 a.m.) are reflected in Table 3-4.

⁶ Reserve Capacity (potential capacity of a lane) is determined by the size and frequency in gaps in conflicting traffic that can accommodate the side street demand. The reserve capacity is equal to the potential capacity minus the traffic demand. A lower Level of Service translates into longer side street delay.

Figure 3-3 shows the traffic counts and the approach LOS for the selected streets in the project area. It should be noted that the southbound (toward Koko Head) traffic on Dillingham Boulevard are affected by the operations at the downstream King Street/Liliha Street/Dillingham Boulevard intersection. Consequently, traffic in headed in this direction is often queued back across Kaaahi Street.

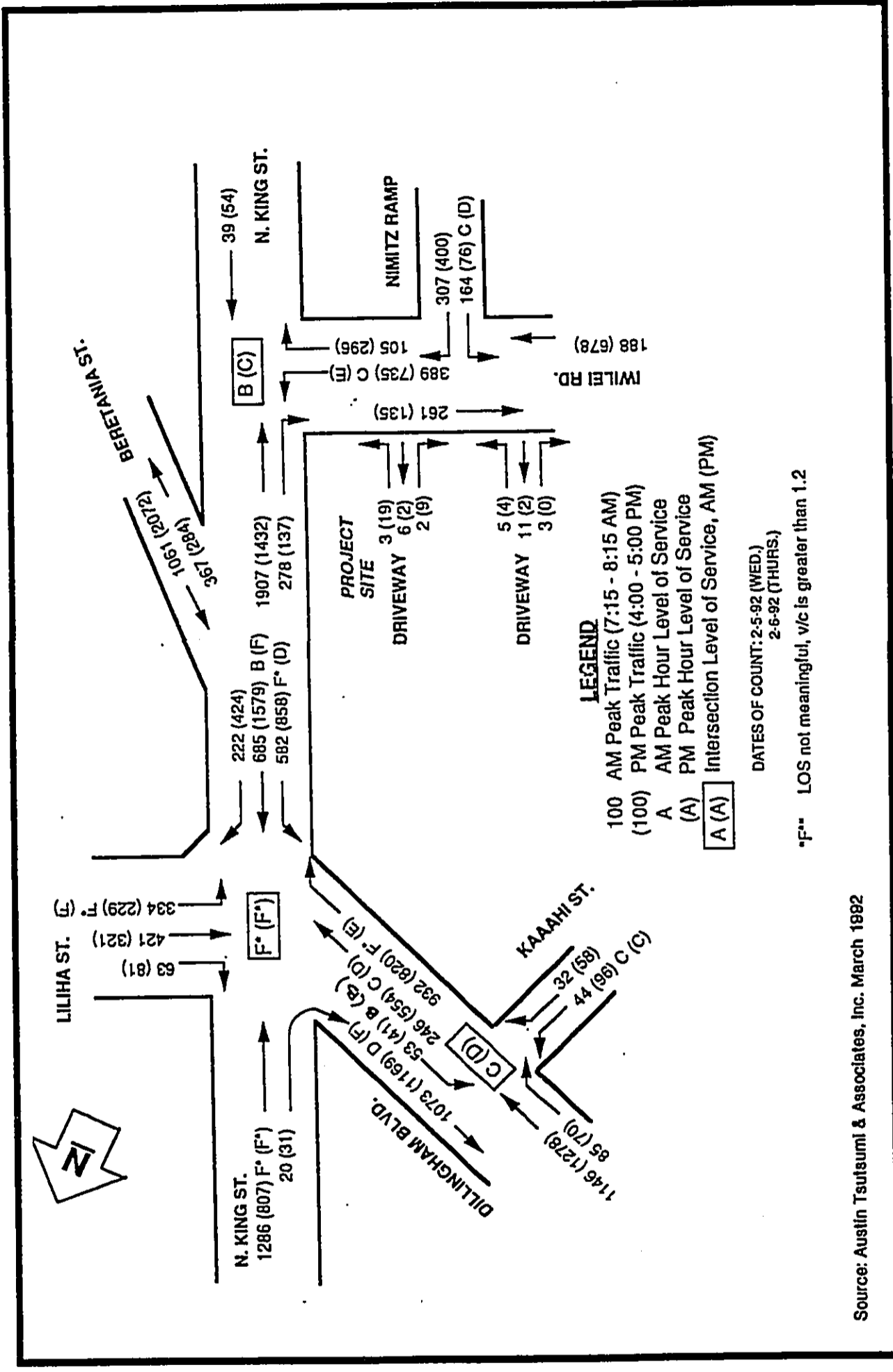
Conditions at the intersection of North King Street, Dillingham Boulevard and Liliha Street should also be noted. This intersection operates at an overall LOS F, however, conditions are actually worse because the volume-to-capacity ratio (v/c) exceeds 1.2 (indicated by "). This is a result of the high volume of southeastbound traffic on Dillingham Boulevard, in addition to southbound traffic heading into downtown on North King Street.

Existing Level of Service During PM Peak Hour

Results of the analysis for LOS during the PM peak hour (generally occurring between 4:00 and 5:00 p.m.) are also reflected in Table 3-4. Afternoon peak hour traffic conditions at the intersection of Dillingham Boulevard at Kaaahi Street are similar to morning conditions with mauka-bound traffic queued back to Kaaahi Street.

INTERSECTION	AM LOS	PM LOS
Dillingham Blvd. at Kaaahi St.	C	D
North King St. at Dillingham Blvd. and Liliha St.	F ⁻	F ⁻
North King St. at Beretania St. ⁷	C	C
King St. at Iwilei Rd.	B	C
Iwilei Rd. at Nimitz Hwy. Ramp	C	D

⁷ Traffic Impact Report for the Proposed Liliha Civic Center, Phase I, January 1989.



Source: Austin Tsutsumi & Associates, Inc. March 1992

LILIIHA
CIVIC CENTER

Fig. 3-3
Existing Traffic Volumes and LOS

Prepared by:
Wilson Okamoto & Associates, Inc.

3.3.2 Infrastructure Systems and Public Services**3.3.2.1 Water System**

Water service to the project site is provided by the City and County of Honolulu Board of Water Supply (BWS) via two parallel water lines (24- and 12-inch) running along King Street, with subsequent connection to two parallel water lines (16- and 8-inch) located along Iwilei Road.

3.3.2.2 Wastewater System

At present, a 24-inch sewer line is located near the project's western boundary, and intersects a 36-inch sewer line which runs along Iwilei Road. Wastewater is collected and conveyed to the Sand Island Wastewater Treatment Plant which provides advance primary sewage treatment for all wastewater generated in Honolulu. The Plant has a treatment design capacity of about 82 million gallons per day and currently handles flows of about 72 mgd. The effluent from the plant is disposed of through an 84-inch ocean outfall which discharges more than two miles offshore of Sand Island.

3.3.2.3 Drainage System

An existing 24-inch drain line crosses the project from its northern boundary to Iwilei Road. A second 24-inch line traverses the project in near tandem alignment, and backtracks along the project's western boundary. Surface runoff is collected and discharged into Honolulu Harbor from catch basins located along King Street and Iwilei Road.

3.3.2.4 Solid Waste Disposal System

Solid waste collection and disposal services for the Sand Island area are provided by the City's Department of Public Works, Division of Refuse Collection and Disposal. The waste may be transported for disposal at the H-POWER energy recovery incinerator facility at Campbell Industrial Park. Alternative disposal sites include the Kalaheo Landfill in Kailua, the Waimanalo Gulch landfill near the Kahe Power Plant and the Waipahu Incinerator.

3.3.2.5 Electrical and Communication Systems

Electrical service to the project site is currently provided by Hawaiian Electric Company, while communication service is provided by GTE Hawaiian Telephone Company (GTE). At present, there are overhead communication and 12 kilovolt (kV) power lines located along King Street fronting the project. These lines will be converted to underground lines in the future. There are also underground communication and 12 kV power lines installed along Iwilei Road fronting the project.

3.3.2.6 Police, Fire and Medical Services**Police Stations**

The project area is located within District 5 (Iwilei), Sector 3, Beat 35 and is serviced by the Kalihi Police Station. District 5 encompasses the area from Pali Highway to Pearl Harbor while Sector 3 extends from Middle Street to King Street.

Fire Stations

Fire protection services for the project area are provided by the Honolulu Fire Department (HFD) through the Central Engine Company which is located on the intersection of Beretania and Fort Streets, and Kalihi Kai Engine and Ladder Company located on the corner of Nimitz Highway and Waiakamilo Road. Fire Station No. 8 is situated nearest to the project site on Iwilei Road, however no active engines are currently based at this location.

Medical Facilities

The project area is conveniently located near the following medical services:

<u>Facility</u>	<u>Location</u>	<u>Distance</u>
Queens Hospital	Punchbowl Street	1.00 mile
Straub Clinic	King and Ward Streets	1.75 miles
Straub Satellite Clinic	Alakea and Queen Streets	0.70 mile
St. Francis Hospital	Puunui Street	1.25 miles
Kuakini Hospital	Kuakini Street	1.00 mile

These medical facilities are located 3 to 10 minutes away from the project site by car and, with the exception of Straub Satellite Clinic, provide a full range of services, including 24-hour emergency service. Mobile emergency service care is provided by the City and County of Honolulu's ten ambulance units and three contractual ambulance units.

Liliha Civic Center

Section 4

**RELATIONSHIP TO
GOVERNMENT PLANS,
PROFILES, AND REGULATIONS**

SECTION 4

RELATIONSHIP TO LAND USE PLANS, POLICIES AND CONTROLS

4.1 State of Hawaii

A number of State plans, policies and controls provide guidelines for development within the State of Hawaii. These guidelines include the Hawaii State Plan, State Functional Plans, and the State Land Use Plan.

4.1.1 Hawaii State Plan

The Hawaii State Plan is a statewide planning system which provides goals, objectives, and policies that address priority directions and concerns of the State of Hawaii. The proposed Liliha Civic Center is consistent with the following State objective and policies:

[§226-6] Objectives and policies for the economy--in general. (a) Planning for the State's economy in general shall be directed toward achievement of the following objectives: (1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people; and (2) A growing and diversified economic base that is not overly dependent on a few industries.

(b) To achieve the general economic objectives, it shall be the policy of this State to: (6) Strive to achieve a sustained level of construction activity responsive to, and consistent with, state growth objectives; and (14) Encourage businesses that have favorable financial multiplier effects within Hawaii's economy.

[§226-12] Objectives and policies for the physical environment--scenic, natural beauty, and historic resources. (a) Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources.

(b) To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to: (1) Promote the preservation and restoration of significant natural and historic resources; and (4) Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.

[§226-17] Objectives and policies for facility systems--transportation. (a) Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives: (1) An integrated

multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods; and (2) A statewide transportation system consistent with planned growth objectives throughout the State.

(b) To achieve the transportation objectives, it shall be the policy of this State to: (2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives; (6) Encourage the use of transportation systems that serve as a means of accommodating present and future development needs of communities; and (10) Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawaii's natural environment.

[§226-22] Objective and policies for socio-cultural advancement--social services. (a) Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that induce greater individual, family, and group initiative, self-reliance, and self-esteem.

(b) To achieve the social service objective, it shall be the policy of the State to: (2) Promote coordination and integration of public and private services and programs that enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society.

[§226-28] Objective and policies for fiscal management--government. (a) Planning the State's fiscal management with regard to government shall be directed towards the objective of ensuring fiscal integrity, responsibility, and efficiency in the state government and county governments.

(b) To achieve the government objective, it shall be the policy of this State to: (3) Promote the consolidation of state and county governmental functions to minimize the ineffective and inefficient delivery of government programs and services.

4.1.2 State Functional Plans

The Hawaii State Plan directs appropriate State agencies to prepare Functional Plans which address statewide needs, problems and issues, and recommends policies and actions to mitigate those problems. State Functional Plans are intended to act in a coordinated fashion with County General Plans and Development Plans in order to implement the Hawaii State Plan.

4.1.2.1 Human Services Functional Plan

The State Human Services Functional Plan is one of fourteen plans designated by Chapter 226, Hawaii Revised Statutes (HRS), originally enacted in 1978 and amended in 1986 and 1987. The Plan provides long-range direction for the integrated efforts of public and private agencies administering programs in Hawaii's communities. The programs are designed to encourage individuals and families seeking to achieve economic and social self-sufficiency. The proposed project is consistent with the following objectives and policies:

H. OBJECTIVE: Facilitate client access to human services.

H(1). Policy: Improve client's access to health and human services through collocation and case management projects.

H(2). Policy: Improve client access to health and human services through single access, coordinated case management and by providing flexible operating hours.

H(3). Policy: Facilitate and improve client's access to health and human services through the development of an integrated health and human services information network.

H(4). Policy: Promote flexibility in leasing office space.

H(5). Policy: Develop collocation of services as a solution to transportation barriers and other factors which may impact client access.

4.1.2.2 Historic Preservation Functional Plan

The purpose of the State Historic Preservation Functional Plan is to coordinate the preservation of historic properties, the collection and preservation of historic records, artifacts and oral histories, the provision of public information and education on the ethnic and cultural heritages and history of Hawaii. The proposed project is consistent with the following objectives and policies:

C. OBJECTIVE: Management and treatment of historic properties.

C(3) Policy: Explore innovative means to better manage historic properties.

4.1.3 State Land Use Classification

Pursuant to the Hawaii Land Use Law (Chapter 205, HRS), all lands in the State are classified by the State Land Use Commission (LUC) into four land use districts: Urban, Agricultural, Conservation and Rural. The proposed project site is located in the Urban District as indicated in Figure 4-1. The proposed development is permitted under the Urban designation and no boundary amendment to reclassify the site is required.

4.2 City and County of Honolulu

4.2.1 Oahu General Plan

First adopted in 1977, the City and County of Honolulu General Plan specifies long-range objectives and policies to guide both the quantity and quality of future growth on Oahu. The Plan is a statement of the long-range social, economic, environmental, and design objectives for the general welfare and prosperity of the people of Oahu and also provides broad policies which facilitate the attainment of the objectives of the Plan.

The project is consistent with the following General Plan objectives and policies:

Physical Development and Urban Design

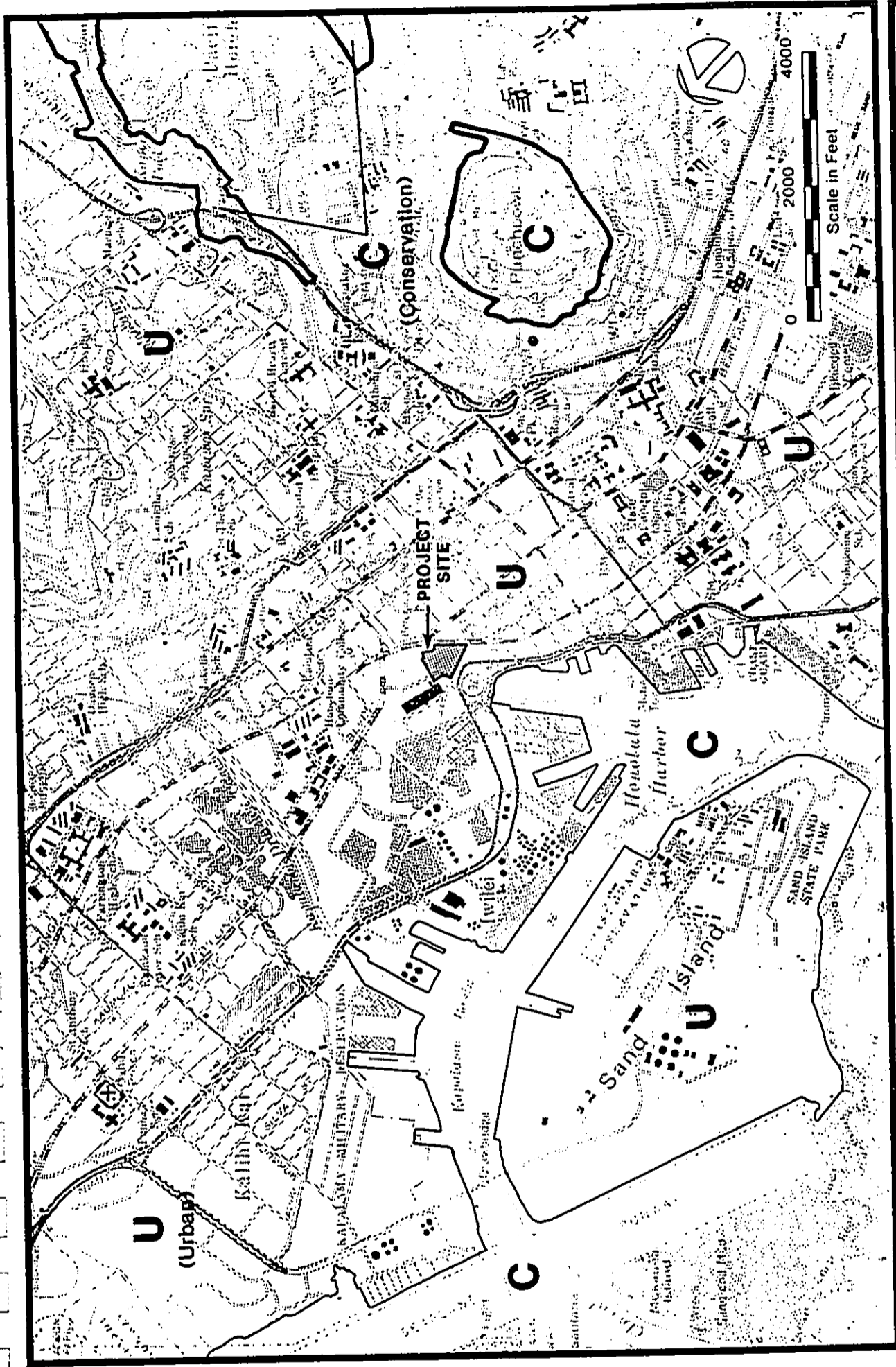
Objective A: To coordinate changes in the physical environment of Oahu to ensure that all new developments are timely, well-designed, and appropriate for the areas in which they will be located.

Policy 5: Provide for more compact development and intensive use of urban lands where compatible with the physical and social character of existing communities.

Policy 6: Encourage the clustering of developments to reduce the cost of providing utilities and other public services.

Policy 8: Locate community facilities on sites that will be convenient to the people that they are intended to serve.

Policy 7: Provide for the continued viability of the Hawaii Capital District as a center of government activities and as an attractive park-like setting in the heart of the City.



LILIIHA
CIVIC CENTER

Fig. 4-1
 STATE LAND USE DISTRICT MAP

Prepared by :
 Willson Okamoto & Associates, Inc.

Objective D: *To create and maintain attractive, meaningful, and stimulating environments throughout Oahu.*

Policy 3: *Encourage distinctive community identities for both new and existing districts and neighborhoods.*

Policy 9: *Design public structures to meet high aesthetic and functional standards and to complement the physical character of the communities they will serve.*

Objective E: *To promote and enhance the social and physical character of Oahu's older towns and neighborhoods.*

Policy 1: *Encourage new construction to complement the ethnic qualities of the older communities of Oahu.*

Culture and Recreation

Objective B: *To protect Oahu's cultural, historic, architectural, and archaeological resources.*

Policy (1): *Encourage the restoration and preservation of early Hawaiian structures, artifacts, and landmarks.*

Policy (2): *Identify, and to the extent possible, preserve and restore buildings, sites, and areas of social, cultural, historic, architectural, and archaeological significance.*

Objective D: *To provide a wide range of recreational facilities and services that are readily available to all residents of Oahu.*

Policy 3: *Develop and maintain urban parks, squares, and beautification areas in high density urban places.*

4.2.2 Development Plan (DP)

Eight DPs were established by the City and County of Honolulu to provide detailed schemes for implementing and accomplishing the objectives and policies of the General Plan. The DPs guide the desired sequence, patterns and characteristics of future

development. The project site is located within the Primary Urban Center (PUC) Development Plan area which extends from Waiālae-Kahala to Pearl City.

Consistency with Common Provisions

The proposed project will be consistent with the DP Common Provisions established for general urban design principles and controls governing proposed developments.

Consistency with Special Provisions

The proposed project is located in the Kalihi-Palama area, as discussed in Section 32-2.2 of the PUC Special Provisions. Commercial--Industrial Emphasis Mixed Use development is permitted in the area of the proposed project, bounded by the King Street corridor, Nuuanu Stream, Nimitz Highway, and Kapalama Drainage Canal.

DP Land Use (DPLU) Map Designation for PUC

The DPLU map depicts a land use pattern that is consistent with the objectives of the General Plan and is used as the basis for public facility planning. As illustrated by Figure 4-2, the DPLU map designates the project site as Commercial-Industrial Emphasis Mixed Use, Commercial Emphasis Mixed Use and Public Facility.

DP Public Facilities (DPPF) Map Designation for PUC

The DPPF map for the PUC identifies public and private proposals for parks, streets and highways, major public buildings, utilities, terminals, and drainage. Further, the DPPF maps designate proposed facilities required to accommodate the growth objectives of the DP by providing adequate public facilities to meet existing and projected needs.

The proposed project site is slated for commencement of land acquisition and/or construction beyond six years for a transit corridor, as shown in Figure 4-3. A DPPF amendment to place a Government Building symbol on the map is being requested by DAGS.

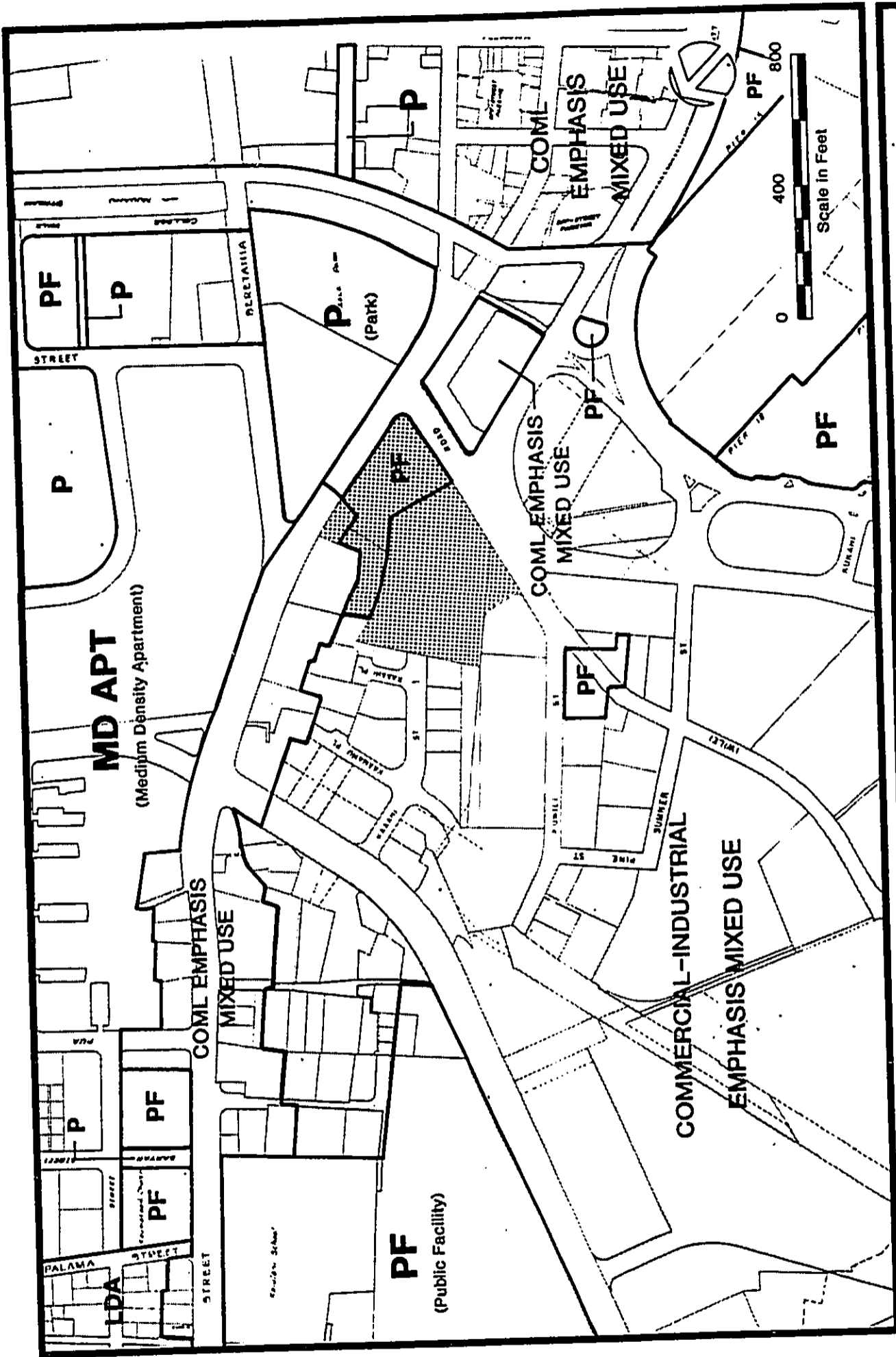


Fig. 4-2

**DEVELOPMENT PLAN
LAND USE MAP**

Prepared by:
Wilson Okamoto & Associates, Inc.

**LILIHUA
CIVIC CENTER**

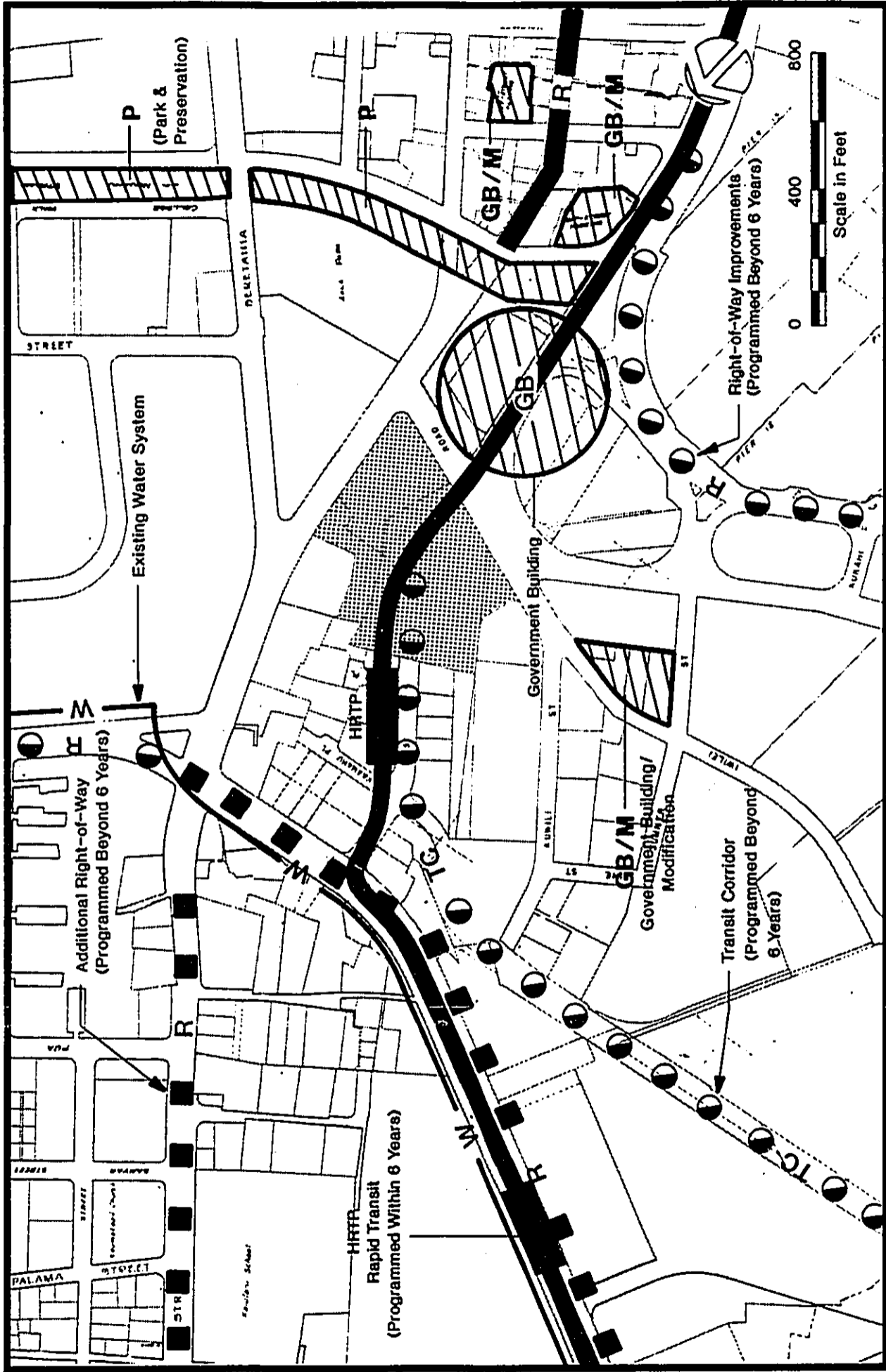


Fig. 4-3
 DEVELOPMENT PLAN
 PUBLIC FACILITIES MAP

LILIIHA
 CIVIC CENTER

Prepared by:
 Wilson Okamoto & Associates, Inc.

4.3.3 Land Use Ordinance (LUO)

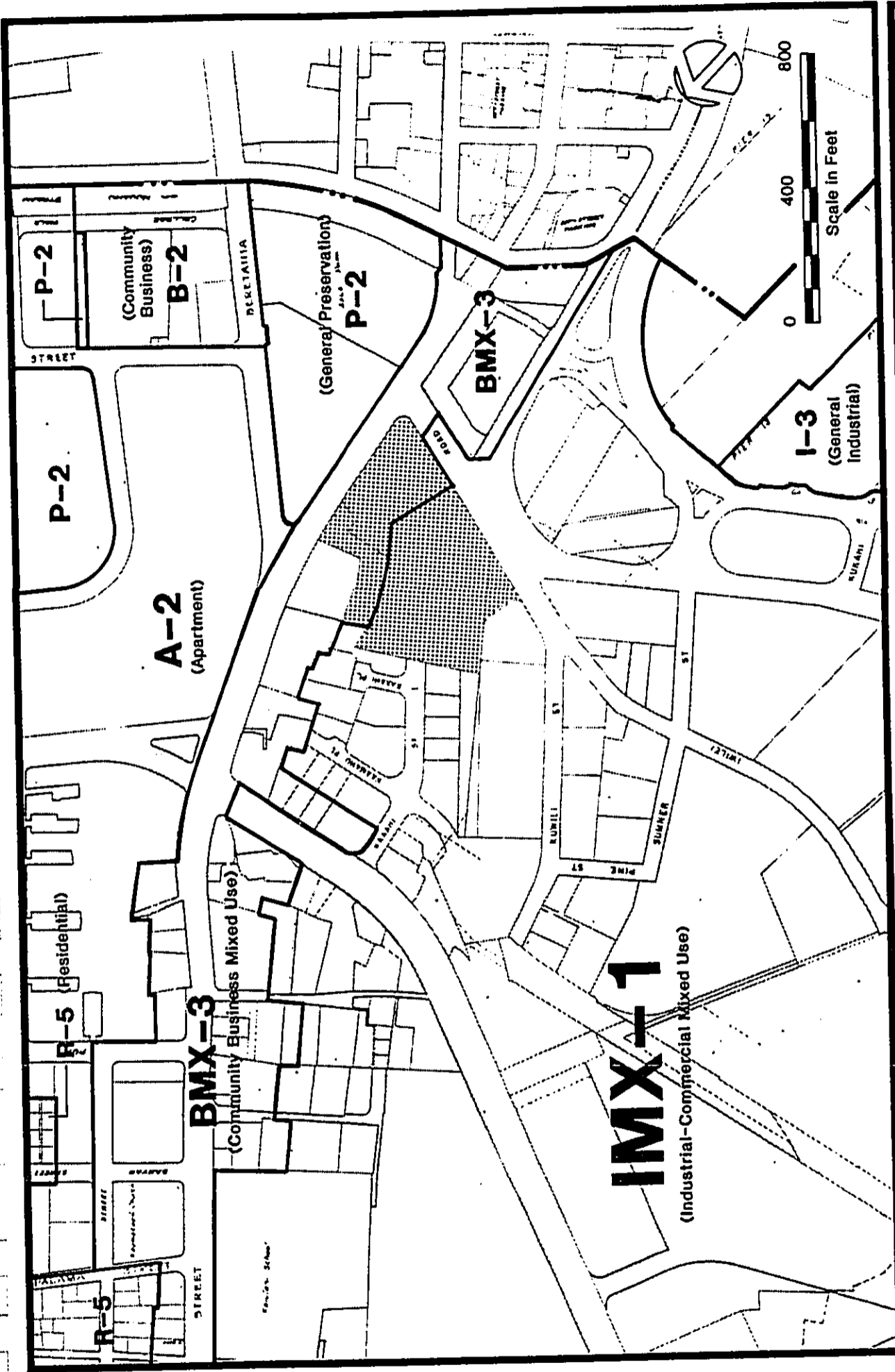
The City and County of Honolulu LUO regulates land use in accordance with adopted land use policies, including the Oahu General Plan and DP. Under the current LUO zoning, part of the proposed project site is designated Industrial-Commercial Mixed Use District (IMX-1) which allows mixing of some industrial uses with other uses (See Figure 4-4). The intent of this district is to provide a gradual transition from industrial areas to non-industrial areas by permitting a broad range of uses, reflective of existing land use patterns, without exposing non-industrial uses to unsafe and unhealthy environments. The maximum height allowed in this zone is 150 feet.

The rest of the site is designated Community Business Mixed Use District (BMX-3). This designation recognizes that certain areas of the city have historically been mixtures of commercial and residential uses, occurring vertically and horizontally and to encourage the continuance and strengthening of this pattern. BMX-3 specifically provides areas for both commercial and residential uses outside of the Central Business Mixed Use District. This district applied to areas along major thoroughfares adjacent to higher intensity districts, such as B-2 and BMX-4. The maximum height allowed in this zone is 200 feet.

The proposed project is consistent with the existing zoning designations. Office buildings and parking structures are considered principal uses in both IMX-1 and BMX-3 zones. The office buildings will be designed within the maximum height limitations.

The City and County of Honolulu, Department of Land Utilization has indicated that the Planning Commission is currently reviewing proposed amendments to the LUO which alter development standards in the IMX-1 District.

The project site lies outside of the City's Special Management Area boundaries which regulate coastal development in accordance with the objectives, policies, and guidelines of Chapter 205-A, HRS.



LILIIHA
CIVIC CENTER

Fig. 4-4
ZONING MAP

Prepared by:
Wilson Okamoto & Associates, Inc.

4.3.4 List of Required Permits and Approvals

The following is summary of the major permits and approvals required prior to project construction (permits and approvals not applied for unless otherwise noted):

Federal**Environmental Protection Agency**

- ▶ Hazardous Waste Disposal, Hazardous Materials Disposal, Closure and Decommissioning of Underground Storage Tanks, and Site Remediation Requirements (Administered by the Department of Health)

State of Hawaii**Department of Land and Natural Resources**

- ▶ Use of State Lands (approved by BLNR on April 26, 1992)
- ▶ Concurrence with historic preservation review and mitigation process pursuant to Chapter 6E, HRS.
- ▶ Water Resource Allocation

Office of Environmental Quality Control

- ▶ Environmental Impact Statement

Department of Health

- ▶ National Pollutant Discharge Elimination System (NPDES) Permit
- ▶ Demolition/Construction-Related Permits
- ▶ Hazardous Waste Disposal, Hazardous Materials Disposal, Closure and Decommissioning of Underground Storage Tanks, and Site Remediation Requirements

City and County of Honolulu**Department of General Planning**

- ▶ Development Plan Public Facilities Map Amendment (Application submitted to DGP on August 4, 1992)

Department of Public Works

- ▶ Grading Permit
- ▶ Demolition Permit
- ▶ Excavation Permit
- ▶ Construction Dewatering Permit
- ▶ Permit for Connection to Municipal Storm Drain System
- ▶ Sewer Connection Permit

Department of Parks and Recreation

- ▶ Compliance with provision of the Street Tree Ordinance

Board of Water Supply

- ▶ Water System Requirements for Developments

Section 5

**PROBABLE IMPACTS AND
MITIGATION MEASURES**

**SECTION 5
PROBABLE IMPACTS OF THE PROPOSED ACTION
AND MITIGATION MEASURES**

5.1 Overview

Short and long-term impacts to the physical and socio-economic environments and infrastructure system are anticipated as result of the proposed project. The following sections provide further discussion on the probable impacts and recommended mitigation measures.

5.2 Physical Environment

Short-term impacts to land and water elements of the physical environment will primarily occur from construction-related activities and are anticipated to be temporary. Long-term impacts, however, will relate to the permanent alteration of the landward and marine environments as a result of developing the project.

5.2.1 Short-Term Impacts

5.2.1.1 Flora and Fauna Resources

No significant short-term impacts to flora and fauna species are anticipated as the project site has been previously modified, and there are no Federal or State-listed or candidate threatened or endangered plant or animal species on-site.

5.2.1.2 Air Quality

According to the Air Quality Analysis by Environmental Technologies, Inc. during the short-term direct and indirect air quality impacts are anticipated primarily from construction activity. Fugitive dust from demolition work, vehicular movement, soil excavation and vehicular exhaust emissions from on-site construction equipment are the primary construction-related pollutants. In addition, indirect short-term impacts could occur as a result of slow-moving construction equipment traveling within the project site and from a temporary increase in local traffic associated with commuting construction workers.

Fugitive dust emissions may occur during the demolition and removal of existing structures on-site and during site preparation (ie. grading and earth-moving activities). The State of Hawaii air quality regulations prohibit visible emissions of fugitive dust from construction activities at the project property line. A dust-control plan in compliance with the Department of Health Administrative Rules, Title 11, Chapter 60, Air Pollution Control, will be implemented during the construction phase.

Fugitive dust control can usually be controlled by frequent watering of demolition and bare-dirt surfaces. Watering the area twice a day is estimated to reduce dust emissions by up to 50 percent. The control regulations also require that moving open-body trucks be covered at all times if their materials are likely to generate airborne dust. Paving of parking areas or landscaping in the early construction phase can also lower the potential for fugitive dust emissions.

Vehicular and stationary construction equipment will emit air pollutants from exhausts, with diesel-powered equipment as the primary source contributor. Nitrogen oxides (NO_x) emissions from diesel engines are usually greater when compared to gasoline-powered engines. However, the standard for nitrogen dioxide (NO₂) is based on an annual basis and is not likely to be exceeded due to short-term construction equipment emissions. The carbon monoxide (CO) emissions from diesel engines are low and would be insignificant when compared to gas-powered vehicular emissions on roadways.

Slow-moving construction vehicles on nearby roadways within and around the project could obstruct traffic flow and contribute to an overall vehicular emissions increase. However, this impact can be mitigated by moving the heavy construction equipment during low traffic periods. This approach could also be used for commuting construction workers.

5.2.1.3 Soils and Hazardous Materials

A Site Assessment was prepared in February 1992 by Harding Lawson Associates (See Appendix A) to determine the potential presence of hazardous or toxic materials on or beneath the property.

On January 9, 1992, samples of soil and groundwater were collected on-site in the vicinity of existing underground storage tanks (USTs). One boring was drilled approximately 20 feet east of the UST fill pipes located in the driveway of the service station lot. The soil sample was analyzed for benzene, toluene, ethylbenzene and xylene (BTEX) in accordance with EPA Method 8020. The groundwater sample was analyzed for BTEX in accordance with EPA Method 608. Total petroleum hydrocarbon as gasoline (TPH gasoline) and BTEX were not detected above the method detection limit.

As recommended by Harding Lawson Associates, the following activities will be completed prior to commencing site demolition:

- ▶ Conduct a survey and collect bulk samples of building materials suspected of containing asbestos. If building materials contain asbestos, plans and specifications will be prepared for removal and disposal of asbestos containing materials (ACM);
- ▶ Collect samples of the dielectric/cooling fluid from the pole-mounted electrical transformer near the abandoned building. Soil samples would also be collected from the base of the pole if it appears the transformer may have leaked. If polychlorinated biphenyls (PCB) are detected, plans and specifications may be prepared for removal and disposal of the transformer and the soil;
- ▶ Prepare a work plan to close the two USTs located on-site in accordance with Federal, State, and County regulations. Also, the fluid in the hydraulic lift will be characterized prior to disposal;
- ▶ Conduct a physical search for: 1) USTs suspected of being near the two islands south of the abandoned building; and 2) USTs and/or piping that could be part of an oil storage system near the K-P Building. Also, the unmarked manholes will be investigated to determine if they are part of UST systems. If UST systems are discovered, work plans will be prepared to close the USTs in accordance with Federal, State and County regulations;
- ▶ Investigate and ensure that tenants are responsible for the removal, disposal, cleanup, and remediation, if necessary, of their hazardous and regulated materials prior to vacating;

- ▶ Prepare a work plan for sealing the well adjacent to the K-P Building in accordance with State requirements.

A hazardous materials management company will be contracted to properly dispose of any collected hazardous wastes. All hazardous wastes will be removed of in a manner consistent with all state and federal regulations governing such activity. Spent lead acid batteries will be delivered to a battery recycler.

Procedures involved in the permanent closure of the two USTs currently located on-site, will comply with state and federal regulations governing such activity, including 40 CFR Part 280 Subpart G. The construction of Liliha Civic Center will not involve the installation of USTs.

As needed, the City and County of Honolulu Fire Department will be consulted regarding the applicability of County ordinances to the above ground storage container contents.

5.2.1.4 Noise and Vibration

During the short-term, development of the project will involve clearing and grading activities on land, and construction of infrastructure and buildings. These activities will create a temporary increase in noise levels in the project area.

It will be the contractor's responsibility to minimize construction noise impacts through compliance with all applicable regulations. Construction vehicles will comply with the provisions of Title 11, Chapter 42 (Administrative Rules, DOH). In addition, the contractor will be responsible for providing and maintaining noise attenuating equipment. Should noise levels exceed the allowable levels specified under Title 11, Chapter 43 the contractor is required to obtain a noise permit. Since the project area is generally surrounded by industrial and commercial use and is already subject to high levels of noise from vehicular traffic, construction noise is not anticipated to be disruptive.

5.2.1.5 Archaeological and Historical Resources

The existing OR&L Building is listed on the Hawaii Register of Historic Places and is "Determined Eligible" on the National Register of Historic Places. The building will be retained as-is and incorporated in the overall site design.

The adjacent but smaller two-story K-P Building which shares the same historic notability as the OR&L Building will be demolished. This building is listed on the State Register of Historic Places and is "Determined Eligible" on the National Register of Historic Places. Approval to demolish the building was granted by the DLNR State Historic Preservation Division in November 1991.

According to the Historical Literature and Documents Search conducted for the project, potential subsurface archaeological features preserved beneath the fill materials and associated with the use of Kuwili Fish Pond, may be coral stone wall alignments, rock wall enclosures, and coral banks. There is a high potential of exposing burials and preserving floral and faunal cultural remains associated with aquaculture activities in such an inundated site.

Other potential archaeological remains are privies associated with OR&L Company between 1890 and 1903 before sanitation facilities were installed in the original railroad terminal. Locations of privies were not indicated on the maps collected. The possible privy features likely intrude into the fill materials in the interior of the project site or in the locations of the current warehouses.

Archaeological analysis of core samples and associated records, and assessment of the proposed construction blueprints, will be undertaken to determine whether depths of subsurface development will impact Kuwili Fish Pond. Results of this evaluation should be submitted with recommendations for archaeological testing and data recovery if necessary. The State DLNR has reviewed and is supportive of the recommended data recovery strategy. As required, the project will comply with the historic preservation review and mitigation process, pursuant to Chapter 6E, HRS. Close coordination will continue with the State Historic Preservation Division to fully satisfy historic preservation requirements.

Further determination of effects of the proposed project on subsurface remains is pending more detailed development plans and specifications on footing locations and underground utility locations. Once development plans are finalized, specific mitigation and data recovery plans will be formulated. Most of the mitigation procedures will be incrementally implemented and are contingent upon external factors such as the direction of the development, vacating of current tenants, and demolition and removal of structures and pavement.

All significant ground-altering activities in the vicinity of the fish pond are planned to be archaeologically monitored, including surface removal of pavements, building floors, and bulldozing; the removal of warehouse foundations; subsurface utility pipes; and excavation for new foundations. Since the location of the project site is highly visible to the public, fencing and/or other security precautions will be implemented to deter unauthorized artifact collectors from undertaking illegal collecting activities.

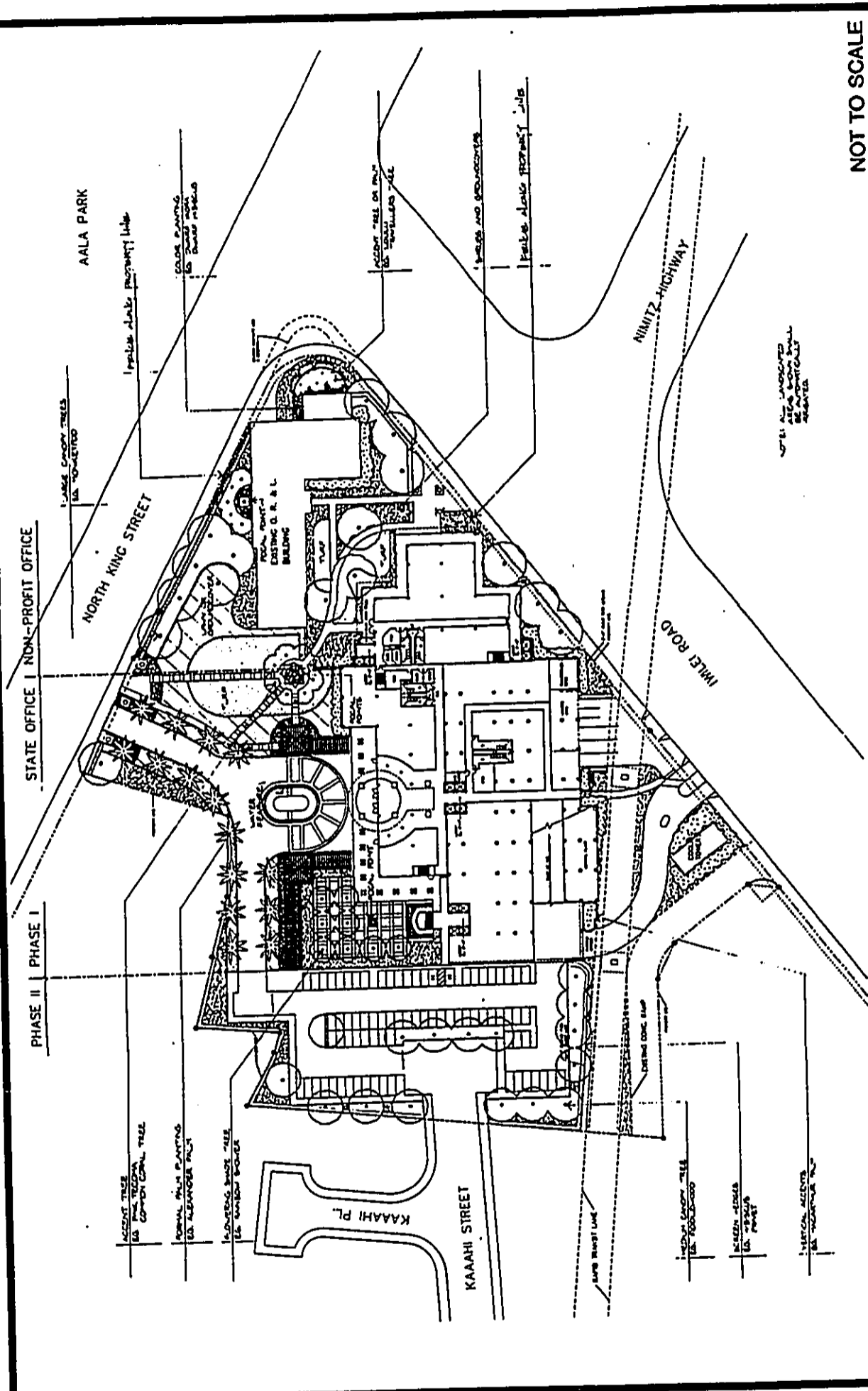
5.2.2 Long-Term Impacts

5.2.2.1 Flora and Fauna Resources

No negative long-term impact to flora or fauna is expected to occur with the development of the project as there are no rare endangered or threatened species on the project site. Aesthetic improvements are anticipated as a result of landscaping which will be sensitive to the existing environment. To maintain continuity with the adjoining park extension area, the trees and landscaping will be designed to use the same types of vegetation as that currently found in the project vicinity (See Figure 5-1). Existing trees will be reestablished on-site where possible. Landscaping plans will be submitted to the City and County of Honolulu, Department of Parks and Recreation for compliance with the requirements of the Street Tree Ordinance.

5.2.2.2 Air Quality

In the long-term, the proposed project will increase motor vehicle traffic on nearby roadways principally resulting in an increase of carbon monoxide (CO), nitrogen dioxide (NO₂), and lead pollutants. Gasoline-fueled engines are sources of CO and NO₂ while leaded gasoline-fueled engines contribute lead to the



NOT TO SCALE

Source: Okita Kunimitsu & Associates, Inc. March 1982

LILJHA
CIVIC CENTER

Fig. 5-1
SCHEMATIC LANDSCAPE PLAN

Prepared by :
Wilson Okamoto & Associates, Inc.

atmosphere. The consumption and use of leaded gasoline in newer automobiles are now prohibited and as older vehicles are removed from the roadways through attrition, lead emissions will approach zero. As previously mentioned, the ambient average quarterly lead concentrations recorded in urban Honolulu have been zero since 1986, thus ambient lead is not considered to be a problem in the State.

The potential long-term indirect air quality impacts due to the increased roadway traffic were evaluated for CO with computerized emission and dispersion models. CO was chosen because it is the most stable as well as most abundant pollutant generated by motor vehicles. Additionally, CO is often considered a micro-scale problem while NO₂ is typically of regional concern. This is reflected in the National AAQS where CO is specified on a short-term basis (1-hour and 8-hour average) while NO₂ is based on an annual average.

Worst-Case 1-Hour CO Impacts

Table 5-1 represents the estimated worst case 1-hour morning and afternoon concentrations of CO at three key traffic intersections for three scenarios: 1992, 1997 without project, and 1997 with project.

The predicted 1-hour peak model CO concentrations at all roadway intersections for the predicted values for the 1997 scenarios are lower than the present 1992 values. This is because the 1997 model predicts lower vehicular emission rates for the 1997 mix of newer vehicles than for the older 1992 vehicle emission mix. Therefore, while an increase in traffic volumes is anticipated, it is also expected that the mix of vehicles in 1997 will produce a lower level of pollution than the same vehicle mix in 1992. The lower emission rate of the 1997 vehicle mix is expected to offset increases in pollution associated with increased number of cars.

The afternoon peak 1-hour CO impacts for the existing case were higher than the morning peak values for all three intersections. The estimated 1992 existing worst-case 1-hour CO impact in the project area was 28,000 micrograms per cubic meter (ug/m³) and occurred at the North King Street/Dillingham Boulevard/Liliha Street intersection. Worst-case 1-hour impacts within the project vicinity ranged from 3,000 ug/m³ to 28,000 ug/m³.

Table 5-1 WORST-CASE 1-HOUR CO IMPACTS NEAR LILIHA CIVIC CENTER						
ROADWAY INTERSECTION	EXISTING		1997 W/O PROJECT		1997 W/PROJECT	
	AM	PM	AM	PM	AM	PM
King St., Dillingham Blvd., Liliha St.	28,000	13,710	24,514	11,502	24,980	12,083
King St. @ Beretania St.	3,950	6,158	3,601	5,228	3,601	5,228
King St. @ Iwilei Rd.	10,572	10,572	9,875	8,714	10,224	9,527

The predicted worst-case 1-hour CO impact for the 1997 without project scenario was 24,514 ug/m³ and also occurred during the morning peak period. This worst-case impact also occurred at the North King Street/Dillingham Boulevard/Liliha Street intersection. Predicted impacts at other receptor locations ranged from 3,000 ug/m³ to 24,514 ug/m³.

The predicted 1-hour peak CO impacts for the 1997 with project scenario ranged from 3,000 ug/m³ to 24,980 ug/m³. The absolute peak of 24,980 ug/m³ occurred during the morning period at the North King Street/Dillingham Boulevard/Liliha Street intersection.

All of the predicted 1-hour CO impacts are well-below the National AAQS of 40,000 ug/m³. However, the predicted 1-hour CO impacts for the three scenarios may exceed the State AAQS of 10,000 ug/m³ on occasion at locations within the project area.

Worst-Case 8-Hour CO Impacts

The estimated worst case 8-hour morning and afternoon concentrations of CO are presented in Table 5-2. The worst-case 8-hour CO impacts are also lower at intersections for the 1997 with and without project scenarios than for the existing 1992 scenario. The reason for the 8-hour impact increase is the same as that

provided for the 1-hour CO impacts, whereby the model assumes lower emission rate mix in 1997 than for 1992.

For 1992 present case, the estimated worst-case 8-hour CO impact was 14,000 ug/m³ and recorded at the North King Street/Dillingham Boulevard/Liliha Street intersection. The other two locations ranged from 1,975 ug/m³ to 5,286 ug/m³, respectively. The peak impacts for 1997 without and with the project were 12,257 ug/m³ and 12,490 ug/m³, respectively.

Table 5-2 WORST-CASE 8-HOUR CO IMPACTS NEAR LILIHA CIVIC CENTER						
ROADWAY INTERSECTION	EXISTING		1997 W/O PROJECT		1997 W/PROJECT	
	AM	PM	AM	PM	AM	PM
King St., Dillingham Blvd., Liliha St.	14,000	6,585	12,257	5,751	12,490	6,042
King St. @ Beretania St.	1,975	3,079	1,800	2,614	1,800	2,614
King St. @ Iwilei Rd.	5,286	5,286	4,937	4,357	5,112	4,763

In comparing these results to the applicable standards, the 8-hour State AAQS of 5,000 ug/m³ could be exceeded at the North King Street/Dillingham Boulevard/Liliha Street intersection and the King Street/Iwilei Road intersection. The low State standard is probably exceeded at many intersections within the State that experience moderate traffic flow. The National AAQS of 10,000 ug/m³ could be exceeded at the King Street/Dillingham Boulevard intersection.

Traffic-related air pollution can be mitigated by improving roadways and reducing traffic. Roadway improvements are discussed in Section 5.4. Reducing traffic can occur through the proposed rapid transit system, mass transit, and car-pooling. In addition, cleaner-burning fuels as well as a State motor vehicle inspection and maintenance program would further reduce emission.

Parking Structure Impacts

The proposed project calls for a seven-floor above-ground parking structure and an at-grade open parking lot, with about 623 and 166 stalls, respectively. Based on the assumption of combined floor area of 25,000 SF and 90 stalls per level for the parking structure, and 5,000 SF for the at-grade parking lot, wind speeds of 1 mph or less should provide adequate natural ventilation for both parking areas.

Electrical Demand Impacts

The proposed project would contribute to indirect emissions from the HECO power plant due to increased electrical power requirements. The annual electrical demand of the project when fully developed is not expected to exceed 7 million kilowatt-hours. However, if the power were supplied by coal or solid waste burning facilities, emissions will likely be greater. Indirect emissions from project electrical demand could be reduced by utilizing alternative energy designs. This could include solar water heaters, positioning windows to maximize indoor light without compromising indoor heat, and landscaping for shade to reduce air conditioning use.

5.2.2.3 Visual Resources

Impacts on the visual resources associated with the proposed development involve replacing existing low rise developments with a higher density development. However, the architectural design of the project will complement the historic OR&L Building as well as the site's mixed-use neighborhood fabric of residential, business, industrial and recreational park uses.

The design of the Liliha Civic Center attempts to incorporate sensitive siting of the building, massing that respects the OR&L Building and the use of appropriate architectural features and materials.

To provide maximum open space on the site, the complex is set back approximately 175 to 250 feet from King Street to create more open space for the Civic Center and neighborhood. It is also stepped back from 10 to 175 feet along Iwilei Road for aesthetics and functional reasons.

The visual impact of the Liliha Civic Center on the existing two-story OR&L Building should be reduced by the stepped massing of the proposed complex. Adjacent to the OR&L Building, a new courtyard will be formed with the construction of the new three and four-story Non-Profit Agency Office wing. A one-story arcade encircles the ground level of the Non-Profit wing along the courtyard and recalls the arcade of the OR&L Building. The sequential rise of Civic Center from the OR&L Building progresses to office blocks for State agencies that are five and seven-stories before reaching the 12-story high office tower which falls within the allowed height limit of 150 feet for the site.

Building massing reinforces historical references to elements of classical order of building design by creating a strong and substantial building base, terracing middle or body and a graceful distinctive top. The massing is also designed to locate the bulk of the floor area in the lower parts of the building which minimized the size of the tower and its visual impact on any views toward the ocean.

The stepped massing of the building and placement of office floors against the parking levels will also help to minimize the visual impact of the transit line and parking along the King Street elevation. Architectural vocabulary consistent with the office levels, such as the rhythm, sizing and spacing of columns and openings will be repeated at the parking levels to visually unify the building and subdue the effect of parking.

The eight-story parking garage will mainly be visible along the building's makai elevation. Its visual impact will be softened with on-grade landscaping and trees. A variety of landscaping such as canopy and shade trees, grass and shrubbery will enhance views of the site, while emphasizing the project's open spaces and courtyards.

The construction of an underground parking structure was determined to be too costly and therefore unfeasible for this project due to the high water table at the site. The water table is estimated at approximately five feet below the surface.

The project will not adversely affect significant visual resources as described in the 1987 Coastal View Study prepared for the City and County of Honolulu Department of Land Utilization. The project will be in conformance with height controls established for the site.

5.3 Socio-Economic Environment

5.3.1 Employment and Economy

The project will generate short-term direct employment, both on-and off-site, during the construction period. Construction activity further contributes to the State economy, generating indirect and induced employment opportunities and multiplier effects, as local material suppliers and retail businesses also benefit from the increased construction.

The number of construction jobs generated may be roughly estimated from the construction costs involved in the proposed development. In 1990, there was one direct construction job per year for each \$125,000 of construction, based on construction job counts and the State general excise tax base for contracting (DBED, 1991). The estimated construction cost for the Phase I development (including site infrastructure, State and non-profit finished loft space, and parking) is approximately \$66.4 million. The direct employment to be generated by the proposed development is therefore approximately 152 construction jobs per year, assuming a 42-month construction timetable.

5.3.2 Public Safety

As public safety will be a major concern during the short-term construction period, safety precautions will be utilized in all phases of construction to minimize potential hazards to pedestrians and motorists. During evenings, weekends and holidays when there is no construction, construction areas will be secured by barricades, signs and, if necessary, security personnel as required by State and City and County of Honolulu regulations.

In the long-term operational period, the following measures are proposed to alleviate potential security problems:

- ▶ The entire perimeter of the site will be secured with fencing and gates.

- ▶ Both parking structures will be secured and equipped with electronically-lockable gates after business hours.
- ▶ After-hours entry into the buildings and parking structures will be controlled by access card system.
- ▶ Access to interior offices and facilities will be with the use of conventional key system.
- ▶ Video cameras will be installed at each entry point to the project site, parking structures, and buildings.
- ▶ Video monitors will be located in the Phase I security/control office.

5.3.3 Displacement

Direct impacts resulting from the redevelopment of the project site are unavoidable given the scope and magnitude of the proposed project. Approximately 11 tenants (private and government) will be affected by the redevelopment including: a) the King Kamehameha Celebration Day Committee (KKCC) and Kalihi-Palama Culture and Arts Association (KPCAA) which occupy the K-P Building; b) the Honolulu Community Action Program; and c) approximately 8 produce businesses on revocable permit status. The KKCC and KPCAA will remain in the K-P Building through a portion of the construction of Phase I. Tenants of the OR&L Building will not be displaced as a result of the project.

Previously, the project site was used as a Produce Center, although most of the original tenants have since moved to the Food Distribution Warehouse at Kakaako. Those businesses that remained at the project site on month-to-month leases opted to do so with the knowledge that future development was planned by the State. Relocation assistance or compensation is not required for existing tenants on revocable permit status. Month-to-month rental agreements require a 30-day notice for termination. According to HRS Chapter 111, Assistance to Displaced Persons, the existing tenants do not qualify as displaced persons.

Because a phased development approach is planned, the cancellation of leases can occur as the development is phased in, thereby allowing the existing businesses to operate at

the site as long as possible. Tenants will be informed of any impending plans at the earliest possible time and will be kept apprised of the proposed project.

5.4 Transportation and Infrastructure Systems

5.4.1 Traffic

The proposed State office complex will result in a long-term increase in vehicular traffic at minor and major intersections in the vicinity of the project site. The traffic study by Austin Tsutsumi and Associates, Inc. analyzed the projected traffic impacts from the Phase I development, with suggestions for mitigating measures to improve traffic flow at the surrounding intersections.

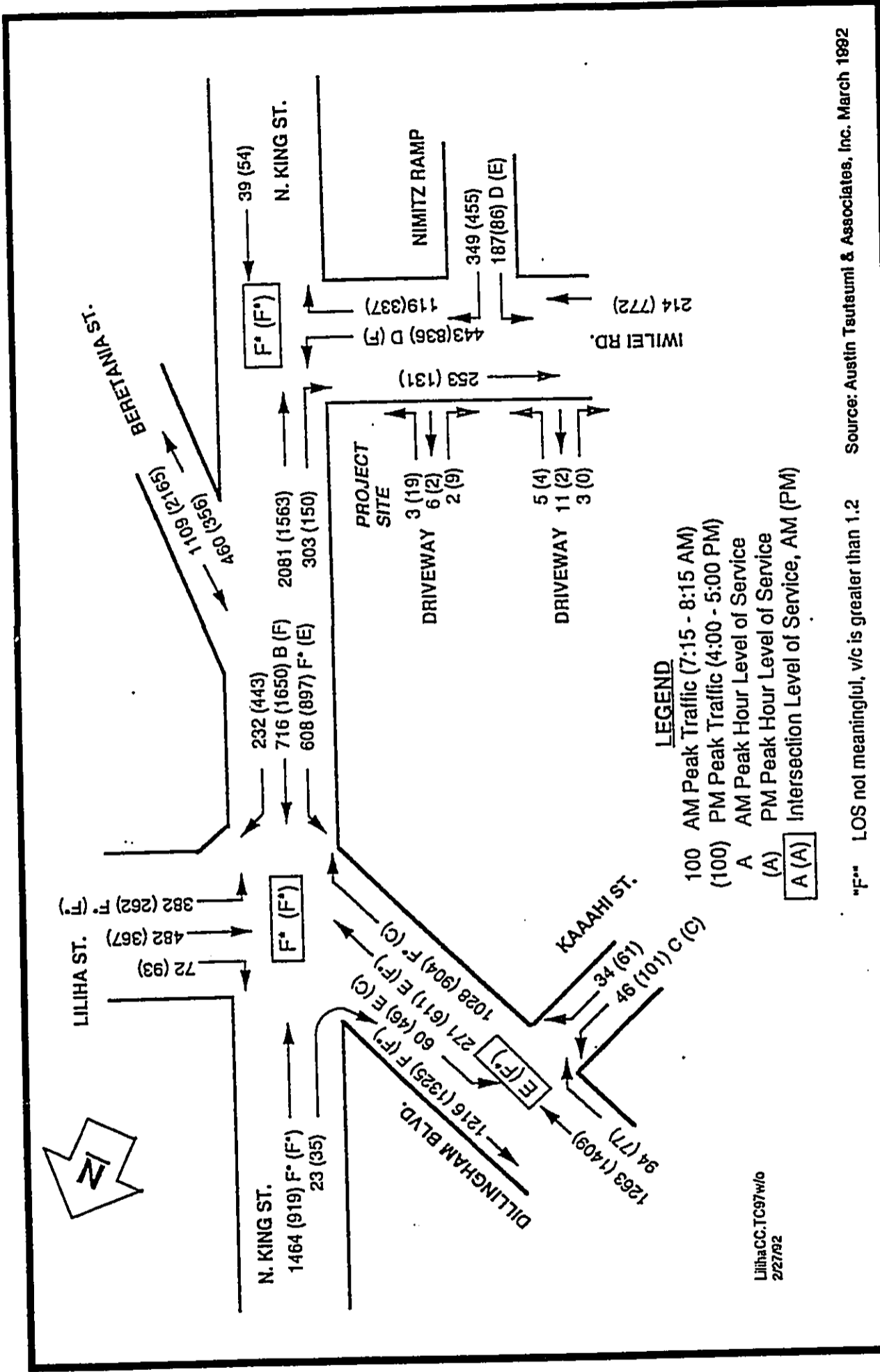
5.4.1.1 Trip Generation

Trip generation characteristics are based on generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in Trip Generation, 5th Edition. The number of trips generated by a specific land use is empirically correlated to an independent variable associated with land use intensity in order to develop a trip rate per unit of that variable. The ITE trip rates for "Government Office Complex" are used in this analysis. Trip generation is based on gross floor area. The Liliha Civic Center Phase I is expected to generate 570 vehicle trip ends during the AM peak hour and 724 vehicle trip ends during the PM peak hour.

5.4.1.2 Traffic Assignment and Projected LOS

Traffic projections were developed by linear regression methods using historical traffic count data from the State Department of Transportation (DOT). Traffic data from field counts taken on February 5 and 6, 1992 were then adjusted with these factors to determine future volumes for 1997, when the project is scheduled for completion. Results of the analysis for LOS during the AM and PM peak hours are reflected in Table 5-3. Figures 5-2 and 5-3 show the 1997 traffic volumes and LOS for key roadways in the project vicinity for "Without Project" and "With Project" scenarios.

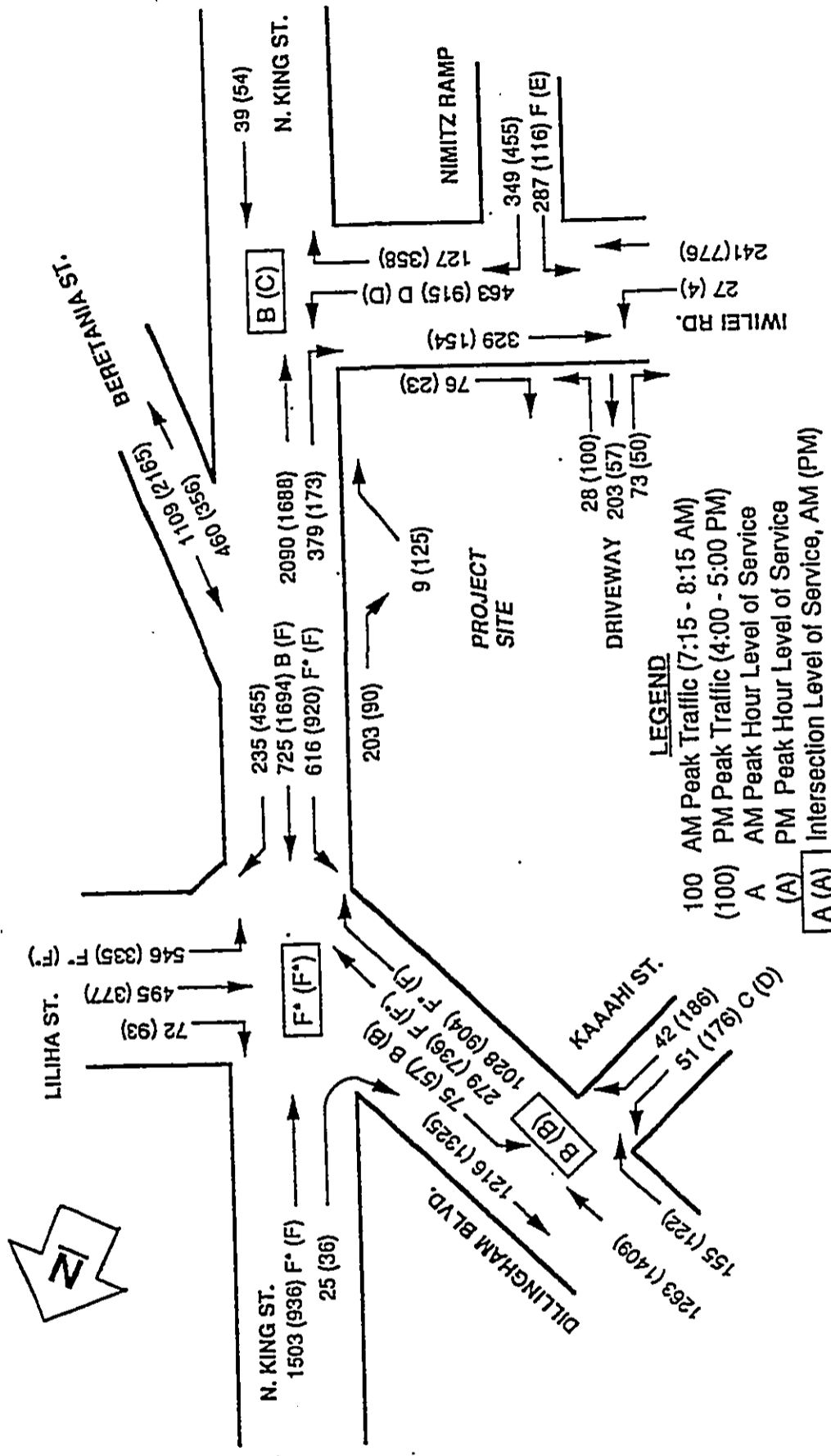
In the "With Project" scenario, improvements in the estimated operating LOS are indicated at certain intersections with the implementation of the recommended



LILIHA CIVIC CENTER

Prepared by:
Wilson Okamoto & Associates, Inc.

Fig. 5-2
1997 Traffic Volumes and LOS Without Project



Source: Austin Tsutsumi & Associates, Inc. March 1982

LILIHA
CIVIC CENTER

Fig. 5-3
1997 Traffic Volumes and LOS With Project

Prepared by:
Wilson Okamoto & Associates, Inc.

mitigative measures discussed below (with the exception of the widening of Dillingham Boulevard and construction of the bus bay, as their need exists without the proposed project). However, improvements in the actual intersection operating LOS may not achieve the calculated LOS shown in the table and figures. This is because the key intersection of North King Street/Liliha Street/Dillingham Boulevard operates at an overly-congested LOS, the effect of which controls the quality of traffic flow of other intersections in this area.

Table 5-3 1997 LEVEL OF SERVICE WITH AND WITHOUT PROJECT FOR AM AND PM PEAK HOURS				
INTERSECTION	W/O PROJECT		W/PROJECT	
	AM LOS	PM LOS	AM LOS	PM LOS
Dillingham Blvd. at Kaaahi St.	E	F ⁺	B	B
North King St. at Dillingham Blvd. and Liliha St.	F ⁺	F ⁺	F ⁺	F ⁺
King St. at Iwilei Rd.	F ⁺	F ⁺	B	C
Iwilei Rd. at Nimitz Hwy. Ramp	D	E	F	E

⁺ Indicates conditions are actually worse because the volume-to-capacity ratio (v/c) exceeds 1.2.

5.4.1.3 Projected Traffic Impacts

The proposed project will generate additional traffic in the project area, although providing access at three locations on three different streets will help disperse the traffic to available streets surrounding the site. Traffic demand, however, will remain high, regardless of whether or not the civic center is built.

Traffic generated by the proposed civic center would primarily affect Dillingham Boulevard and Liliha Street at the intersections of Kaaahi Street, North King Street and Vineyard Boulevard. Traffic during most of the day would originate

from the immediate vicinity, however, employee trips during the peak periods of traffic would be distributed island-wide.

The intersections of Liliha Street at North King Street, Vineyard Boulevard, the H-1 Freeway, and Nimitz Highway are the Ewa access points to Downtown Honolulu. Bottleneck conditions already exist at these intersections during the peak periods of traffic. The site-generated traffic will aggravate traffic operations under existing road conditions. However, since the objective of this project is to consolidate various existing offices serving residents of this area, the civic center will redistribute and consolidate the traffic to this location. From the overall regional traffic operations perspective, the civic center will not significantly increase traffic on the State highways.

The following proposed measures are expected to mitigate the impacts from traffic generated by the project:

1. Revise the traffic signal phasing at the intersection of Dillingham Boulevard and Kaaahi Street to provide a short advance green phase for Ewa-bound left turns into Kaaahi Street;
2. Adjust the traffic signal timing at the intersection of King Street/Dillingham Boulevard/Liliha Street;
3. Utilize three accesses for the proposed parking structure -- Kaaahi Street, King Street and Iwilei Road;
4. Construct a bus turnout on the Ewa-bound approach of North King Street at Beretania Street. This improvement should be implemented regardless of whether the Civic Center is constructed. Revise traffic signal timing at the intersection of North King Street and Beretania Street by increasing Ewa-bound PM peak period "green time" for North King Street;
5. Widen Dillingham Boulevard from Kaaahi Street to King Street to provide an additional east-bound lane and a left-turn lane for west-bound traffic. This will provide two through lanes to Liliha Street and two right-turn lanes to east-bound King Street. This improvement

would be needed in the future with or without the Liliha Civic Center, but could be deferred to Phase II;

6. Prohibit parking along the north curb of Kaaahi Street from Kaamahu Place to Dillingham Boulevard to improve traffic flow on Kaaahi Street; and
7. Prepare updated traffic report for Phase II of the Liliha Civic Center, incorporating as needed the impact of the City and County of Honolulu's rapid transit project on vehicular traffic demands which could not only affect traffic congestion, but also parking requirements.

The use of alternative transportation modes by employees and clients of the Civic Center may also mitigate traffic-related impacts and decrease the demand for parking, by reducing the number of individual vehicles in the project vicinity. The proposed Honolulu Rapid Transit system and conveniently-located existing bus routes would be attractive alternative modes to access the Civic Center.

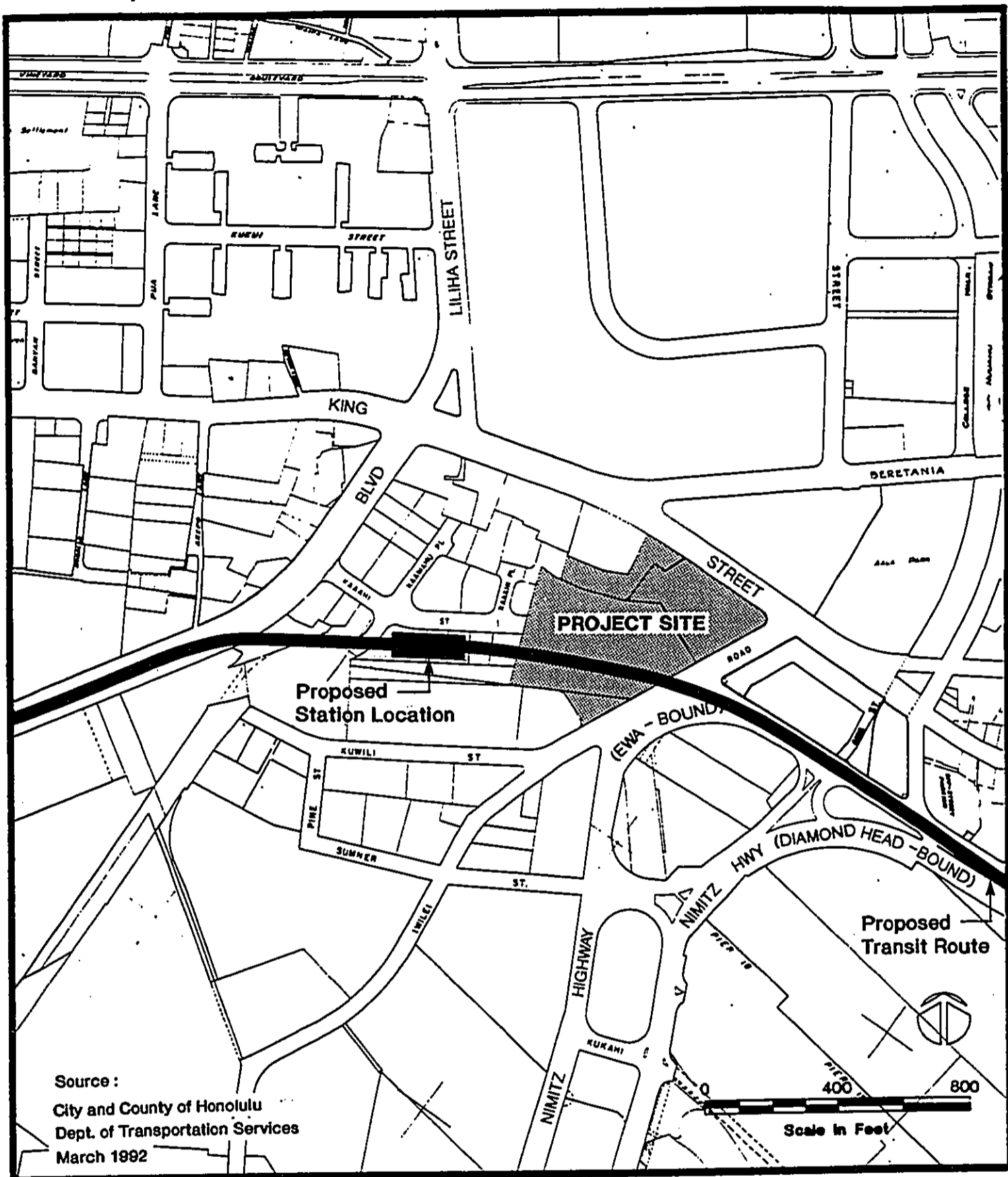
Pedestrian Considerations

Although pedestrian traffic was not specifically addressed during the field survey, it is expected that pedestrian traffic in the area will increase with the opening of the Civic Center. Existing sidewalks and crosswalks at traffic signals can easily accommodate pedestrian traffic without affecting vehicular traffic.

5.4.2 Proposed Honolulu Rapid Transit System

If eventually developed, the proposed Honolulu Rapid Transit route is planned to be located along the makai boundary of the site and a transit station is planned to be located along Kaaahi Street about 200 feet from the project site, as shown in Figure 5-4. The civic center's parking structure will be approximately 10 feet from the guideway at its nearest point. Project design and location of the mass transit guideway alignment through the project site have been coordinated with City and County of Honolulu Department of Transportation Services (DTS) Office of Rapid Transit (ORT).

If developed, the proposed rapid transit system would provide an attractive alternative transportation mode to serve the project. According to the Supplemental DEIS prepared by DTS for the proposed transit program, of the 21 proposed stations, estimated ridership



LILIIHA
 CIVIC CENTER

Fig. 5-4
PROPOSED HONOLULU
RAPID TRANSIT SYSTEM
 (KAAAH STREET STATION)

Prepared by:
Wilson Okamoto & Associates, Inc.

projections to and from the Kaaahi Street station are among the highest for both peak-hour and daily scenarios ⁸.

The guideway structure will be approximately 25 feet wide and 34 feet above the ground. The guideway would be visible from the OR&L Building as it crosses Iwilei Road, however the proximity and scale of the civic center in comparison to the OR&L Building would mitigate visual impacts. The guideway would require an easement of about 13,800 SF on the makai portion of the project site. Since the proposed transit station is planned to be above-ground, an aerial right-of-way approximately 35 feet wide would also be required.

5.4.3 Public Services and Utilities

Construction of the proposed development is not anticipated to impact existing utilities serving the project area. However, if service must be temporarily disrupted during the course of construction, it will be the contractor's responsibility to obtain the necessary permits and clearances.

The project's development phase will be coordinated with appropriate agencies and organizations to minimize potential disruption of utility services to area businesses during construction. To ensure proper coordination with utility companies, construction plans shall be submitted for review and approval.

5.4.3.1 Water System

The estimated water demand for Phase I is expected to average approximately 45,000 gallons per day, with a maximum peak flow requirement of about 415 gallons per minute (gpm) or 0.6 million gallons per day (mgd). The maximum flow requirement for both phases is 535 gpm or 1.0 mgd. Based on this projection, the Board of Water Supply (BWS) confirmed that the current water system serving the project area is adequate to accommodate the proposed development. Proposed are two 6-inch lateral connections to the existing water lines located on Iwilei Road.

⁸ *City and County of Honolulu, Department of Transportation Services, Supplemental Draft Environmental Impact Statement Honolulu Rapid Transit Program, Honolulu, Hawaii. March 1992. p. 4-13.*

The availability of water will be confirmed when appropriate building permits are submitted for BWS approval. Water allocation for the project will be pursued with the DLNR. Upon water allocation, the Water System Facilities Charges will be levied to defray BWS costs for transmission and daily storage. Any applicable charges for meter installation will also be required. Construction drawings for the installation of any three-inch or larger meters will be submitted to BWS for review and approval.

5.4.3.2 Wastewater System

According to the design standards of the City and County of Honolulu Department of Public Works' Division of Wastewater Management (DWM) maximum peak flows for the center are estimated at 400 gpm (or about 0.58 mgd). Of this total, Phase I is expected to generate about 275 gpm (or about 0.4 mgd) of wastewater. Sewer connections will be made to either the existing 24- or 36-inch sewer lines located along Iwilei Road, and wastewater will subsequently be conveyed to the Sand Island Wastewater Treatment Plant for treatment and disposal. Sewer connection for the proposed project has been approved by the DWM.

5.4.3.3 Drainage System

The parking lot and roadways proposed for the project will create impervious surface areas, possibly increasing the anticipated runoff from these surfaces onto nearby areas. According to the criteria in the Storm Drainage Standards of the Department of Public Works, surface runoff during the design storm is estimated at approximately 5.45 cubic feet per second (cfs) for Phase I. The proposed drainage system for the Civic Center is pending preliminary review and approval by the DPW.

5.4.3.4 Solid Waste Disposal

Once construction is completed, the project is expected to generate approximately 3,500 pounds per day⁹. of which about 2,000 pounds will be attributed to Phase I. The refuse will likely be transported by private refuse collection service

⁹ Based on one pound per 100 net square feet of office space. Marathon Equipment Company. October 1992.

and either landfilled or disposed of at the H-Power Plant at Campbell Industrial Park. Alternative disposal sites include the Kalaheo Landfill in Kailua, the Waimanalo Gulch landfill near the Kahe Power Plant and the Waipahu Incinerator.

Preliminarily, the refuse area for State offices in the proposed Civic Center is planned for location on the ewa side of the central loading area (accessed off Iwilei Road), while the refuse area for non-profit organizations is planned on the makai end of the OR&L Building. A secured drop-off area for recycleables such as aluminum, glass, and paper will be incorporated into the project's design to encourage recycling efforts and reduce the amount of material in the waste stream.

As a result of Oahu's diminishing disposal capacity for solid waste, both the State and City and County of Honolulu have set aggressive waste reduction goals for the next 10 years. The State, through Act 324, SLH 1991, has determined to reduce solid waste 25 percent by 1995, and 50 percent by the year 2000. The City and County of Honolulu aims to reduce solid waste 50 percent by 1995 and 75 percent by the year 2000.

In order to meet the waste reduction goals of the State and City and County of Honolulu, the project's design will consider incorporating waste diversion and reduction activities into facility design. In addition to the central recycling area planned in conjunction with the project's common refuse area, other measures to encourage recycling may include incorporating areas for recycleables on each floor of the Civic Center. If deemed suitable the existing concrete rubble and asphalt paving will be reused as base course or inert fill for the proposed project. Where possible, locally-produced soil amendments such as top-soil will be utilized for landscaping to divert material from the waste stream.

5.4.3.5 Power and Communication Systems

HECO and GTE Hawaiian Tel will be consulted to determine the adequacy of existing capacity of services to the site and for the recommendations on any

necessary improvements. Future connections will be coordinated with the utility companies to minimize any potential conflicts with the proposed development.

5.4.3.6 Police and Fire Protection

The Honolulu Police Department's (HPD) Kalihi Station is located on Kamehameha IV Road, and provides service to the project area. During the short-term demolition and construction period, potential crime-related impacts may be mitigated through the use of locks, adequate lighting, barricades, and/or screening around the project site, in addition to hiring security personnel during evening, weekend and holiday hours. Coordination with the HPD will be undertaken during construction to ensure public safety regarding parking and traffic congestion. In the long-term, on-site security measures including well-designed and lighted areas, building security, and an attendant-operated parking structure will further assist in reducing and preventing crime.

Fire protection services for the project area are provided by the Central Engine Company which is located on the intersection of Beretania and Fort Streets, and the Kalihi Kai Engine Company located on Waiakamilo Road and Nimitz Highway. HFD has indicated that fire services provided by these companies can accommodate the proposed project, and foresee no adverse impact to their facilities or services. Prior to commencement of the project, building and construction plans will be submitted to the building and fire departments for permit review and approval. The project will comply with fire protection requirements of the Fire Department's Fire Prevention Bureau, including access for fire apparatus, water supply, and building construction.

Sections 6 - 10

***ALTERNATIVES TO THE
PROPOSED ACTION***

***SHORT-TERM USES VS.
LONG-TERM PRODUCTIVITY***

***IRREVERSIBLE AND
IRRETRIEVABLE COMMITMENT OF
RESOURCES***

UNAVOIDABLE IMPACTS

UNRESOLVED ISSUES

**SECTION 6
ALTERNATIVES TO THE PROPOSED ACTION****No-Action Alternative**

The no-action alternative would involve no changes to the existing use of the site for the foreseeable future, and the existing businesses would remain. Construction-related environmental impacts, including those to traffic, air and noise, would be avoided. Additionally, the high initial costs to construct the civic center would be avoided. However, the demand for additional State office space would not be satisfied, and increasing the inventory of needed government-owned office space, achieving economies of scale, and centralizing and increasing the accessibility to public social services would not occur. The State would continue leasing substantial amounts of private office space in downtown Honolulu, and these agencies would remain dispersed.

Alternative Configurations

Alternative site plans have been developed as part of the preliminary master planning process. One of the options proposed would offer the same total project area, but would defer greater density to Phase II of the project, thereby reducing project costs for Phase I to \$47,000,000 (excluding improvement costs to be incurred by tenants). In this alternative, Phase I would provide a total area of about 200,900 GSF (including the OR&L Building) comprised of 142,900 SF of State office space and 38,000 SF of non-profit office space. A 6-level parking structure would be connected to the State offices as proposed in the present plan. This option was contingent on weaker market conditions (i.e. construction climate, higher costs of construction, higher interest rates, and unavailability of financial resources).

Alternative Project Site

No alternative sites were considered.

**SECTION 7
RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF HUMANITY'S
ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-
TERM PRODUCTIVITY**

Implementation of the proposed project will involve short-term tradeoffs associated with environmental impacts during construction phases. While temporary impacts to traffic, noise and air quality will be minimized through appropriate mitigation measures, they may create disruptions in the vicinity of the project site. Also in conjunction with construction phases, temporary economic benefits will result from the construction expenditure and employment opportunities.

With respect to long-term productivity, the project site appears to offer no economically- or socially-viable alternative to the proposed use. Preliminary findings indicate that the State could realize substantial savings per year by constructing its own office building rather than leasing private office space, in addition to reducing its dependence on leasing private office space.

The Liliha Civic Center will provide for centralized, accessible government and non-profit social services to the public on a regional level. By allowing the consolidation of agencies serving regional needs, visits to multiple service agencies will be more convenient for the public. In addition, the civic center would better fit the needs of agencies, which must presently adjust their programs to fit various office spaces when leasing private space.

**SECTION 8
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES
THAT WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE
IMPLEMENTED**

Construction and operation of the proposed development will involve the irretreivable and irreversible commitment of a number of natural and fiscal resources. These resources will include land, capital, materials, manpower, and energy.

The development of the Liliha Civic Center will result in a commitment of a sizable State-owned parcel in downtown Honolulu for a long-term period. Once in a higher density developed state, it is unlikely that the land will be reverted to a lower usage in the near future.

Capital, material and manpower resources will be irretreivably committed to the planning, design and construction of the improvements. The use of State funding earmarked for this project will also preclude its use toward other State projects. Energy and water are other valuable resources which will be required for the completion and operation of the project.

**SECTION 9
PROBABLE ADVERSE ENVIRONMENTAL IMPACTS WHICH ARE
UNAVOIDABLE**

As the entire site has previously been developed, the proposed development involves no significant adverse impacts to the biological environment. Potential impacts on air quality, noise, and traffic are anticipated, however these impacts will be mitigated by the project plans.

Hazardous materials on the project site will be removed and properly disposed of in accordance with Federal and State requirements.

Follow-up archaeological surveys and data recovery are anticipated to mitigate the impacts of development on the project site. The existing OR&L Building will be retained on the site, and care will be taken to ensure that construction activities have no adverse impacts on this historic building.

**SECTION 10
SUMMARY OF UNRESOLVED ISSUES**

The status of the Honolulu Rapid Transit system is uncertain at this time, and coordination with the Office of Rapid Transit over the proposed mass transit guideway alignment through the site and location of the transit station are crucial to insure that building design and siting optimize potential use of the system.

Detailed design features of the project remain to be finalized and may undergo revisions in response to public and agency input and to conform to applicable permit requirements. Governmental financial resources may also affect the scope and timing of improvements.

Liliha Civic Center

Section 11

***PARTIES CONSULTED FOR THE
PREPARATION OF THE DEIS***

SECTION 11

LIST OF PARTIES CONSULTED IN THE PREPARATION OF THE DEIS

The agencies, organizations, and individuals listed below were sent copies of the EISPN with a request for their comments on the project. Of those who formally replied, some had no comments while others provided substantive comments as indicated by the ✓ and ✓✓, respectively. All written comments and responses are reproduced herein.

Federal Agencies

- ✓ Department of the Interior, Geological Survey, Water Resources Division
- ✓✓ Department of the Army, U.S. Army Engineer District
- Department of the Interior, Fish and Wildlife Service

State Agencies

- ✓✓ Land Use Commission
- Department of Business, Economic Development & Tourism
- ✓✓ Department of Transportation, Airports, Highways, and Harbors Divisions
- ✓ Department of Human Services
- ✓✓ Department of Land and Natural Resources
- Department of Health
- Office of State Planning

University of Hawaii

University of Hawaii Environmental Center

City and County of Honolulu Agencies

- ✓ Building Department
- ✓ Department of Parks and Recreation
- ✓✓ Police Department
- ✓✓ Department of Public Works
- ✓✓ Fire Department
- ✓✓ Department of General Planning
- ✓ Department of Land Utilization
- ✓✓ Board of Water Supply
- ✓✓ Department of Transportation Services

Public Utility Agencies

- ✓ Hawaiian Electric Company, Inc.
- GTE Hawaiian Telephone

Other Interested Parties

- Downtown Neighborhood Board #13
- Kalihi-Palama Neighborhood Board #15
- Liliha-Kapalama Neighborhood Board #14
- ✓✓ Historic Hawai'i Foundation



United States Department of the Interior

GEOLOGICAL SURVEY

WATER RESOURCES DIVISION
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

May 20, 1992



RECEIVED
MAY 21 1992

WILSON OKAMOTO & ASSOCIATES, INC.

Wilson Okamoto & Associates, Inc.
1150 South King Street, Suite 800
Honolulu, Hawaii 96814
Attn: Rodney Funakoshi

Dear Mr. Funakoshi:

Subject: Liliha Civic Center Environmental Impact Statement
Preparation Notice (EISP/N) Honolulu, Oahu, Hawaii

The staff of the U.S. Geological Survey, Water Resources Division, has reviewed the subject EISP/N and we have no comments.

Thank you for allowing us to review this notice.

Sincerely,

William Meyer
William Meyer
District Chief

cc: Office of Environmental Quality Control
220 South King Street
Central Pacific Plaza, 4th Floor
Honolulu, Hawaii 96813
Attn: Brian J.J. Chey

Department of Accounting and General Services
Project Management Branch
1151 Punchbowl Street, Room 427
Honolulu, Hawaii 96813
Attn: Gina Ichiyama

3132-01
June 22, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813
PHONE: (813) 531-1351
MAILING ADDRESS:
P.O. BOX 22222
HONOLULU, HAWAII 96822

Mr. William Meyer, District Chief
U.S. Department of the Interior
Geological Survey
Water Resources Division
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISP/N)
Tax Map Key I-S-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Meyer:

Thank you for your letter of May 20, 1992 indicating that you have no comments regarding the subject project. We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Funakoshi
Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services



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

REPLY TO
ATTENTION OF:

Planning Division

June 12, 1992

RECEIVED
JUN 16 1992
WILSON OKAMOTO & ASSOCIATES, INC.

Wilson Okamoto & Associates, Inc.
Attention: Mr. Rodney Funakoshi
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

Dear Sir/Madam:

We have reviewed the Environmental Impact Statement Preparation Notice (EISP) for the proposed Liliha Civic Center, Honolulu, Oahu, Hawaii (TMK 1-5-7: 1, 14, 15, 18, 57, 58, 60-78). The following comments are provided pursuant to Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1960 and to issue Department of the Army (DA) permits under the Clean Water Act, the Rivers and Harbors Act of 1899, and the Marine Protection, Research and Sanctuaries Act.

- a. A DA permit is not required.
- b. The flood zone designation (zone X) cited on page 3-3 of the EISP is correct.

Sincerely,

Rodney Funakoshi
Rodney Y. Funakoshi
Director of Engineering

Copies Furnished:

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

Department of Accounting and
General Services
Project Management Branch
Attention: Ms. Gina Ichiyama
1151 Punchbowl Street, Room 427
Honolulu, Hawaii 96813

3132-01
June 22, 1992

**WILSON
OKAMOTO**
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1150 SOUTH KING STREET
HONOLULU, HAWAII 96814
PHONE: (813) 531-1221

MAILING ADDRESS:
P. O. B. 3 5 3 0
HONOLULU, HAWAII 96813

Mr. Kisuk Cheung, P.E.
Department of the Army
U. S. Army Engineer District, Honolulu
Building 230
Ft. Shafter, Hawaii 96858-5440
Attention: Planning Division

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISP)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Cheung:

Thank you for your letter of June 12, 1992 informing us that a Department of the Army permit will not be required and verifying the flood designation for the subject project. Your letter will be included in the forthcoming Draft Environmental Impact Statement. Thank you for your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Funakoshi
Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services



STATE OF HAWAII
 DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
 LAND USE COMMISSION
 Room 104, Old Federal Building
 335 Merchant Street
 Honolulu, Hawaii 96813
 Telephone: 587-3022

ESTHER UEDA
 EXECUTIVE OFFICER

RECEIVED
 MAY 19 1992

May 18, 1992

Mr. Rodney Y. Funakoshi
 Project Manager
 Wilson Okamoto & Associates, Inc.
 1150 South King Street, Suite 800
 Honolulu, Hawaii 96814

WILSON OKAMOTO & ASSOCIATES, INC.

Dear Mr. Funakoshi:

Subject: Liliha Civic Center Environmental Impact
 Statement Preparation Notice (EISPN), Honolulu,
 Oahu, Hawaii; THK Nos.: 1-5-07:1, 14, 15, 18, 57,
 58, 60-78

The Department of Business, Economic Development & Tourism
 has forwarded the subject EISPN to our office for comment.

We have reviewed the subject EISPN and confirm that the
 5.64 acre project area for the proposed Liliha Civic Center is
 within the State Land Use Urban District.

We have no further comments to offer at this time.

Thank you for the opportunity to comment on this matter.

If you should have any questions, please feel free to
 contact me or Leo Asuncion of my staff at 587-3822.

Sincerely,

ESTHER UEDA
 Executive Officer

EU:th

cc: DBED
 OEQC
 DAGS

3132-01
 June 22, 1992

**WILSON
 OKAMOTO**
 & ASSOCIATES, INC.



ENGINEERS
 ARCHITECTS
 PLANNERS
 1150 SOUTH KING STREET
 HONOLULU, HAWAII 96813
 PHONE: (808) 587-3022
 FAX: (808) 587-3030
 TELEX: 38330
 HONOLULU, HAWAII 96813

Ms. Esther Ueda, Executive Officer
 State of Hawaii
 Land Use Commission
 Old Federal Building, Room 104
 335 Merchant Street
 Honolulu, Hawaii 96813

Subject: Liliha Civic Center
 Environmental Impact Statement Preparation Notice (EISPN)
 Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
 Honolulu, Oahu, Hawaii

Dear Ms. Ueda:

Thank you for your letter of May 18, 1992 indicating that you have no comments
 regarding the subject project. We appreciate your interest and participation in the
 consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi
 Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

JOHN WAHNE
DIRECTOR



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

REX D. JOHNSON
DIRECTOR
DEPUTY DIRECTORS
JOYCE T. QUINE
AL FANG
JEANNE K. SCHULTZ
CALVINIA TSUDA
BY REPLY REFER TO:

HWY-PS
2.2256

JUL 1 1992

RECEIVED
JUL 02 1992

Wilson Okamoto and Associates, Inc.
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

WILSON OKAMOTO & ASSOCIATES, INC.

Attention: Rodney Funakoshi

Gentlemen:

Liliha Civic Center Environmental Impact Statement
Preparation Notice (EISPN), Honolulu, Oahu, Hawaii

Thank you for your letter of May 12, 1992, requesting our review
of the subject EISPN.

We have the following comments:

1. The traffic study reflects only Phase I of the proposed project, which is inconsistent with the EISPN. The study should be revised to address the entire project, both Phases I and II.
2. The report acknowledges that the intersections of Liliha Street at North King Street, Vineyard Boulevard, the H-1 Freeway, and Nimitz Highway may be aggravated by the traffic generated by the project. This should be expanded to discuss the impacts and possible mitigative measures to improve the traffic operations.

Sincerely,

Rex D. Johnson
Rex D. Johnson
Director of Transportation

c: OEQC - Attn: Brian J.J. Choy
DACS, Proj. Mgt. Br. - Attn: Gina Ichiyama

3132-01
July 31, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1150 SOUTH KING STREET
HONOLULU, HAWAII 96814
PHONE: (808) 531-1311
FAX: (808) 531-1311

Mr. Rex D. Johnson, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISPN)
Tax Map Key 1-5-7: 1, 14, 15, 16, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Johnson:

Thank you for your letter of June 1, 1992 (Ref. HWY-PS 2.2256) regarding the subject project. The following is offered in response to your comments:

1. The traffic study for the project focuses on the first phase of the Civic Center's development primarily because of the uncertainty in the implementation of the Honolulu Rapid Transit system and the distant timeframe for the Center's subsequent phase. Of particular importance in this regard, a favorable decision for the implementation of the HRT system may be expected to significantly alleviate traffic impacts and the need for mitigation measures. Present City plans call for the route to run directly alongside the Civic Center, and for a transit station to be situated nearby adjacent to the complex on Kaahii Street. Employee as well as public trips to the Center could benefit substantially from the rapid transit system.
 2. The second phase of the Liliha Civic Center's development is tentatively scheduled for sometime beyond 1997, with a specific timeframe as yet undetermined. In consideration of potentially significant changes to development in the area as well as to changes in regional and local traffic patterns which may occur, it would be difficult to accurately assess future conditions and required mitigation measures. A subsequent traffic study will be undertaken for the Phase II portion prior to its development.
- Detailed route assignments were not made beyond Liliha Street, Dillingham Boulevard, North King Street and Nimitz Highway in the vicinity of the project. Since an objective of this project is to consolidate various (existing) State departments and agencies presently occupying State office or lease space ..., regional traffic is not expected to be aggravated. Insofar as the effect on the H-1 Freeway, we believe

WILSON
OKAMOTO
& ASSOCIATES, INC.

3132-01
Mr. Rex D. Johnson
July 31, 1992
Page 2

that there will be no significant effect on overall freeway traffic volumes, only a redistribution of a portion of traffic presently exiting at the Vineyard Street offramp, westbound, to the School Street offramp and from the Pali Highway and Punchbowl Street offramps, eastbound, to the Vineyard Street offramp, eastbound.

No mitigative measures are proposed for other State highway facilities because they are on the perimeter of the area of influence of this project and, in most cases, are already operating under congested conditions.

We trust the foregoing responds to your concerns, and appreciate your participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

JOHN WATKINS
22-17000



STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
Planning Office
P.O. Box 339
Honolulu, Hawaii 96809

June 10, 1992

WINONA E. RUBIN
DIRECTOR
LYNN H. FALLON
DEPUTY DIRECTOR
LESLIE S. MATSUBARA
DEPUTY DIRECTOR

RECEIVED
JUN 15 1992

Mr. Rodney Y. Funakoshi
Project Manager
Wilson Okamoto & Associates, Inc.
1150 S. King Street
Honolulu, Hawaii 96814

WILSON OKAMOTO & ASSOCIATES, INC.
1150 SOUTH KING STREET
HONOLULU, HAWAII 96814
PHONE: (808) 531-1201
FAX: (808) 531-1200
TELETYPE: (808) 531-1201

Dear Mr. Funakoshi:

Subject: EISPN Liliha Civic Center, Honolulu, Hawaii
Thank you for the opportunity to review this document. We have no comments to offer at this time.

Sincerely,

Winona E. Rubin
Winona E. Rubin
Director

cc: OEQC
DAGS

3132-01
June 22, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1150 SOUTH KING STREET
HONOLULU, HAWAII 96814
PHONE: (808) 531-1201
FAX: (808) 531-1200
TELETYPE: (808) 531-1201

Ms. Winona E. Rubin, Director
Department of Human Services
P. O. Box 339
Honolulu, Hawaii 96809
Attention: Planning Office

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISPN)
Tax Map Key 1-S-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Ms. Rubin:

Thank you for your letter of June 10, 1992 indicating that you have no comments regarding the subject project. We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi
Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

JOHN WILKIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 521
HONOLULU, HAWAII 96814

REF: OCEA:SKK

JUN 16 1982

FILE NO.: 92-723
DOC. ID.: 838

1982 JUN 17 10:52

Mr. Rodney Y. Funakoshi, Project Manager
Wilson, Okamoto and Associates, Inc.
1150 South King Street
Honolulu, Hawaii 96814

Dear Mr. Funakoshi:

SUBJECT: Liliha Civic Center Environmental Impact Statement,
Preparation Notice (EISPN), Honolulu, Hawaii,
TRK: 1-5-77: 1,4,18,57,58,60-78

Thank you for giving our Department the opportunity to comment on this matter. We have reviewed the submitted EISPN and have the following comments.

Historic Preservation Division Concerns:

The EISPN contains as Appendix C, an historical literature and documents search prepared by Aki Sinoto Consulting (Hurst and Pantaleo). This appendix provides sufficient data to indicate that this proposed project is located at Kuuwili Fishpond, which was filled by 1901, and that fishpond and associated deposits are likely to remain buried intact. These deposits would be significant for the information on Hawaiian prehistory and history that they contain. Thus, pursuant to H.R.S chapter 6E, this project must complete the historic preservation review process in order to avoid adverse effects to historic sites.

The first step in this process is to determine the presence or absence of subsurface historic sites at the project area with an inventory survey. The recommendations of the Aki Sinoto Consulting report include, as an initial step in this determination, archaeological analysis of core samples. We agree with this recommendation, with the proviso that this analysis should collect sufficient information to determine 1) the significance of subsurface historic sites, if these are present, 2) their depth, and 3) the effects of the proposed project on any subsurface historic sites that are present.

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
SERVICES
JUNE 7 1982
SOUTH HAVANA
AGRICULTURE DEVELOPMENT PROGRAM
ADULT RESOURCES
COMMUNITY AFFAIRS
CONSERVATION AND RESOURCES
CORRECTIONS
COUNTY AND WILDLIFE
HISTORIC PRESERVATION PROGRAM
HUMAN SERVICES
STATE AND LAND DEVELOPMENT

Mr. R. Funakoshi -2- File No.: 92-723

Thank you for your cooperation in this matter. Please feel free to call Tom Dye of our Historic Sites Division at 587-0014 or Sam Lemmo at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

Very truly yours,
John P. Keppeler
WILLIAM W. PATY

3132-01
June 22, 1992

WILSON
OKAMOTO
ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1115 KAPUNIA AVENUE
SUITE 1000, HONOLULU, HAWAII
PHONE: (808) 521-5151
FAX: (808) 521-5151
P. O. BOX 33250
HONOLULU, HAWAII 96811

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

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISPN)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Paty:

Thank you for your letter of June 10, 1992 (Ref. OCEA:SKK) indicating your concerns regarding the impact of the project on the former Kuwili Fishpond. We appreciate your informing us of the required historic preservation review process, pursuant to HRS Chapter 6E, a discussion of which will be included in the forthcoming Draft Environmental Impact Statement. Your letter will also be included in the DEIS.

We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services



STATE OF HAWAII
DEPARTMENT OF HEALTH

P. O. BOX 289
HONOLULU, HAWAII 96810

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

IN REPLY, PLEASE REFER TO:

92-177/epo

August 12, 1992

RECEIVED
AUG 24 1992

WILSON OKAMOTO & ASSOCIATES, INC.

Wilson Okamoto and Associates, Inc.
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

Attn: Rodney Y. Funakoshi

Dear Mr. Funakoshi:

Subject: Liliha Civic Center Environmental Impact Statement
Preparation Notice (EISPN)
Honolulu, Oahu, Hawaii

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

Noise

1. Noise from stationary equipment, such as air conditioning units, exhaust fans and emergency generators, must be attenuated to comply with the provisions of Department of Health (DOH) Administrative Rules, Chapter 11-43, "Community Noise Control for Oahu."
2. Traffic from heavy vehicles travelling to and from the project site must comply with the provisions of DOH Administrative Rules, Chapter 11-42, "Vehicle Noise Control for Oahu."

If you should have any questions on this matter, please contact Mr. Jerry Haruno of the Noise and Radiation Branch at 586-4701.

Solid Waste

The EISPN does not address this project's impact on solid waste services, specifically long-term capacity requirements or possible alternatives to incineration or landfilling during construction. No discussion of the total volumes generated during construction is provided, and we believe that the expected refuse generation upon occupancy will be greater than that stated on page 5-20 (one ton per day). The EISPN also does not adequately address the impact of construction and occupation of a 347,000 square foot building and 1,265 parking stalls upon the solid waste management system within the City & County of Honolulu.

Wilson Okamoto and Associates, Inc.
August 12, 1992
Page 2

As the State and County has established waste diversion goals (HRS 342G - 25% by 1995 and 50% by 2000; County goals of 50% by 1995 and 75% by 2000), we feel the provision of alternative systems, focusing on separation mechanisms for recycling and composting, must be included within the project design. As the County's diversion goals are more stringent than those of the State, the City & County goals will take precedence.

No discussion of disposal capacity at H-Power and Waimanalo Gulch is included, and there is no reference at all to the Nanaui landfill which is the primary site for construction and demolition waste. Any plan of this magnitude must consider that H-Power has already reached capacity, and that the Waimanalo Gulch Landfill is filling up much faster than projected. In addition, the Kalaeo Landfill in Kailua is in the process of closure.

We would like to see these concerns addressed in the draft Environmental Impact Statement (EIS). Also, the EIS should address the minimization and diversion of both construction and operational wastes. During demolition and construction, plans for waste reduction should be developed and implemented. At a minimum, the potential for reuse of concrete rubble and asphalt paving as base course or inert fill should be discussed. In addition, the Office of Solid Waste Management strongly recommends that individual floor and office designs include space for recycling containers, as each State office is required by Act 324, to implement recycling programs by July 1, 1993.

The Office Solid Waste Management also requests the developer to investigate the use of locally produced compost derived from recycled greenwaste as soil amendment or mulch for the landscaped areas. This would create local markets for recycled materials and may also help to reduce the need for lawn watering during the dry months, and thus the burden on the County water supply.

If you should have any questions on this matter, please call Mr. John Harder of the Office of Solid Waste Management at 586-4240.

Hazardous Waste

Section 3.1.4 of the report mentions discarded materials such as batteries, paint, and industrial chemicals. These particular items may constitute hazardous waste. The acid in the batteries should not be removed from the battery itself, because this causes the generation of hazardous waste. The batteries should be sealed and taken to a recycler to be recycled.

If the paint is oil-based, then the liquid waste paint is a hazardous waste. If the paint is water-based, such as acrylic paint, then the liquid waste paint may be dilted and disposed of as a solid waste.

Industrial chemicals will need to be analyzed for their ignitability, toxicity, corrosivity, and flammability in order to determine whether or not these chemicals can be characterized as a hazardous waste (as required in the Code of Federal Regulations (CFR), Title 40, Part 261). A search of the CFR, Title 40, Part 261 will also indicate if these chemicals are "exempt" or listed as a hazardous waste.

(40 CFR §280.72). In the event that a release is discovered, UST owners and operators must undertake specific actions to respond and cleanup a release from their tanks.

With this in mind, we would like to stress the need for thorough environmental assessment, investigation, and remediation before undertaking construction. The proposing agency should be aware that environmental investigation and remediation of soil and groundwater contamination can potentially be both costly and time-consuming. To avoid disruptive scheduling delays and budget overruns, potential contamination problems should be properly identified and assessed before beginning construction so that any necessary investigative and remedial measures can be planned for in advance and implemented before the commencement of construction, rather than during the project.

Hazardous waste is regulated in the State of Hawaii under Federal law. Generators -- and in this case tenants -- are responsible for proper disposal of their wastes. If the hazardous chemicals have already been discarded and the generators are not found, the owner of the site is liable for the waste generated, and therefore is required to ensure proper disposal of the waste at an authorized treatment, storage, and disposal facility (TSDF) specifically designed to handle hazardous waste. In order to ensure proper disposal, the generator or owner of the site must send this waste to a transporter who is authorized to transport the waste to a TSDF. The transporter and the TSDF must have EPA ID numbers which give them the authority to handle hazardous waste. Depending on the quantity of the waste, the generator of the waste may also need an EPA ID number as well.

6. It is stated in the EISPN that an aboveground storage tank (AST) exists on site marked as "Fuel Oil". Our Department does not have rules which regulate owners and operators of ASTs, however ASTs containing flammable and combustible liquids are regulated by the State Fire Council and County Fire Departments. The proposing agency should contact the City and County of Honolulu Fire Department to ensure that the AST meets all applicable County ordinances.

Underground Storage Tanks

1. The construction of the Liliha Civic Center may involve the installation of new USTs. The proposing agency should realize that owners and operators of USTs used to store petroleum products are subject to the federal UST rules and regulations as set forth in Title 40 of the Code of Federal Regulations (CFR) Part 280. These regulations include requirements for:

- A. Design, Construction, Installation, and Notification;
- B. General Operating Requirements;
- C. Release Detection;
- D. Release Reporting, Investigation, and Containment;
- E. Release Response and Corrective Action;
- F. Changes-In-Service and Closure; and
- G. Financial Responsibility Requirements.

- 2. The proposing agency should also be aware that the DOH must be notified of the existence of new tanks within 30 days of bringing the system into use.
- 3. The installation of UST systems containing flammable and combustible liquids is also subject to regulation by the City and County of Honolulu Fire Department. The Honolulu Fire Prevention Bureau should be contacted regarding any county requirements that may exist governing UST systems.

If you should have any questions regarding the hazardous waste and underground storage tank comments, please contact Mr. Gregory McCartney at 586-4226, and Ms. Sheila Mackenzie at 586-4227, respectively.

Very truly yours,

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

c: Noise and Radiation Branch
Office of Solid Waste Management
Solid and Hazardous Waste Branch

4. It is stated in the EISPN that the proposing agency is planning to permanently close (remove) the two registered USTs on the site (Honolulu Community Action Program, Facility ID#9-101814). It is also stated that there is the possibility of USTs located near the two islands south of the abandoned building on site that may have been a fuel dispensing location and if found, these USTs will be removed. As such, the proposing agency should note that the federal UST rules set forth specific requirements which UST owners and operators must undertake when permanently closing their UST systems (refer to 40 CFR Part 280 Subpart G - "Permanent Closure and Change-In-Service of UST Systems"). Contact the UST Section in complying with these federal requirements for UST closure.

5. The proposing agency should note that the requirements for complying with the federal rules for permanent UST closure require, among other things, that owners and operators assess the UST excavation to determine whether a release from the UST system has occurred

WILSON
OKAMOTO
& ASSOCIATES, INC.

3132-01
Dr. John C. Lewin
Page 2
October 23, 1992

3132-01
October 23, 1992

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

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISP/N)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Dr. Lewin:

Thank you for your letter of August 12, 1992 (Ref. 92-177/epo) indicating your concerns regarding the subject project. Due to the schedule required to process the EIS, we were unable to address your EISP/N comments in time for inclusion in the Draft EIS. This response to your comments will be included in the forthcoming Final EIS.

Noise

Items 1 and 2: Section 5.2.1.4 of the DEIS states that the contractor will be responsible for compliance with Title 11, Chapter 43 regarding noise impacts during construction of the project. The discussion will be expanded in the Final EIS to include reference to the project's applicability to Chapter 42 regulations.

Solid Waste

Based on 1 pound per 100 net square feet of office space as provided by Marathon Equipment Company (a national provider of refuse compaction equipment), the expected Phase I refuse generation will be approximately one ton per day as stated in Section 5.4.3.1 of the Draft EIS. The estimated refuse generation of 1,500 pounds for Phase II of the project will be noted in the Final EIS.

The H-Power facility is designed to accommodate approximately 2,000 tons per day or about 560,000 tons per year over a 20-year period. Based on telephone conversations with staff at the H-Power facility, we understand that refuse generation of about 3,500 pounds per day from the project at full build-out will be accommodated by the facility. Construction and demolition refuse will not be accepted at the H-Power facility. Rather, the refuse may be taken to the Nanakuli Landfill or sold to a scrap metal dealer.

As mentioned in Section 5.4.3.4 of the Draft EIS, a drop-off area for recyclables is planned in conjunction with the project's common refuse area near the central

loading area. Your suggestion to incorporate areas for recyclables on each floor of the Civic Center will be taken under consideration during the design phases of this project. If deemed suitable, the existing concrete rubble and asphalt paving will be reused as base course or inert fill for the proposed project.

As recommended, every attempt will be made to utilize locally-produced soil amendments such as top-soil for landscaping. We concur that such practice will help to divert material from the waste stream.

Hazardous Waste

A hazardous materials management company will be contracted to properly dispose of any collected hazardous wastes. All hazardous wastes will be removed of in a manner consistent with all State and Federal regulations governing such activity. As recommended, spent lead acid batteries will be delivered to a battery recycler.

Underground Storage Tanks (UST)

Items 1, 2, and 3: We appreciate your information regarding the regulations for underground storage tanks, however, the construction of Liliha Civic Center will not involve the installation of underground storage tanks.

Items 4 and 5: As required, procedures involved in the permanent closure of the two USTs currently located on-site will comply with State and Federal regulations governing such activity, including 40 CFR Part 280 Subpart G.

Item 6: As needed, the City and County of Honolulu Fire Department will be consulted regarding the applicability of City ordinances to the above ground storage container contents. The project will be in compliance with all applicable Fire Prevention Bureau requirements.

We hope the foregoing adequately addresses your concerns and we appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
110 SOUTH WALK STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-5111
FAX: (808) 531-5111

BUILDING DEPARTMENT
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813



HERBERT K. MURAOKA
DIRECTOR AND BUILDING SUPERINTENDENT

PB 92-481

May 20, 1992

RECEIVED
MAY 26 1992

Wilson Okamoto & Associates
1150 S. King Street, Suite 800
Honolulu, Hawaii 96814

Attn: Rodney Funakoshi
Gentlemen:

WILSON OKAMOTO & ASSOC. INC.

Subject: Liliha Civic Center Environmental Impact
Statement Preparation Notice (EISPN)
Honolulu, Oahu, Hawaii

This is in response to your letter dated May 12, 1992
relative to the subject project. We have reviewed the EISPN and
have no comments to submit.

Very truly yours,

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

cc: J. Harada
Office of Environmental Quality Control
Dept. of Accounting & Gen. Services
(Attn: Gina Ichiyama)

3132-01
June 22, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1150 SOUTH KING STREET
HONOLULU, HAWAII 96814
PHONE: (808) 531-0101
FAX: (808) 531-0101
P. O. BOX 5830
HONOLULU, HAWAII 96808

Mr. Herbert K. Muraoka
Director and Building Superintendent
Building Department
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISPN)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Muraoka:

Thank you for your letter of May 20, 1992 (Ref. PB 92-481) indicating that you
have no comments regarding the subject project. We appreciate your interest and
participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

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



RECEIVED
MAY 25 1992

WALTER M. OZAWA
DIRECTOR
ALVIN C. JU
DEPUTY DIRECTOR

WILSON OKAMOTO & ASSOCIATES, INC.

May 26, 1992

Mr. Rodney Funakoshi
Wilson Okamoto & Associates
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

Dear Mr. Funakoshi:

Subject: Liliha Civic Center Environmental Impact Statement
Preparation Notice (EISPN)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, 60-78

Thank you for providing us with the opportunity to review your EISPN for the proposed Liliha Civic Center.

We have no comments to offer at this time and look forward to the opportunity to review your draft EIS.

If you have any questions, please contact John Morihara of our Advance Planning Branch at 523-4696.

Sincerely,

WALTER M. OZAWA
Director

WHO:ei

cc: Office of Environmental Quality Control
Department of Accounting & General Services
(Project Management Branch)

3132-01
June 22, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1150 SOUTH KING STREET
HONOLULU, HAWAII 96814
PHONE: (808) 531-5111
FAX: (808) 531-5111

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

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISPN)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Ozawa:

Thank you for your letter of May 26, 1992 indicating that you have no comments regarding the subject project. We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1435 SOUTH KING STREET, HONOLULU, HAWAII 96813
HONOLULU, HAWAII 96813, AREA CODE: (808) 943-3111



MICHAEL S. NAKAMURA
CHIEF
MARGOLD M. JENNINGS
DEPUTY CHIEF

FRANK P. SHI
CAPTAIN

OUR REFERENCE MS-LK

May 27, 1992

RECEIVED
MAY 27 1992

WESON PARKING ASSOC. INC.

Mr. Rodney Funakoshi
Project Manager
Wilson Okamoto & Associates, Inc.
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

Dear Mr. Funakoshi:

Subject: Liliha Civic Center Environmental Impact Statement
Preparation Notice (EISPN)

We have reviewed the environmental assessment information and maps regarding the proposed Liliha Civic Center, a project for which you will be preparing an Environmental Impact Statement for the Department of Accounting and General Services. The civic center is planned to provide new office space in several major buildings for state agencies and non-profit organizations, as well as providing parking for about 1,265 automobiles. It is to be located at North King Street and Iwilei Road, which area is not located in Police District I nor serviced by the Downtown Substation, as is mentioned on pages 3-22 and 5-21. The project locale is situated in Beat 35, which is part of Sector 3 of District 5, and is therefore serviced by the Kalihi Police Station.

Our primary concern is that of increased traffic congestion in and around the site, both during construction and after completion. This entire area is presently very congested, and there have been about 413 major (with injuries or over \$1,000 in damages) and minor traffic accidents there in the past two years. About 46% of these incidents were at the Dillingham Boulevard/N. King Street/Liliha Street intersection.

Mr. Rodney Funakoshi

-2-

May 27, 1992

The situation is further exacerbated by traffic from Honolulu Community College and the new shopping center at Dillingham Boulevard and King Street. Any further adverse impacts on traffic should be avoided if possible. It seems unlikely that the addition of 1,265 vehicles at the civic center will result in the large traffic improvements as predicted in the level of service table on page 5-14.

The proposed project site is located in a crime-prone area which may be vulnerable to property damage and other types of crime. In the interest of safety for workers and property at the center, we urge that security measures (e.g., 24-hour security service, fencing, locks, adequate lighting, etc.) be considered not only during the construction phases, but as an integral part of the project design.

Sincerely,

MICHAEL S. NAKAMURA
Chief of Police

BY *[Signature]*
JAMES NEELY, Acting Major
Research and Development Division

CC: Office of Environmental
Quality Control
Department of Accounting
and General Services

WILSON
OKAMOTO
& ASSOCIATES, INC.

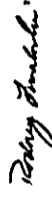
3132-01
Mr. Michael S. Nakamura
August 4, 1992
Page 2

balance of 526 spaces will be provided in Phase II. Should the Honolulu Rapid Transit project materialize, this should help alleviate traffic in the area, since the proposed route runs along the makai boundary of the project site and a transit station is planned very near to the center.

We share your concerns regarding potential security impacts during the construction and operation of the subject project. Security measures recommended in your letter will be considered for implementation during both stages. During the short-term construction period, barricades, locks, adequate lighting and security personnel will be employed as necessary. In the long-term operational period, security measures will include securing the parking structure after hours, controlling after hours entry into the complex by access card system, and implementing video cameras and monitors.

We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,



Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

3132-01
August 4, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
119 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-1111
FAX: (808) 531-1111

Mr. Michael S. Nakamura
Chief of Police
Police Department
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISPN)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Nakamura:

Thank you for your letter of May 27, 1992 (Ref. MS-1LK) indicating your concerns regarding the subject project. We appreciate your informing us of the proper police district in which the project lies, and we will revise the forthcoming Draft Environmental Impact Statement (DEIS) accordingly.

As discussed in the Traffic Impact Report prepared for the project, the improvements in the actual intersection operating level-of-service (LOS) may not achieve the calculated LOS shown in Table 5-3 of the EISPN. This is because the intersection of North King Street/Liliha Street/Dillingham Boulevard controls the quality of traffic flow in this area. Since this intersection already operates at very congested levels, it is likely that the adjacent intersections will not see the improvements in the level of service indicated by the calculation.

However, proposed improvements discussed pages 5-17 and 5-18 in the EISPN should help to ease overall traffic impacts. In particular, mitigative measures such as constructing a bus bay on King Street at Ala Park and re-timing traffic signals should reduce potential impacts of traffic generated by this project. Additionally, the recommended widening of Dillingham Boulevard between Kaaahi Street and King Street will help to improve traffic flow through this entire corridor.

For your information, the traffic from Honolulu Community College and the mini-shopping center at Dillingham Boulevard and King street are accounted for in the on-site traffic counts. The mini-shopping center should have minimal impact on traffic during the morning and afternoon peak periods of traffic. Parking provisions for the Civic Center will be phased such that only 739 of the total 1,265 parking spaces will be provided in 1997 at the completion of Phase I. The

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

480 SOUTH KING STREET
HONOLULU, HAWAII 96813



C. MICHAEL STREET
ACTING DIRECTOR AND CHIEF ENGINEER
ENV92-147

RECEIVED
JUN 23 1992

June 23, 1992

Mr. Rodney Y. Funakoshi
Project Manager
Wilson Okamoto and Associates, Inc.
1150 South King Street
Honolulu, Hawaii 96814

Dear Mr. Funakoshi:

Subject: Environmental Impact Statement Preparation Notice (EISPN)
Liliha Civic Center
TKK1-5-7-14, 15, 18, 57, 58, 60 to 78

We wish to amend Item 3 of our previous letter dated June 3, 1992 regarding the subject EISPN:

Sewer connection for the proposed project was granted by our Division of Wastewater Management on December 17, 1991. Connection may be made to either the 24 or 36-inch sewer line in the vicinity.

Very truly yours,

C. Michael Street
C. MICHAEL STREET
Acting Director and Chief Engineer

cc: Office of Environmental Quality Control
(Brian Choy)
Department of Accounting and General Services
(Gina Ichiyama)

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

480 SOUTH KING STREET
HONOLULU, HAWAII 96813



C. MICHAEL STREET
ACTING DIRECTOR AND CHIEF ENGINEER
ENV 92-130

RECEIVED
JUN 05 1992

June 3, 1992

Mr. Rodney Y. Funakoshi
Project Manager
Wilson Okamoto and Associates, Inc.
1150 South King Street
Honolulu, Hawaii 96814

Dear Mr. Funakoshi:

Subject: Environmental Impact Statement Preparation Notice (EISPN)
Liliha Civic Center
TKK1-5-7-14, 15, 18, 57, 58, 60 to 78

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

1. Vehicular access points to the proposed project site within roadway right-of-way should be improved to City and County standards.
2. Frontage improvements for all streets should also be in accordance with City and County standards.
3. Before approval can be given for connection to either the 24-inch or 36-inch sewer on Iwilei Road, the adequacy of the existing municipal sewer system to support the wastewater flows from the proposed project must be determined. This determination will be made at the time an "Application for Sewer Connection" form is submitted to the Division of Wastewater Management for review and approval.

Very truly yours,

C. Michael Street
C. MICHAEL STREET
Acting Director and Chief Engineer

cc: Office of Environmental Quality Control (Brian Choy)
Department of Accounting and General Services (Gina Ichiyama)

3132-01
June 26, 1992

WILSON
OKAMOTO
ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1130 BELLAIR ROAD STREET
SAN FRANCISCO, CALIFORNIA 94115
PHONE: (415) 331-1111
FAX: (415) 331-1112
TELETYPE: (415) 331-1113

Mr. C. Michael Street
Acting Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISP/N)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Street:

Thank you for your letters of June 3 and 23, 1992 (Ref. ENV 92-130 and -147) regarding the subject project. As required, proposed vehicular access points and street frontage improvements will be designed and constructed in conformance with City and County of Honolulu standards.

Your letter will be included in the forthcoming Draft Environmental Impact Statement. We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1455 SOUTH BERCIANIA STREET, ROOM 305
HONOLULU, HAWAII 96814



LIONEL E. CAMARA
FIRE CHIEF
DONALD S. M. CHANG
DEPUTY FIRE CHIEF

June 3, 1992

RECEIVED
JUN 03 1992
ENGINEERING & ARCHT. INC.

Mr. Rodney Y. Funakoshi, Project Manager
Wilson Okamoto & Associates, Inc.
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

Dear Mr. Funakoshi:

SUBJECT: Liliha Civic Center Environmental Impact Statement
Preparation Notice (EISPN)
Honolulu, Oahu, Hawaii

We have reviewed the application for the above subject. Fire protection services provided from Central and Kaihi Kai engine companies with ladder service from Kaihi Kai are adequate. We foresee no adverse impact in Fire Department facilities or services. Access for fire apparatus, water supply and building construction shall be in conformance to existing codes and standards.

Thank you for the opportunity to comment on the project. If you have any questions, please call Acting Assistant Chief Attilio Leonardi at 943-3838.

Very truly yours,

Lionel E. Camara
LIONEL E. CAMARA
Fire Chief

AKL:ny

Copy to: OEQC (Brian Choy) w/EIS report
Dept. of Acctg. & Gen. Svcs (Gina Ichiyama)

3132-01
June 22, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1110 SOUTH KING STREET
HONOLULU, HAWAII 96814
PHONE: (813) 331-1181
FAX: (813) 331-1181

Mr. Lionel E. Camara, Fire Chief
Fire Department
City and County of Honolulu
1455 South Bercania Street, Room 305
Honolulu, Hawaii 96814

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISPN)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Camara:

Thank you for your letter of June 3, 1992 regarding the subject project. We appreciate your informing us of fire protection services to be provided by the Central and Kaihi Kai stations. As required, access for fire apparatus, water supply and building construction will conform with applicable codes and standards.

We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

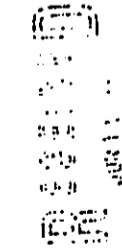
cc: Gina Ichiyama, Dept. of Accounting and General Services

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

840 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANCE FAS
PLANNER



BENJAMIN B. LEE
CHIEF PLANNING OFFICER
ROLAND D. LARBY, JR.
DEPUTY CHIEF PLANNING OFFICER

TH 5/92-1714

June 4, 1992

Mr. Rodney Funakoshi
Project Manager
Wilson Okamoto and Associates, Inc.
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

Dear Mr. Funakoshi:

Liliha Civic Center Environmental Impact
Statement Preparation Notice (EISPN), Honolulu, Oahu,
Tax Map Keys: 1-5-7; 1, 14, 15, 18, 57, 58, 60 to 78

In response to your letter of May 12, 1992, we have reviewed the subject EISPN and offer the following comments:

1. The project site is currently designated "public facility" and "commercial-industrial emphasis mixed use" on the Primary Urban Center Development Plan Land Use Map (DPLUM).
2. A Development Plan Public Facilities Map amendment is needed to place a Government Building symbol on the Primary Urban Center Public Facilities Map.
3. On April 6, 1992, the City and County approved Ordinance No. 92-30 to amend a portion of the Primary Urban Center Development Plan Public Facilities Map to provide for the Honolulu Rapid Transit Development Program (HRTDP) alignment and stations. The ordinance also deleted a portion of the HART rapid transit alignment. The Development Plan Public Facilities Map included in the EISPN (Figure 4-2) should be updated to show the current HRTDP alignment and stations.

Mr. Rodney Funakoshi
June 4, 1992
Page 2

4. The EIS should discuss the interface between the HRTDP and the proposed project. The feasibility of integrating the guideway or even a station within the proposed parking decks should be examined with particular regard to economics, functionality and urban design.

5. The parking to be provided appears to be in excess of Land Use Ordinance requirements for office or retail uses. The EIS should discuss the need for this parking considering the proximity of the population to be served as well as the access that will be provided by the HRTDP. In addition, the visual impacts of the parking structure should be evaluated, including options for underground/concealed construction and landscape screening.

6. The EISPN states that the architectural style of the proposed project is intended to complement the existing OR&L Building and the surrounding neighborhood. The EIS should include an inventory of architectural features from the OR&L Building and discuss how the project's design will be related.

Thank you for the opportunity to comment on this matter. Should you have any questions, please contact Tim Hata of our staff at 527-6070.

Sincerely,

BENJAMIN B. LEE
Chief Planning Officer

BBL:ft

cc: Department of Transportation Services
Office of Environmental Quality Control
Department of Accounting and General Services

WILSON
OKAMOTO
A ASSOCIATES, INC.

Mr. Benjamin B. Lee
July 31, 1992
Page 2

3132-01
July 31, 1992

WILSON
OKAMOTO
A ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1115 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-5101
FAX: (808) 531-5830
PERMIT NO. 15000-00001

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

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISPN)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Lee:

Thank you for your letter of June 4, 1992 (Ref. TH 5/92-1714) regarding the subject project. The following is offered in response to your comments:

1. Development Plan Land Use Map designations are duly noted.
2. As required, an amendment to the Development Plan Public Facilities Map will be sought.
3. Figure 4-2 in the EISPN will be updated to show the current rapid transit alignment and stations.
4. Currently, plans by the City's Office of Rapid Transit (ORT) call for a transit station to be situated near the complex on Kaaahi Street. Coordination of the present freestanding guideway alignment/easement and pedestrian access between the Department of Accounting and General Services (DAGS) and ORT has been on-going. However, based on the present status and schedule of planning for the rapid transit system, it would be difficult to integrate the guideway or a transit station with the Civic Center because the Civic Center plans are proceeding at a faster pace. DAGS plans to bid the Phase I project in early 1993.

The complex was not envisioned as a terminal for transit users. The offices above the parking levels may be adversely affected with acoustical and vibration problems if the guideway or a transit station were incorporated with the Civic Center. There are also concerns for functional requirements, security, and added vehicular and pedestrian traffic.

5. The total number of parking spaces to be supplied for the project is 1,265. Parking provisions are based on the Land Use Ordinance (LUO) requirement of 1 stall per 400 square feet of floor area for office use. With a total gross floor area of 496,000 square feet, the subject project is required to provide 1,240 spaces. About 15 spaces are designated as accessible to disabled persons (as required by the LUO). Thus, the parking requirement is exceeded only by ten stalls which were provided as space allowed. We believe that ten additional stalls are not excessive relative to LUO requirements.

The construction of an underground parking structure was determined to be costly and therefore unfeasible for this project due to the high water table at the site (estimated at approximately five feet below the surface).

Potential visual impacts of the parking structure will be mitigated with on-grade landscaping and trees as required by the LUO. Additionally, architectural elements consistent with the office levels are repeated at the parking levels to visually-unify the building and further subdue the effect of parking.

6. The DEIS will include a discussion of architectural elements of the OR&L building which are paralleled in the design of the subject project. Essentially these features include: stepping the mass of the new facility, siting low-rise portions adjacent to the OR&L building, integrating covered arcades, utilizing hipped roofs and clay tile roofing, and incorporating proportioned, recessed windows.

We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

450 SOUTH KING STREET
HONOLULU, HAWAII 96813 • PHONE 935-4432



FRANK F. ZAM
DIRECTOR

DONALD A. CLEGG
DIRECTOR
LORRY K.C. CHIE
DEPUTY DIRECTOR

LU5/92-3817 (JT)

June 12, 1992

RECEIVED
JUN 13 1992

WILSON OKAMOTO & ASSOCIATES, INC.

Mr. Rodney Y. Funakoshi
Wilson Okamoto & Associates, Inc.
1150 South King Street
Honolulu, Hawaii 96814

Dear Mr. Funakoshi:

Liliha Civic Center Environmental
Impact Statement Preparation Notice (EISP/N)
Honolulu, Oahu, Hawaii

Thank you for the opportunity to comment on the above mentioned document.

We have no comments to make at this time. However, we respectfully request a copy of the completed Draft Environmental Impact Statement for our review.

Very truly yours,

Donald A. Clegg
DONALD A. CLEGG
Director of Land Utilization

DAC:ct
cc: OEQC
DAGS

sl:llharc:jnt

3132-01
June 22, 1992

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

**WILSON
OKAMOTO
& ASSOCIATES, INC.**



ENGINEERS
ARCHITECTS
PLANNERS
1110 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 935-4432
FAX: (808) 935-5000
P.O. BOX 3830
HONOLULU, HAWAII 96811

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISP/N)
Tax Map Key 1-S-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Clegg:

Thank you for your letter of June 12, 1992 (Ref. LU5/92-3817(JT)) indicating that you have no comments regarding the subject project. As requested the forthcoming Draft Environmental Impact Statement will be sent for your review.

We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERTANIA STREET
HONOLULU HAWAII 96843



June 24, 1992

FRANK F. FASI, Mayor
WALTER D. WATSON, JR., Chairman
LAWRENCE H. TAMASATO, Vice Chairman
SHERM DAVENPORT, Chairman, C.S.P.
JOHN W. ANDERSON, JR.
REID JOHNSON
MELISSA Y. J. LUI
KAZU HAYASHIDA
Manager and Chief Engineer

Mr. Rodney Funakoshi
Wilson Okamoto & Associates, Inc.
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

Dear Mr. Funakoshi:

Subject: Your Letter of May 12, 1992 Regarding the Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISPN)
TMK: 1-5-07-1, 14, 15, 18, 57, 58, 60 to 78, Iwilei Road

We have the following comments to offer on the (EISPN) for the Liliha Civic Center Project:

1. The existing off-site water system is presently adequate to accommodate the proposed project. There are four (4) existing services currently serving the property.
2. A water allocation from the State Department of Land and Natural Resources is required.
3. The availability of additional water will be confirmed when the building permit application is submitted for our review and approval. When additional water is made available, the applicant will be required to pay our Water System Facilities Charges and any applicable meter installation charges.
4. Approved reduced pressure principle backflow assemblies should be installed on all domestic water services immediately after the property valves and before any branch piping.



Mr. Rodney Funakoshi
Page 2
June 24, 1992

5. The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

If you have any questions, please contact Bert Kuiuoka a 527-5235.

Very truly yours,


KAZU HAYASHIDA
Manager and Chief Engineer

cc: Office of Environmental Quality Control
Department of Accounting and General Services

Water ... man's ... need ... use it ...

Water ... man's ... need ... use it ...

3132-01
June 26, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843



Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISPN)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Hayashida:

Thank you for your letter of June 24, 1992 regarding the subject project. We offer the following in response to your comments:

1. We appreciate your informing us that the existing off-site water system can support the subject project.
2. The requirement for obtaining water allocation from the State is duly noted.
3. Water System Facilities Charges and meter installation charges will be remitted as required.
4. Reduced pressure principle backflow prevention assemblies will be installed in compliance with BWS requirements.
5. The Fire Department's Fire Prevention Bureau has been contacted regarding the project's on-site fire protection requirements. The project will be in compliance with all applicable Bureau requirements.

We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII
TELEPHONE: 535-5000
FACSIMILE: 535-5000
POSTAL MAIL: DEPT 3



GENERAL FAS
535-5000

Mr. Rodney Funakoshi
Page 2
June 26, 1992

JUN 26 1992
JOSEPH M. MAGALDI, JR.
DIRECTOR
SAMAH BAPPAL
DEPUTY DIRECTOR

TE-2088
PL92.1.162

June 26, 1992

Mr. Rodney Funakoshi
Wilson Okamoto & Associates, Inc.
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

Dear Mr. Funakoshi:

Subject: Liliha Civic Center
Environmental Impact Statement
Preparation Notice (EISPN)
THK: 1-5-7: 1

This is in response to your letter dated May 12, 1992 requesting our comments on the EISPN for the subject project.

Based on our review of the document, we have the following comments which should be addressed in the draft EIS:

1. The roadway treatment at the end of Kaahai Street should be specified and provisions for either a standard turnaround or acquisition of the roadway stub by the State incorporated into the overall site plan.
2. Schematic plans for the rounding of the corner at the intersection of King Street and Iwilei Road should be provided and the option of installing a traffic island to channelize right turning traffic addressed.
3. A tentative commitment for the widening of Dillingham Boulevard from Kaahai Street to King Street should be specified.
4. The pavement width along the King Street frontage should be consistent with the section over Nuuanu Stream and may need to be adjusted accordingly.

5. The affected property owners should be appraised of the proposal to prohibit parking along a portion of Kaahai Street and implemented as part of this project.
6. Modifications to the existing traffic signal timing and phasing, although provided in the level-of-service analysis, should be presented in a separate tabular format.
7. As stated in the document, close coordination with our Office of Rapid Transit (ORT) is crucial with regard to the proposed alignment through the site and should be continued throughout the progress of this project. As required, incorporation of the guideway structure through the site and/or building envelope should be refined through continued coordination with our ORT.
8. Schematic plans for the bus turnout on King Street at Beretania Street should be provided to our department and the Honolulu Public Transit Authority.
9. We will provide more specific comments on the draft EIS with regard to initial driveway ramp grades, vehicular sight lines, and other issues which may affect the flow of traffic.

Should you have any questions, please contact Mel Hirayama of my staff at 523-4119.

Sincerely,

JOSEPH M. MAGALDI, JR.
Director

cc: Office of Rapid Transit
Honolulu Public Transit Authority

3132-01
August 4, 1992

WILSON
OKAMOTO
ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1125 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-1311
FAX: (808) 531-1310
TELETYPE: (808) 531-1311

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

Subject: Liliha Civic Center

Environmental Impact Statement Preparation Notice (EISP/N)
Tax Map Key 1-S-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Magaldi:

Thank you for your letter of June 26, 1992 (Ref. TE-2088 PL92.1.162) regarding the subject project. The following is offered in response to your comments:

1. The roadway treatment at the end of Kaaahi Street is planned to include a curb with curb cuts, card/ticket operated automatic car gate at the property line and entrance signage which will clearly indicate the State's project site.
The length of the roadway stub is approximately 50 feet and is insufficient for the construction of an adequate turnaround. The construction of a turnaround would be unnecessary given the planned roadway treatments leading into the Civic Center site. Incoming motorists would have enough lead time to recognize that the short stub leads into the State's driveway and therefore would naturally turn onto Kaaahi Place.
Should DTS still require a vehicle turnaround or acquisition of the roadway stub by the State, then this issue will be referred to Department of Accounting and General Services for resolution with DTS. The acquisition of the stub may not be possible if the acquired parcel blocks the adjacent land owner's access onto his/her site.
2. As requested, schematic plans for the rounding of the corner at the intersection of King Street and Iwilei Road including the installation a traffic island will be submitted for your review.
3. Your request for a tentative commitment on the widening of Dillingham Boulevard from Kaaahi Street to King Street has been referred to the Department of Accounting and General Services. We note that the road widening is recommended to improve existing traffic flow and is not the result of traffic generated by this project.

WILSON
OKAMOTO
ASSOCIATES, INC.

Mr. Joseph M. Magaldi, Jr.
August 4, 1992
Page 2

4. Detailed design of the pavement width along the King Street facade will occur during the latter design phases of the project and in accordance with applicable regulations.
5. The traffic report recommends restricting parking on the mauka side of Kaaahi Street between Dillingham Boulevard and Kaamahu Place. Three parking stalls would be affected by this proposal. As suggested, the Department of Accounting and General Services will inform adjacent property owners prior to the City withdrawing the three parking stalls.
6. As recommended, the traffic impact report will be revised to include tabulations of the proposed timing plans for the existing traffic signal systems.
7. Coordination will continue with the Office of Rapid Transit (ORT) regarding the proposed guideway system throughout the Civic Center's design phases.
8. As requested, only schematic plans for the bus turnout will be prepared for submittal to DTS and the Honolulu Public Transit Authority. We note that the bus turnout is recommended to improve existing traffic flow and is not the result of traffic generated by this project.
9. We would be pleased to respond to any additional comments you may have on the forthcoming Draft Environmental Impact Statement.

We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

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



William A. Bonnet
Manager
Environmental Department

RECEIVED
MAY 26 1992

ENVY 2-1
JA/G

RECEIVED
MAY 26 1992

Wilson Okamoto & Associates, Inc.
1150 So. King Street
Suite 800
Honolulu, Hawaii 96814
Attn: Rodney Funakoshi

Gentlemen:

Subject: Environmental Impact Statement Preparation Notice
(EISPN) Liliha Civic Center

We have reviewed the subject EISPN, and have no comments at this time on the proposed project in the subject area. HECO shall reserve further comments pertaining to the protection of existing powerlines bordering and servicing the development area until construction plans are finalized.

Sincerely,

William A. Bonnet

cc: Brian J. J. Choy, OEQC
Gina Ichiyama, DAGS

An HEI Company

3132-01
June 22, 1992

**WILSON
OKAMOTO
& ASSOCIATES, INC.**



ENGINEERS
ARCHITECTS
PLANNERS
1150 SOUTH KING STREET
HONOLULU, HAWAII 96814
PHONE: (813) 531-3241
FAX: (813) 531-3240
P.O. BOX 2750
HONOLULU, HAWAII 96840-0001

Mr. William A. Bonnet, Manager
Environmental Department
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, Hawaii 96840-0001

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISPN)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Bonnet:

Thank you for your letter of May 26, 1992 (Ref. ENV 2-1 JA/G) indicating that you have no comments at this time regarding the subject project. We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services



HISTORIC HAWAII
FOUNDATION

June 23, 1992

Mr. Rodney Funakoshi
Wilson, Okamoto & Associates, Inc.
P. O. Box 3530
Honolulu, Hawaii 96811

Re: Liliha Civic Center

Dear Mr. Funakoshi:

This is a letter of request from the Historic Hawaii Foundation Preservation Review Committee to be included as an interested and consulted party in the environmental impact statement (EIS) process for the Liliha Civic Center project.

The Preservation Review Committee was formed in 1990 as a volunteer structure to monitor, review and comment on EIS and other plans which would affect historic buildings, objects and sites or concern Special Design and Historic Districts. We are therefore interested in the Liliha Civic Center as it relates to the O.R. & L. Railroad Station, and would appreciate the opportunity to comment on this project.

We look forward to working with you.

Sincerely,

Melvin Y. Kaneshige M.S.

Melvin Y. Kaneshige
Chairman, Preservation Review Committee

cc: Gina Ichiyama, DAGS
Robert Crane
Dion-Magrit Coschigano

3132-01
June 26, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1115 SOUTH KING STREET
HONOLULU, HAWAII 96814
PHONE: (808) 531-3131
FAX: (808) 531-3130
TELETYPE: (808) 531-3131

Mr. Melvin Y. Kaneshige, Chairman
Preservation Review Committee
Historic Hawaii Foundation
P.O. Box 1658
Honolulu, Hawaii 96806

Subject: Liliha Civic Center
Environmental Impact Statement Preparation Notice (EISPN)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Kaneshige:

Thank you for your letter of June 23, 1992 requesting your inclusion as a consulted party for the subject project. Your concern regarding the relationship between the subject project and the historic Oahu Railway and Land Company building will be addressed in the forthcoming Draft Environmental Impact Statement. We appreciate your interest and participation in the consultation phase of the environmental review process.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

Liliha Civic Center

Section 12

**PARTIES COMMENTING
ON THE DEIS**

Section 12

**SECTION 12
LIST OF PARTIES COMMENTING ON THE DEIS**

The agencies, organizations, and individuals listed below were sent copies of the DEIS with a request for their comments on the project. Of those who formally replied, some had no comments while others provided substantive comments as indicated by the ✓ and ✓✓, respectively. All written comments and responses are reproduced herein.

Federal Agencies

- ✓ Department of the Navy
- ✓ Department of Agriculture, Soil Conservation Service
- ✓ Department of the Interior, Geological Survey, Water Resources Division
- ✓ Department of the Army, U.S. Army Engineer District
- ✕ Department of the Interior, Fish and Wildlife Service
- Regional Division U.S. Environmental Protection Agency
- Army Directorate of Facilities Engineer
- U. S. Coast Guard

State Agencies

- ✓ Housing Finance and Development Corporation
- ✓✓ Land Use Commission
- ✓✓ Department of Transportation, Airports, Highways, and Harbors Divisions
- ✓✓ Office of Environmental Quality Control
- ✓✓ Department of Land and Natural Resources
- Department of Land and Natural Resources, Historic Preservation Office
- Department of Business, Economic Development & Tourism
- Department of Business, Economic Development & Tourism Library
- Department of Business, Economic Development & Tourism, State Energy Office
- ~~Department of Human Services~~ ✓✓ responded - letter dated 9-16-92
- Department of Health
- Office of State Planning
- Department of Agriculture
- Department of Defense
- Office of Hawaiian Affairs

University of Hawaii

- ✓✓ University of Hawaii Environmental Center
- Water Resources Research Center

City and County of Honolulu Agencies

- ✓✓ Department of Public Works
- ✓✓ Board of Water Supply

City and County of Honolulu Agencies (con't.)

- ✓ Police Department
- ✓ Department of Parks and Recreation
- ✓✓ Fire Department
- ✓✓ Department of Housing and Community Development
- ✓✓ Department of Land Utilization
- ✓✓ Department of General Planning
- Building Department
- Department of Transportation Services

Public Utility Agencies

- ✓ Hawaiian Electric Company, Inc.
- GTE Hawaiian Telephone

Other Interested Parties

- Downtown Neighborhood Board #13
- Kalihi-Palama Neighborhood Board #15
- Liliha-Kapalama Neighborhood Board #14
- Historic Hawai'i Foundation
- American Lung Association



DEPARTMENT OF THE NAVY
 COMMANDER
 NAVAL BASE PEARL HARBOR
 BOX 110
 PEARL HARBOR, HAWAII 96860-5020

IN REPLY REFER TO
 11010
 Ser N42/2863
 12 AUG 1992

The Honorable John Waihee
 Governor, State of Hawaii
 c/o Office of Environmental
 Quality Control
 State of Hawaii
 220 South King Street
 Fourth Floor
 Honolulu, Hawaii 96813

Dear Governor Waihee:

LILIHA CIVIC CENTER

We have reviewed the Draft Environmental Impact Statement (DEIS) and have no further comments to offer. Since we have no further use for the DEIS, it is being returned to the Office of Environmental Quality Control (OEQC). Thank you for the opportunity to review the DEIS.

Sincerely,

W.K. Liu
 W.K. LIU

Assistant Base Civil Engineer
 In direction of
 the Commanding Officer

Copy to:
 Department of Accounting & General Services
 Attn: Gina Ichiyama

Wilson Okamoto & Associates, Inc.
 Attn: Rodney Funakoshi

3132-01
 October 7, 1992

WILSON
 OKAMOTO
 & ASSOCIATES, INC.



ENGINEERS
 ARCHITECTS
 PLANNERS
 110 SOUTH KING STREET
 FOURTH FLOOR
 HONOLULU, HAWAII 96813
 PHONE: (808) 531-3111
 FAX: (808) 531-3110
 TELETYPE: (808) 531-3111

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

Subject: Liliha Civic Center
 Draft Environmental Impact Statement (DEIS)
 Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
 Honolulu, Oahu, Hawaii

Dear Mr. Liu:

Thank you for your letter of August 12, 1992 (Ref. 11010 Ser N42/2863) indicating that you have no comments regarding the subject project. We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
 Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

P. O. BOX 50004
HONOLULU, HAWAII
96850



August 25, 1992

The Honorable John D. Waihee
Governor, State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement (DEIS) - Liliha Civic
Center, Honolulu, Hawaii

We have reviewed the DEIS for the Liliha Civic Center project and have no
comments to offer at this time.

Thank you for the opportunity to comment on this document and we would
greatly appreciate it if we could review the Final EIS.

Sincerely,

Warren H. Lee
WARREN H. LEE
State Conservationist

3132-01
October 7, 1992

**WILSON
OKAMOTO**
A ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS

110 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-3321

MAILING ADDRESS:
P. O. BOX 50004
HONOLULU, HAWAII 96850

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

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-S-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Lee:

Thank you for your letter of August 25, 1992 indicating that you have no
comments regarding the subject project. As requested, the Final EIS will be
forwarded for your review. We appreciate your taking the time to review the
DEIS.

Sincerely,

Rodney Y. Funakoshi
Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services



United States Department of the Interior



WATER RESOURCES DIVISION
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

September 4, 1992

John Waihee, Governor, State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Liliha Civic Center, Oahu, Hawaii

The staff of the U.S. Geological Survey, Water Resources Division, Honolulu District, has reviewed the subject DEIS and we have no comments.

Thank you for allowing us to review the DEIS, and as requested, we are returning the DEIS to the Office of Environmental Quality Control.

Sincerely,

William Meyer
William Meyer
District Chief

Enclosure

cc: Ms. Gina Ichiyama
Department of Accounting & General Services
1151 Punchbowl Street
Kalanimoku Building, Room 427
Honolulu, Hawaii 96813

Mr. Rodney Funakoshi
Wilson Okamoto & Associates, Inc.
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

3132-01
October 7, 1992

**WILSON
OKAMOTO**
ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS

1155 SOUTH KING STREET
HONOLULU, HAWAII 96814
PHONE: (808) 531-1221

MAILING ADDRESS:
P. O. BOX 3930
HONOLULU, HAWAII 96811

Mr. William Meyer, District Chief
U.S. Department of the Interior
Geological Survey
Water Resources Division
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Meyer:

Thank you for your letter of September 4, 1992 indicating that you have no comments regarding the subject project. We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Funakoshi
Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services



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

September 7, 1992

REPLY TO
ATTENTION OF:
Planning Division

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

Dear Mr. Choy:

We have reviewed the Draft Environmental Impact Statement (DEIS) for the proposed Liliha Civic Center, Honolulu, Oahu, Hawaii.

Our comments in response to the Preparation Notice (letter dated June 12, 1992) have been incorporated into the DEIS. We have no additional comments.

Sincerely,

Rodney Y. Funakoshi
Rodney Y. Funakoshi
Director of Engineering

Copies Furnished:

Department of Accounting and
General Services
Project Management Branch
Attention: Ms. Gina Ichiyama
1151 Punchbowl Street, Room 427
Honolulu, Hawaii 96813

Wilson Okamoto & Associates, Inc.
Attention: Mr. Rodney Funakoshi
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

3132-01
October 7, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS

1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813
PHONE: (808) 511-1111
FAX: (808) 511-1111
P. O. BOX 3330
HONOLULU, HAWAII 96811

Mr. Kisuk Cheung, P.E.
Department of the Army
U. S. Army Engineer District, Honolulu
Building 230
Ft. Shafter, Hawaii 96858-5440
Attention: Planning Division

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-S-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Cheung:

Thank you for your letter of September 7, 1992 indicating that your comments to the EIS Preparation Notice have been incorporated into the DEIS. We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Y. Funakoshi
Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services



STATE OF HAWAII
 DEPARTMENT OF BUDGET AND FINANCE
 HOUSING FINANCE AND DEVELOPMENT CORPORATION
 SEVEN WATERFRONT PLAZA, SUITE 300
 500 ALA MOANA BOULEVARD
 HONOLULU, HAWAII 96813
 FAX (809) 478-0200 537-0500

August 12, 1992

TO: Governor, State of Hawaii
 c/o Office of Environmental Quality Control
 220 S. King Street, 4th Floor
 Honolulu, Hawaii 96813

FROM: *Joseph K. Conant*
 Executive Director

SUBJECT: DEIS for the Liliha Civic Center in Iwilei

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

c: DAGS
 Wilson Okamoto & Associates, Inc.

3132-01
 October 7, 1992

**WILSON
 OKAMOTO
 & ASSOCIATES, INC.**



ENGINEERS
 ARCHITECTS
 PLANNERS
 1110 CENTINELA STREET
 HONOLULU, HAWAII 96813
 PHONE: (809) 531-5331
 MAILING ADDRESS:
 P. O. B. 5 9 3 0
 HONOLULU, HAWAII 96811

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

Subject: Liliha Civic Center
 Draft Environmental Impact Statement (DEIS)
 Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
 Honolulu, Oahu, Hawaii

Dear Mr. Conant:

Thank you for your letter of August 12, 1992 (Ref. 92:ppE/4197a) indicating that you have no comments regarding the subject project. We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
 Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

JOHN WANKLE
 508-1000

FOR MAUIZ
CONTAINER



STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
Room 104, Old Federal Building
333 Merchant Street
Honolulu, Hawaii 96813
Telephone: 587-3822

August 17, 1992

The Honorable John Waihee
Governor, State of Hawaii
c/o Office of Environmental Quality
Control
Central Pacific Plaza
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Liliha Civic Center Draft Environmental Impact Statement (DEIS),
Honolulu, Oahu, Hawaii; TM Nos.: 1-5-07: 1, 14, 15, 18, 57, 58,
60-78

The Department of Business, Economic Development & Tourism has forwarded
the subject DEIS to our office for response.

We have reviewed the DEIS for the subject project and confirm that the
5.64 acre project area, as shown on Location Map (Figure 1-1), is located
within the State Land Use Urban District.

We suggest that the Final EIS include a map which delineates the project
area in relation to the State Land Use Districts.

We have no other comments to offer at this time.

Thank you for the opportunity to comment on this matter.

If you have any questions, please call me or Steve Tagawa of my staff at
587-3822.

Sincerely,

ESTHER UEDA
Executive Officer

EU:r1

cc: DBED
DAGS
Rodney Funakoshi

ESTHER UEDA
EXECUTIVE OFFICER

3132-01
October 14, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
110 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-1281
FAX: (808) 531-1280
TELETYPE: (808) 531-1281

Ms. Esther Ueda, Executive Officer
State of Hawaii
Land Use Commission
Old Federal Building, Room 104
333 Merchant Street
Honolulu, Hawaii 96813

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Ms. Ueda:

Thank you for your letter of August 17, 1992 regarding the subject project. As
recommended we will incorporate a State Land Use District map for the project
vicinity in the Final EIS. We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services



JOHN BLUNIER
Director



BRIAN J. J. CHOY
Director

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE: (808) 586-4185

September 15, 1992

Department of Accounting and General Services
Project Management Branch
Attn: Gina Ichiyama
1151 Punchbowl Street, Room 427
Honolulu, Hawaii 96813

Dear Ms. Ichiyama:

Subject: Draft EIS for the Liliha Civic Center

Thank you for submitting the above mentioned document for our review. We have the following comments:

When submitting the Final EIS for this project please include the information required by §11-200-17(h), Hawaii Administrative Rules. This section of the rules states, "The draft EIS shall also contain a list of necessary approvals, required for the action, from governmental agencies, boards, or commissions or other similar groups having jurisdiction. The status of each identified approval shall also be described."

Please call Margaret Wilson at 586-4185 if you have any questions about this request.

Sincerely,

Brian J. J. Choy
Brian J. J. Choy
Director

cc: Rodney Funakoshi, Wilson Okamoto & Associates

3132-01
October 14, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-5331
FAX: (808) 531-5333

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

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Choy:

Thank you for your letter of September 15, 1992 regarding the subject project. As requested and pursuant to HRS §11-200-17(h), a listing of the necessary approvals will be included in the forthcoming Final EIS. We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES



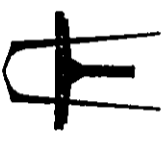
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P.O. BOX 47
HONOLULU, HAWAII 96813

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

DEPT. OF LAND AND NATURAL RESOURCES
DIVISION OF HISTORIC PRESERVATION
1110 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-3300
FAX: (808) 531-3300

3132-01
October 14, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1110 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-3300
FAX: (808) 531-3300

Mr. William W. Paty, Chairperson
State of Hawaii
Board of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Paty:

Thank you for your letter of September 17, 1992 (Ref. OCEA:SKK) indicating your concerns regarding the potential historic significance of the former Kuwili Fishpond. The required historic preservation review and mitigation process pursuant to Chapter 6E, Hawaii Revised Statutes is being pursued. A report is currently being prepared regarding the results of the initial core sample analysis. Based on the results of this preliminary assessment, further testing procedures such as backhoe trenching in culturally-sensitive locations identified through historic maps as well as results of the core sample assessment may be recommended. Further determination of effects of the proposed project on subsurface remains is pending more detailed development plans and specifications on footing locations and underground utility locations.

We intend to maintain close coordination with the State Historic Preservation Division to fully satisfy historic preservation requirements. We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

REF: OCEA:SKK

FILE NO.: 93-097
DOC. ID.: 31404

The Honorable Brian Choy, Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Choy:

Subject: Draft Environmental Impact Statement (DEIS) for the
Liliha Civic Center, Honolulu, Hawaii

Thank you for giving our Department the opportunity to comment on this matter. We have reviewed the submitted DEIS and have the following comments.

Historic Preservation Division Comments:

The Historical Literature and Documents Search (Hurst and Pantaleo 1992) included as Appendix C of the DEIS indicates that the project area is located primarily on fill lands created at the turn of the century, and that the remains of Kuwili Fishpond and associated habitation and agricultural features may be preserved beneath the fill. These deposits would be significant for the information on Hawaiian prehistory and history that they contain. Thus, pursuant to H.R.S. Chapter 6E, this project must complete the historic preservation review process in order to avoid adverse effects to historic sites.

The first step in this process is to determine the presence or absence of subsurface historic sites at the project area with an inventory survey. The recommendations of the Aki Sirono Consulting report include, as an initial step in this determination, archaeological analysis of core samples. We agree with this recommendation, with the proviso that this analysis should collect sufficient information to determine 1) the significance of subsurface historic sites, if these are present, 2) their depth, and 3) the effects of the proposed project on any subsurface historic sites that are present.

Thank you for your cooperation in this matter. Please feel free to call Tom Dye at Historic Sites at 587-0014 or Sam Lemmo at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

cc: Gina Ichiyama, DAGS
Rodney Funakoshi, Wilson
Okamoto & Associates, Inc.
Very truly yours,
William W. Paty
WILLIAM W. PATY

JOHN WAIHEE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
Planning Office
P.O. Box 339
Honolulu, Hawaii 96809

WINONA E. RUBIN
DIRECTOR
LYNNAL FALLON
DEPUTY DIRECTOR
LESLIE S. MATSUBARA
DEPUTY DIRECTOR

Brian Choy
September 16, 1992
Page 2

employees suffered the effects of carbon monoxide (CO) asphyxiation. This incident involved the ingestion of diesel gas exhaust from an adjacent construction area. We request that the Department of Health examine the need for strategically placed CO monitors during construction, to assure that CO levels do not exceed safe carboxyhemoglobin levels.

Should you have any questions about HHA's master lease, please contact our Administrative Services Office at 586-4864. For other questions, please contact our Planning Office at 586-5114.

Sincerely,

Winona E. Rubin
Director

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

Dear Mr. Choy:

Subject: DEIS, Liliha Civic Center, Honolulu, Hawaii, TMK: 1-5-7: 1, 14, 15,
18, 57, 58, 60-78

cc: DAGS
Wilson Okamoto & Associates, Inc.
HHA
PERS-ERS
FASD

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

- 1: The Hawaii Housing Authority (HHA) holds the master lease for the OR&L building from the Department of Land and Natural Resources. HHA sublets space to Kalia Palama Association, who sublets space to a number of tenants. HHA had been a tenant at one time, but is no longer.
- 2: Descriptions of security measures in the parking structures should be clarified. According to Sec. 5.3.2, Public Safety, both parking structures will be secured by "electronically-lockable gates" after business hours, and after hour access will be controlled by an access card system. Will these "gates" lock-out automobiles and/or pedestrians? Also, according to Sec. 2.4.2, Parking, employee parking will be on upper levels, separated by a card reader gate from lower level public parking. Will the "lockable gates" referred to in Section 5.3.2, be positioned at the ground-level entrance of the parking structures, or at upper levels near the "card reader gate"?
- 3: We are also concerned about the need for adequate security lighting in the parking structures, to accommodate parking at night when necessary. Please describe which floors will be lighted.
- 4: As noted in Sec. 5.2.1.2, short-term air quality impacts, construction vehicles may "contribute to an overall vehicular emissions increase". Recently, several DHS

AN EQUAL OPPORTUNITY AGENCY

**WILSON
OKAMOTO
& ASSOCIATES, INC.**

3132-01
Ms. Winona E. Rubin
October 30, 1992
Page 2

**WILSON
OKAMOTO
& ASSOCIATES, INC.**

Ms. Winona E. Rubin, Director
Department of Human Services
P. O. Box 339
Honolulu, Hawaii 96809
Attention: Planning Office



ENGINEERS
ARCHITECTS
PLANNERS
1115 SOUTH KANE STREET
HONOLULU, HAWAII 96813
PHONE: (808) 521-3181
FAX: (808) 521-3182
P. O. B. # 3430
HONOLULU, HAWAII 96821

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-S-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Ms. Rubin:

Thank you for your letter of September 16, 1992 regarding the subject project. We provide the following in response to your comments:

1. Your information regarding master lease and tenancy is appreciated.
2. Public access into the parking structures by automobiles and pedestrians will be restricted after business hours. Employees, however will be afforded access to and from the parking structure via the card reader security system. Closing time for the garage entrances will be set according to the operational requirements of the tenant agencies and arrangements with the Department of Accounting and General Services and Department of Public Safety.
Lockable security gates will be located at the entrance to the parking structures, while card reader gates for employee parking will be located within the garage to separate employee parking from visitor parking.
3. All parking levels will be equipped with sufficient security lighting to accommodate parking at night.
4. Your concerns regarding the potential effects of carbon monoxide on employees are duly noted. Although we are not familiar with the situation involving your employees it is our understanding that CO emissions from construction equipment should not exceed State and Federal ambient air quality standards, unless air circulation is severely restricted in the vicinity of the construction activity. We do not foresee this to be a concern in the case of the subject project as construction would occur within a large and fairly open site.

By copy of this response and your letter, we are referring your specific concerns regarding CO levels associated with construction activity to the Department of Health.

We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services
DOH, Clean Air Branch w/DHS letter



University of Hawaii at Manoa

Environmental Center
A Unit of Water Resources Research Center
Crawford 317 • 2550 Campus Road • Honolulu, Hawaii 96822
Telephone: (808) 956-7361

September 22, 1992
RE:0610

Governor, State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Wa'ih'e:

Draft Environmental Impact Statement (DEIS) Liliha Civic Center Honolulu, Hawaii

The State of Hawaii's Department of Accounting and General Services is proposing to construct the Liliha Civic Center to allow the consolidation of agencies serving the Downtown-Liliha-Kalihi regional area. The Liliha Civic Center is a State office complex intended to house State agencies and non-profit organizations. The proposed facility will encompass approximately 5.64 acres at the O'ahu building site located at the corner of Iwilei Road and North King Street. The new office building development will attempt to complement the existing O'ahu building, which will be retained on the site. Vehicular access to the site will be provided from Iwilei Road, North King Street, and Kaahali Street, and Kaahali Street off of Dillingham Boulevard. The project is to be completed in two phases. Phase I will consist of approximately 205,316 net square feet of office space and parking for 789 cars. Phase II will consist of approximately 152,900 net square feet of office space and parking for 477 cars.

The Environmental Center has reviewed the Liliha Civic Center DEIS with the assistance of Terry Hunt, Anthropology; Fred Creager, Architecture; George Taoka, Engineering; and Alex Buttaro of the Environmental Center.

Paper Conservation

Significantly less paper would have been needed if the text of this document was single rather than double spaced, and printed on both sides of each page. Incorporating this suggested format would reduce the bulk of the DEIS and may reduce production costs.

Governor, State of Hawaii
September 22, 1992
Page 3

Architecture/Visual Impacts

We note that the architectural style is intended to complement the existing historic O'ahu Building, as well as the surrounding neighborhood (page 2-16). Our reviewers expressed concern that the scale of this development may be very large relative to the existing O'ahu Building, and on the basis of scale, may not "complement" or "blend in" well with the existing architecture. What criteria is used to determine the appropriate scale that will provide the expected positive aesthetic impact this document suggests?

Also, how will the size of the building affect the aesthetics of the "waterfront" area and to what extent will the ocean view be blocked by this project and other proposed adjacent projects?

Office Space

In order to more fully assess the consequences of this proposal, it would be very helpful to compare the gross floor area of the proposed development with an inventory of existing office space use as a means of highlighting the impact of additional space. The comparison should also be extended to district-wide planned and available office space. The size and proximity of "Centers," such as the Liliha Civic Center, are major factors in their economic success or failure and the agencies' ability to serve the public.

Traffic (Section 5-4.1.1)

Mitigative proposal (1) suggests a short advance green phase for bus-bound left turns into Kaahali Street (page 5-20). Our reviewers suggested a separate green phase rather than a short one, because they suspect the potential left turn traffic may warrant greater accommodation.

Our reviewers were concerned that there may be insufficient room for a bus turnout (mitigating measure (4), page 5-20) even with an additional widening of two 12-foot wide lanes. Is there sufficient room for a bus turnout, and if yes, what criteria and parameters are involved in its design?

Archaeological Resources

The archaeologists have, using historical sources, documented the probability that remains of Kawai'i Fishpond (structural features and associated floral and faunal materials) are buried on the property that is planned for development. In addition, the archaeologists suggest that burials may also be present. Excellent preservation of these remains is expected, as the fishpond/taro pondfield was filled, and the land was not subsequently disturbed with historic land use changes (Appendix C, page 22). The presence of "in situ" fishpond remains and associated preservation of floral and faunal evidence makes this site very significant. The site's significance derives from its information content for history and prehistory.

Our reviewers find the archaeological recommendations inadequate given the potential of this site to yield significant information. Core sampling (mentioned in Section 5 and Appendix C) can be a useful exploratory technique, and sometimes a sufficient means of data acquisition. However, in this case, coring would not allow data on fishpond structural remains to be recorded, and the recommended monitoring is also likely to be inadequate.

As an alternative, we recommend monitoring with initial removal of pavements, etc., and then a systematic data recovery program as mitigation. Such a plan should include a means to record any fishpond structural remains and acquire paleoenvironmental or "ecofactual" (preserved floral and faunal) remains. A data recovery plan would salvage information content and preclude any accidental destruction of archaeological resources.

Additionally, because these data deposits are likely to be buried intact, and because of their likely significance to Hawaiian prehistory and the information they contain, pursuant to H.R.S. Chapter 6E, this project is required to complete the historic preservation review process to ensure avoidance of adverse effects to historic sites. First, the presence or absence of subsurface historic sites at the project area should be determined through an inventory survey. The core sampling recommended by the Aki Siroto Consulting report may yield sufficient information providing that it can determine the presence or absence of subsurface historic sites, their depth (if present), and the potential impacts of the proposed development upon any subsurface historic sites. However, our reviewers find it highly unlikely that core sampling will yield sufficient information on structural remains, and expressed skepticism over the adequacy of the monitoring program.

Summary

While our reviewers acknowledged that the proposed development may optimize State agency operations, they expressed serious concern over the lack of information describing the proposed project's impacts upon archaeological and historic resources. We also suggest that in light of the already abundant inventory of office space in the Honolulu area, this document's introduction should include the cost-benefit justification of the Liliha Civic Center.

Thank you for your time and consideration, and we hope our comments are helpful.

Sincerely,

Jacqueline N. Miller for

John T. Harrison, Ph.D.
Environmental Coordinator

cc: Gina Ichiyama, DMCS
Rodney Punakoshi, Wilson Okamoto and Associates
Roger Fujioka
George Taoba
Fred Creager
Terry Hunt
Alex Buttaro

**WILSON
OKAMOTO**
ASSOCIATES, INC.

3132-01
John T. Harrison, Ph.D.
October 23, 1992
Page 2

John T. Harrison, Ph.D., Environmental Director
University of Hawaii
Environmental Center
Crawford Hall 317
2550 Campus Road
Honolulu, Hawaii 96822

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Dr. Harrison:

Thank you for your letter of September 22, 1992 (Ref. RE: 0610) regarding the subject project. We provide the following in response to your comments:

Paper Conservation

We appreciate your comments regarding the conservation of paper resources and will take measures to reduce the volume of paper during production of the forthcoming Final EIS.

Architectural/Visual Impacts

The design of the Liliha Civic Center attempts to: 1) incorporate sensitive siting of the building with respect to the OR&L Building and future rapid transit alignment; 2) incorporate building massing that respects the OR&L Building; and 3) use appropriate architectural features and materials.

In response to the State's desire to provide the maximum open space possible, the complex is set back approximately 175 to 250 feet from King Street to create more open space for the Civic Center and neighborhood. It is also stepped back from 10 to 175 feet along Iwitei Road for aesthetics and functional reasons.

The visual impact of the Liliha Civic Center on the existing two-story OR&L Building should be reduced by the stepped massing of the proposed complex. Adjacent to the existing structure, a new courtyard will be formed with the construction of the new three and four-story Non-Profit Agency Office wing. A one-story arcade encircles the ground level of the Non-Profit wing along the courtyard and recalls the arcade of the OR&L Building. The sequential rise of Civic Center from the OR&L Building progresses to office blocks for State

agencies that are five and seven-stories before reaching the 12-story high office tower which falls within the allowed height limit of 150 feet for the site.

Building massing was also used to reinforce historical references to elements of classical order of building design by creating a strong and substantial building base, terracing middle or body and a graceful distinctive top. The massing was also designed to locate the bulk of the floor area in the lower parts of the building which minimized the size of the tower and its visual impact on any views toward the ocean.

Although the project is more than a block away from the waterfront, it will enhance the waterfront area with its distinctive design in this part of the city. In comparison with other buildings near the waterfront in the downtown area, the 12-story complex will be less than half their height and significantly less obtrusive. Existing or under-construction office and residential towers such as Amfac Center, Grosvenor Center, Harbor Court, Harbor Square and One Waterfront Towers are larger, and taller complexes of 30 stories or more. The project design respects all zoning requirements established for this site and is sensitive to the historical significance of the OR&L Building while satisfying the State's programmed space requirements.

Office Space

Prior to undertaking the subject project, the Department of Accounting and General Services conducted an office space needs assessment which included the current office space inventory, current lease space inventory, and new office building construction and acquisitions. The evaluation included the office space analysis in the Downtown, Liliha and Kapolei regional areas. Based on this evaluation, it was determined that there is a current need for office space in the Liliha area which clearly warrants the need for the Liliha Civic Center development.

We concur with your statement that the size and proximity of the civic centers are major factors in their economic success or failure and the agencies' ability to serve the public.

Traffic (Section 5.4.1)

The short advance green would be more efficient since it would be a protected permissive movement for the left turns from Dillingham Boulevard onto Kaahiki Street. The recommended traffic signal operation provides up to 10 seconds advance green for the left turn traffic to turn unopposed, during which time the

**WILSON
OKAMOTO**
ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1111 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 921-5111
FAX: (808) 921-5110
TELETYPE: (808) 921-5111

A report is currently being prepared regarding the results of the core sample analysis. Based on the results of this preliminary assessment, further testing procedures such as backhoe trenching in culturally-sensitive locations identified through historic maps as well as results of the core sample assessment may be recommended. The core sample analysis procedure is anticipated to partially address the significance of subsurface remains and satisfy the determination of the project on subsurface remains, more detailed development plans and specifications on footing locations, underground utility locations, and other subsurface impacts are needed. Until development plans are finalized, therefore, specific mitigation and data recovery plans cannot be formulated. Most of the mitigation procedures will be incrementally implemented and are contingent upon external factors such as the direction of the development, vacating of current tenants, and demolition and removal of structures and pavement.

We hope the foregoing adequately addresses your concerns and we appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

west-bound Dillingham Boulevard traffic also proceeds, followed by 47 seconds of green for all movements on Dillingham Boulevard. If there are gaps in the east-bound traffic on Dillingham, left turn traffic could make the turn.

A left turn storage lane (Recommendation No. 5) was also recommended on Dillingham Boulevard. The traffic study estimated that there would be 75 vehicles turning left during the morning peak hour and 57 during the afternoon peak hour. With a traffic signal cycle of 90 seconds, there is expected to be about two left turn vehicles arriving per cycle. The advance green can handle this with about 5 seconds and the green could extend to a maximum of 10 seconds if there are more left turns.

Observation of existing traffic during peak hours revealed that the north-bound traffic on Dillingham Boulevard often stopped and backed up beyond Kaahiki Street because of the congestion at the King-Liliha-Dillingham intersection. Kaahiki Street traffic could often turn left across the stopped traffic, provided motorists did not block the intersection. The advantage of the advance green phase and the left turn storage lane is that it provides a protected period for left turn vehicles while permitting full use of the through lanes for west-bound Dillingham Boulevard traffic.

Regarding your concerns about the adequacy of space for a bus turnout with additional lane-widening, some clarification appears to be necessary. As indicated by Recommendation Nos. 4 and 5 on pages 5-17 and 5-18, the bus turnout is proposed for King Street, while the road widening is for Dillingham Boulevard.

The bus turnout would require the acquisition of portions of rights-of-way in Aala Park. The configuration of the bus turnout conforms to the standards and requirements of the City and County of Honolulu, Department of Transportation Services and Department of Public Works. Schematic plans for the proposed bus turnout will be prepared for City review and approval.

Archaeological Resources

The State DLNR has reviewed and is supportive of the recommended data recovery strategy. The core sample analysis was an initial step in conjunction with foundation-related investigations. The initial sampling was meant to take advantage of one of the lead procedures during the pre-development process. Although uncertain of the outcome, it was hoped that the analysis would produce potentially beneficial results to facilitate and enhance the predictability of significant subsurface features and deposits.

3132-01
October 14, 1992

WILSON
OKAMOTO
ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1115 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-5111
FAX: (808) 531-5111

HWY-PS
2.3909

SEP 28 1992

TO: Governor, State of Hawaii
c/o Office of Environmental Quality Control

FROM: Rex D. Johnson
Director of Transportation

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT, LILIHA CIVIC
CENTER, HONOLULU, OAHU, TWK: 1-5-07: VARS.

Our letter of September 14, 1992, HWY-PS 2.3493, stated the following concerns:

1. That Phase II of the project be addressed as part of the EIS/PS; and
2. That traffic impacts on certain ramps and intersections leading to State highways be evaluated.

We have since then discussed this project with the applicant's traffic consultant and are satisfied that the impact on our facilities will be minimal. Further, because of the nebulousness of the plans for Phase II, and the uncertainty of the background traffic conditions, we agree that the traffic study for Phase II should be deferred. A traffic study for Phase II should be submitted when the applicant pursues the planning for that stage of the project.

JT:gf

c: HWY-PS, -CM
DACS (Attn: Gina Ichiyama)
Wilson Okamoto & Assoc., Inc. (Attn: Rodney Funakoshi)

Mr. Rex D. Johnson, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Johnson:

Thank you for your letter of September 28, 1992 (Ref. HWY-PS 2.3909) regarding the subject project. We acknowledge your indications that the project will have minimal impact on roadway facilities in the project vicinity, and concur that the traffic impact study for Phase II should be deferred until more definitive information becomes available. We look forward to continued close coordination with your office as we proceed with the planning and design stages of this project.

We very much appreciate your cooperation and detailed review of the DEIS.

Sincerely,

Rodney Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

490 SOUTH KING STREET
HONOLULU, HAWAII 96813



C. MICHAEL STREET
DIRECTOR AND CHIEF ENGINEER
ZELIA B. LIMTIACO
DEPUTY DIRECTOR
ENV 92-212

3132-01
October 14, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1115 KUHINI ROAD, SUITE 200
HONOLULU, HAWAII 96813
PHONE: (808) 531-3311
FAX: (808) 531-3300

August 31, 1992

The Honorable John Waihee
Governor
State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement (DEIS)
Liliha Civic Center
TMK: 1-5-7:1, 14, 15, 18, 57, 58, 60-78

We have reviewed the subject DEIS and have the following comments:

1. For your information, the City is currently preparing Part 2 of the National Pollutant Discharge Elimination System (NPDES) permit application for storm water discharges from municipal separate sewer systems which will be submitted to the State Department of Health for review and approval.
2. Upon issuance of the NPDES permit, storm water discharges associated with construction (5 acres or more) activities, construction dewatering and connection to municipal storm drain systems will have to obtain a city permit prior to the commencement of work.
3. The DEIS should address the aspect of potential hazardous materials within the proposed project site.

Very truly yours,

C. MICHAEL STREET
Director and Chief Engineer

Mr. C. Michael Street
Acting Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Street:

Your letter of August 31, 1992 to Governor John Waihee (Ref. ENV 92-212) regarding the subject project was referred to us for response. We appreciate your informing us of the impending National Pollutant Discharge Elimination System (NPDES) permit as it applies to the project. As may be required, we will pursue the necessary approvals from your office in conjunction with the NPDES.

A thorough discussion of potential hazardous materials within the project site and recommended mitigation measures are presented in sections 3.1.4 and 5.2.1.3 of the DEIS. A separate technical study and environmental assessment for hazardous materials was prepared and is included as an appendix to the DEIS.

We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU



COPY

September 4, 1992

The Honorable John Waihee
Governor
State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) DATED
AUGUST 1992 FOR THE PROPOSED LILIIHA CIVIC CENTER,
IMULEI ROAD - TRK: 1-5-07: 1, 14, 15, 18, 57, 58, 60 to 78

Thank you for the opportunity to review and comment on the proposed Liliha Civic Center. Our comments of June 24, 1992, which are included in the DEIS, are still applicable with the following additions:

1. The Water System Facilities Charges as listed on pages 5-24, should be for transmission and daily storage only. A water allocation from the State Department of Land and Natural Resources is required, and therefore, charges for source will not be assessed for the project.
2. If a three-inch or larger meter is required, the construction drawings showing the installation of the meter should be submitted for our review and approval.

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

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Department of Accounting
and General Services
Wilson Okamoto and Associates, Inc.

3132-01
October 14, 1992

**WILSON
OKAMOTO
& ASSOCIATES, INC.**



ENGINEERS
ARCHITECTS
PLANNERS
1155 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-5101
FAX: (808) 531-5100
TELETYPE: (808) 531-5100

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

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Hayashida:

Thank you for your letter of September 4, 1992 regarding the subject project. As recommended, the reference to Water System Facilities Charges will be revised in the forthcoming Final EIS and obtaining water allocation for the project will be pursued with the State Department of Land and Natural Resources. As also requested, construction drawings for the installation of any three-inch or larger meters will be submitted for your review and approval. We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1515 SOUTH KING STREET
HONOLULU, HAWAII 96813



MICHAEL S. NAKAMURA
Chief
RODNEY Y. FUNAKOSHI
Deputy Chief

FREDDY F. PAI
Mayor

MS-LK

September 14, 1992

The Honorable John Waihee
Governor
State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Liliha Civic Center
Draft Environmental Impact Statement
We have no additional comments on the proposed project at this time. Thank you for the opportunity to review the draft.

Sincerely,
MICHAEL S. NAKAMURA
Chief of Police

BY
WILSON SULLIVAN, Major
Research & Development Division

cc: Department of Accounting
& General Services
Wilson Okamoto & Associates

3132-01
October 7, 1992

WILSON
OKAMOTO
ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
110 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 521-1111
FAX: (808) 521-1111

Mr. Michael S. Nakamura
Chief of Police
Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawaii 96813

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Nakamura:

Thank you for your letter of September 14, 1992 (Ref. MS-LK) indicating you have no comments regarding the subject project. We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

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



FRANK FARR
MAYOR

WALTER M. OZAWA
DIRECTOR
ALVIN K. AU
DEPUTY DIRECTOR

September 15, 1992

The Honorable John Walhee
Governor
c/o Office of Environmental
Quality Control
State of Hawaii
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

Dear Governor Walhee:

Subject: Comments on the Liliha Civic Center Environmental
Impact Statement (EIS)

We have reviewed the Draft EIS for the Liliha Civic Center
project and have just one comment.
The project developer will be required to submit detailed
plans to allow us to evaluate the project for compliance with
the requirements of the Street Tree Ordinance.

Thank you for providing us with this opportunity to comment
on your project.

If you have any questions, please call John Morihara of our
Advance Planning Branch at 523-4246.

Sincerely,

For  WALTER M. OZAWA, Director

WMO:ei

cc: Gina Ichiyama, Dept. of Accounting & General Services
Rodney Funakoshi, Wilson Okamoto & Associates, Inc.

3132-01
October 14, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1132 SOUTH KING STREET
HONOLULU HAWAII 96813
PHONE: (808) 531-1281
FAX: (808) 531-1280
TELEFAX: (808) 531-1280

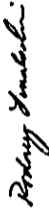
Mr. Walter M. Ozawa, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Ozawa:

Thank you for your letter of September 15, 1992 regarding the subject project.
As requested, landscaping plans will be submitted for your office for review for
compliance with the requirements of the Street Tree Ordinance. We appreciate
your taking the time to review the DEIS.

Sincerely,



Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1433 SOUTH BERETANIA STREET, ROOM 305
HONOLULU, HAWAII 96814



FRANK F. FAR
MAYOR

LIONEL E. CAMARA
FIRE CHIEF
DONALD S. CHANG
DEPUTY FIRE CHIEF

September 16, 1992

The Honorable John Waihee, Governor
State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

SUBJECT: Liliha Civic Center, Honolulu, Oahu
TMK: 1-5-7:1, 14, 15, 18, 57, 58, 60 to 78

We have reviewed the subject material provided and foresee no adverse impact in Fire Department facilities or services.

Access for fire apparatus, water supply and building construction shall be in conformance to existing codes and standards.

Should you have any questions, please contact Assistant Chief Attilio Leonardi of our Administrative Services Bureau at 943-3838.

Sincerely,

Lionel E. Camara
LIONEL E. CAMARA
Fire Chief

AKL:ny
cc: State of Hawaii DAGS (Gina Ichiyama)
Wilson Okamoto & Assoc. (Rodney Furukoshi)
Environmental Quality Control Office (with EIS Draft attached)

October 14, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1115 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-3333
FAX: (808) 531-3333
TELETYPE: (808) 531-3333

Mr. Lionel E. Camara, Fire Chief
Fire Department
City and County of Honolulu
1455 South Beretania Street, Room 305
Honolulu, Hawaii 96814

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Camara:

Thank you for your letter of September 16, 1992 indicating that you anticipate no adverse impact on your facilities or services as a result of the subject project. As required, access for fire apparatus, water supply and building construction will conform with applicable codes and standards. We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Y. Furukoshi

Rodney Y. Furukoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET 5TH FLOOR
HONOLULU HAWAII 96813
PHONE (808) 523-4227 FAX (808) 527-2495



E. JAMES TURSE
DIRECTOR
GAY M. SAITO
SUPPORT DIRECTOR

FRANK EASE
MAIL ROOM

September 18, 1992

The Honorable John Waihee, Governor
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement
Liliha Civic Center

Thank you for the opportunity to review and comment on the DEIS for the Liliha Civic Center. In relation to planned developments which would increase the housing stock in the area, we recommend that the DEIS include the planned emergency shelter for homeless women and families with children of the Department of Housing and Community Development, which would accommodate approximately 150 persons. This project will be situated at the former von Hamm Textiles Building on the corner of Kaahii Street and Kaawahu Place.

Thank you for the opportunity to comment.

Sincerely,

E. JAMES TURSE
Director

cc: OEQC
DAGS

Wilson Okamoto & Associates, Inc.

3132-01

October 14, 1992

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1123 SOUTH KING STREET
HONOLULU HAWAII 96813
PHONE: (808) 531-1241
FAX: (808) 531-1242

Mr. E. James Turse, Director
Department of Housing and Community Development
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Turse:
Thank you for your letter of September 18, 1992 to Governor John Waihee regarding the subject project. As requested, reference to the planned Homeless Center will be included in the forthcoming Final EIS. We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

630 SOUTH KING STREET
HONOLULU, HAWAII 96813 • PHONE 533-4433



FRANK E. FARR
DIRECTOR

DONALD A. CLEGG
DIRECTOR
LORITA K.C. CHIE
DEPUTY DIRECTOR
92-01886 (ASK)

3132-01
October 14, 1992

WILSON
OKAMOTO
ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS
1113 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-1111
FAX: (808) 531-1111
P.O. BOX 3330
HONOLULU, HAWAII 96811

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

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-5-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Clegg:

Thank you for your letter of September 18, 1992 (Ref. 92-01886(ASK)) regarding the subject project. As requested the Zoning Map will be revised to reflect the correct zoning districts. We appreciate your informing us of proposed amendments to the Land Use Ordinance in the IMX-1 District as they may apply to the project. Thank you for taking the time to review the DEIS.

Sincerely,

Rodney Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichijyama, Dept. of Accounting and General Services

September 18, 1992

The Honorable John Waihee, Governor
State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Draft Environmental Impact Statement
Liliha Civic Center

We have reviewed the Draft Environmental Impact Statement for the Liliha Civic Center and offer the following:

1. Figure 4-3, zoning map incorrectly identified BMX-3 as Business Mixed Use Commercial Emphasis and IMX-1 as Industrial Mixed Use. These zoning districts should be identified as Community Business Mixed Use District and Industrial-Commercial Mixed Use District, respectively.
2. Be advised that the Planning Commission is currently reviewing proposed amendments to the Land Use Ordinance that changes development standards in the IMX-1 District.

Thank you for the opportunity to comment on the project.

Very truly yours,

Donald A. Clegg

DONALD A. CLEGG
Director of Land Utilization

DAC:ct

cc: Department of Accounting and General Services
Rodney Funakoshi

8:111194.013

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

840 SOUTH KING STREET
HONOLULU, HAWAII 96813



BENJAMIN B. LEE
CHIEF PLANNING OFFICER
BOLAND LIBBY, JR.
DEPUTY CHIEF PLANNING OFFICER

TH 8/92-2398

September 25, 1992

The Honorable John D. Waihee, III
Governor of Hawaii
c/o Office of Environmental Quality Control
State of Hawaii
Central Pacific Plaza
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Liliha Civic Center Draft Environmental
Impact Statement (DEIS), Honolulu, Oahu
THKs: 1-5-7: 1, 14, 15, 18, 57, 58, 60 to 78

In response to the request for comments on the subject DEIS
we offer the following comments.

1. The Final EIS should explain further the relationship between the proposed civic center's height and bulk and the existing OR&L Building. The use of tiled roofs, roof overhangs and walkway/waiting arcades will not in themselves mitigate the visual impacts created by the project's vertical massing. Greater use of building step-backs, perhaps similar to Alii Place, would complement the low-rise design and character of the OR&L Building and help to reduce the apparent bulk of the structure.
2. The representation of the Development Plan Land Use Map (Fig. 4-1) is incorrect. Several properties fronting North King Street and Dillingham Boulevard (THKs: 1-5-07: 3, 6, 19, 43 and 46) should be identified as "Commercial-Emphasis Mixed Use" rather than "Commercial-Industrial Emphasis Mixed Use."

The Honorable John D. Waihee, III
Governor of Hawaii
September 25, 1992
Page 2

Thank you for the opportunity to comment on this matter.
Should you have any questions, please contact Tim Hata of our
staff at 527-6070.

Sincerely,

BENJAMIN B. LEE
Chief Planning Officer

BBL:js

cc: Office of Environmental Quality Control
Department of Accounting and General Services
Wilson Okamoto and Associates, Inc.

WILSON
OKAMOTO
& ASSOCIATES, INC.

3132-01
Mr. Benjamin B. Lee
October 14, 1992
Page 2

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

Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-S-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Lee:

Thank you for your letter of September 25, 1992 (Ref. TH 8/92-2398) regarding the subject project. The following is offered in response to your comments:

1. The design of the Liliha Civic Center strives to incorporate sensitive siting of the building, massing that respects the OR&L Building and the use of appropriate architectural features and materials.

In response to the State's desire to provide maximum open space on the site, the complex is set back approximately 175 to 250 feet from King Street to create more open space for the Civic Center and neighborhood. It is also stepped back from 10 to 175 feet along Iwilei Road for aesthetics and functional reasons.

The visual impact of the Liliha Civic Center on the existing two-story OR&L Building should be reduced by the stepped massing of the proposed complex. Adjacent to the existing structure, a new courtyard will be formed with the construction of the new three and four-story Non-Profit Agency Office wing. A one-story arcade encircles the ground level of the Non-Profit wing along the courtyard and recalls the arcade of the OR&L Building. The sequential rise of Civic Center from the OR&L Building progresses to office blocks for State agencies that are five and seven-stories before reaching the 12-story high office tower which falls within the allowed height limit of 150 feet for the site.

Building massing was also used to reinforce historical references to elements of classical order of building design by creating a strong and substantial building base, terracing middle or body and a graceful

distinctive top. The massing was also designed to locate the bulk of the floor area in the lower parts of the building which minimized the size of the tower and its visual impact on any views toward the ocean.

The southwest elevation shown in Figure 2-5 illustrates the siting of low-rise portions of the proposed building adjacent to the OR&L building. Regarding the use of building step-backs in comparison to the Alii Place, the Liliha Civic Center is much lower and smaller in scale, and is consistent with all zoning requirements for height limits and building envelope designated by the Land Use Ordinance for BMX-3 and IMX-1 districts.

2. The Development Plan Land Use Map designations will be revised in the forthcoming Final EIS.

We appreciate your taking the time to review the DEIS.

Sincerely,

Rodney Y. Funakoshi

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
ARCHITECTS
PLANNERS

110 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-1301

FAX: (808) 531-1302
TELETYPE: (808) 531-1303
TELEFAX: (808) 531-1304



William A. Bonnet
Manager
Environmental Department

September 17, 1992

The Honorable John Waihee
Governor, State of Hawaii
c/o Office of Environmental
Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement (DEIS)
Liliha Civic Center, Oahu, Hawaii

We have reviewed the subject DEIS, and have no comments at this time on the proposed project. HECO shall reserve further comment pertaining to the protection of existing underground subtransmission powerlines, and copper and fiber communication cables bordering the area until construction plans are finalized.

Sincerely,

cc: Gina Ichiyama, DAGS
Rodney Funakoshi,
Wilson Okamoto & Assoc., Inc.

An HEI Company

3132-01
October 7, 1992

**WILSON
OKAMOTO
& ASSOCIATES, INC.**



ENGINEERS
ARCHITECTS
PLANNERS
1119 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: (808) 531-1161
FAX: (808) 531-1161
P. O. B. O. 5830
HONOLULU, HAWAII 96813

Mr. William A. Bonnet, Manager
Environmental Department
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, Hawaii 96840-0001
Subject: Liliha Civic Center
Draft Environmental Impact Statement (DEIS)
Tax Map Key 1-S-7: 1, 14, 15, 18, 57, 58, and 60 to 78
Honolulu, Oahu, Hawaii

Dear Mr. Bonnet:

Thank you for your letter of September 17, 1992 indicating that you have no comments at this time regarding the subject project. We intend to fully coordinate our efforts with your facilities engineers during the design phase of the project. Thank you for taking the time to review the DEIS.

Sincerely,

Rodney Y. Funakoshi
Project Manager

cc: Gina Ichiyama, Dept. of Accounting and General Services

Liliha Civic Center

Sections 13 and 14
LIST OF PREPARERS
REFERENCES

**SECTION 13
LIST OF FEIS PREPARERS**

EIS CONSULTANT

Wilson Okamoto and Associates, Inc.	Rodney Funakoshi Laura Fujioka Allison Fritts
-------------------------------------	---

TECHNICAL CONSULTANTS

Aki Sinoto Consulting	Aki Sinoto Gwen Hurst Jeffrey Pantaleo
Austin Tsutsumi and Associates, Inc.	Ted Kawahigashi Howard Mau
Environmental Technologies, Inc.	Ralph Moltzau Jim Mikula
Harding Lawson Associates	Dean Allen Masayoshi Ogata

**SECTION 14
REFERENCES**

- Austin Tsutsumi & Associates, Inc. *Traffic Impact Report for the Proposed Liliha Civic Center, Phase I*. Honolulu, Hawaii. January 1989.
- City and County of Honolulu, Department of General Planning. *Development Plan Primary Urban Center*. Honolulu, Hawaii.
- City and County of Honolulu, Department of Land Utilization. *Land Use Ordinance*. Honolulu, Hawaii. December 1990.
- City and County of Honolulu, Department of Transportation Services. *Supplemental Draft Environmental Impact Statement*. Honolulu, Hawaii. March 1992.
- Federal Emergency Management Agency. *FIRM Flood Insurance Rate Map City and County of Honolulu*. Prepared for the National Flood Insurance Program. Revised September 1990.
- Land Study Bureau, University of Hawaii. *Detailed Land Classification - Island of Oahu*. L.S.B. Bulletin No. 11. December 1972.
- Okita, Kunimitsu & Associates, Inc. *Liliha Civic Center Master Plan Development Report*. Honolulu, Hawaii. January 1992.
- Okita, Kunimitsu & Associates, Inc. *Liliha Civic Center Schematic Design Report*. Honolulu, Hawaii. March 1992.
- Okita, Kunimitsu & Associates, Inc. *Liliha Civic Center Final Phase Schematic Design Report*. Honolulu, Hawaii. April 1992.
- Okita, Kunimitsu & Associates, Inc. *Liliha Civic Center Phase I Design Development Report*. Honolulu, Hawaii. May 1992.
- State of Hawaii, Department of Business and Economic Development and Tourism. *The State of Hawaii Data Book 1991; A Statistical Abstract*. Honolulu, Hawaii. November 1991.
- State of Hawaii, Office of State Planning. *The Hawaii State Plan, Chapter 226, Hawaii Revised Statutes*. Honolulu, Hawaii. 1988.
- State of Hawaii, Department of Land and Natural Resources and the National Park Service, Rivers and Trails Conservation Assistance Program, A Cooperative Project. *Hawaii Stream Assessment*. December, 1990.

REFERENCES**Section 14**

United States Department of Agriculture Soil Conservation Service. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. In cooperation with the University of Hawaii Agricultural Experiment Station. August 1972.

William E. Wanket, Inc. *Smith-Maunakea Housing Final Environmental Impact Statement*. Honolulu, Hawaii. Prepared for the City and County of Honolulu Department of Housing and Community Development. Honolulu, Hawaii. July 1991.

Wilson Okamoto and Associates, Inc. *Kekaulike Revitalization Project Final Environmental Impact Statement*. Prepared for the City and County of Honolulu Department of Housing and Community Development. Honolulu, Hawaii. June 1991.

Liliha Civic Center

Appendix A

***PHASE 1 ENVIRONMENTAL
SITE ASSESSMENT***

Harding Lawson Associates

A Report Prepared for

State of Hawaii
Department of Accounting and
General Services
Project Management Branch
1151 Punchbowl Street, Room 427
Honolulu, Hawaii 96813

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
LILIHA CIVIC CENTER
HONOLULU, OAHU, HAWAII
D.A.G.S. JOB NO. 12-10-4946
HLA Job No. 03911.137.06

by

Dean A. Allen
Dean A. Allen
Registered Professional Architect No. 6859

Masayoshi Ogata
Masayoshi Ogata
Certified Industrial Hygienist - 720

Harding Lawson Associates
803 Kamehameha Highway, Room 404
Pearl City, Hawaii 96782

February 26, 1992
0344R

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS.....	iii
I INTRODUCTION	1
II SITE DESCRIPTION	3
A. Site and Surrounding Area.....	3
B. Topography and Geology	3
C. Hydrology	4
III SITE HISTORY	6
A. Oral and Written History	6
B. Aerial Photograph Review	8
IV INVESTIGATION ACTIVITIES AND FINDINGS	11
A. Site Visit.....	11
B. Off-Site Reconnaissance	15
C. Review of Regulatory Records	17
1. Review of Published Regulatory Agency Information	18
2. Regulatory Agency Contacts	24
D. Soil and Groundwater Sampling	26
V CONCLUSIONS AND RECOMMENDATIONS.....	29
A. ACM	30
B. PCBs	30
C. USTs	32
D. Well	33
E. Other Sources of Contaminants.....	33
VI LIMITATIONS.....	34
VII BIBLIOGRAPHY	35
VIII TABLE 1, TMK 1-5-7: Parcel Information	37
IX ILLUSTRATIONS.....	41
APPENDICES	
A AGENCIES AND PERSONNEL CONTACTED	
B LABORATORY REPORT	
DISTRIBUTION	

LIST OF ILLUSTRATIONS

Plate 1	Location Map
Plate 2	Vicinity Map
Plate 3A	Key Notes for Plate 3B
Plate 3B	Site Plan
Plate 4	Site Plan - 1942
Plate 5	Aerial Photograph - 1952
Plate 6	Aerial Photograph - 1962
Plate 7	Aerial Photograph - 1990
Plate 8	Log of Boring 1

I INTRODUCTION

This report was prepared by Harding Lawson Associates (HLA) for the State of Hawaii, Department of Accounting and General Services (D.A.G.S.), and presents the results of a Phase 1 Environmental Site Assessment (ESA) for approximately 5.6 acres of land north of the intersection of Iwioi Road and North King Street, Honolulu, Hawaii (Plates 1 and 2). The site (comprising 25 parcels) is owned by the State of Hawaii (State). Some of the parcels are leased to various tenants. HLA understands that the State is planning to demolish buildings on portions of the site for construction of a new civic center.

The purpose of this assessment was to provide information on the site and surrounding area relative to the potential presence of hazardous or toxic materials on or beneath the property. The evaluation is based on information gathered from federal, state, and local agencies, interviews with people familiar with the property, a site visit, an area reconnaissance, and soil and groundwater sampling by HLA personnel.

This assessment was authorized by Ms. Gina Ichiyama, project coordinator, D.A.G.S. Project Management Branch. Project tasks were conducted in accordance with the scope of services presented in our proposal (PW91-760-06) dated December 16, 1991. Included in this assessment were the following activities:

- Reviewing available documents and aerial photographs related to historical development of the site and adjacent properties;
- Contacting appropriate federal, state, and local agencies for documented hazardous materials information about the study area. The study area is defined as the site and the off-site area within approximately 0.25 mile of the site boundaries;
- Conducting a site visit and off-site reconnaissance to identify visible evidence of the presence, generation, use, storage, or disposal of hazardous materials and evaluating the potential for soil and/or groundwater contamination in the study area based on aboveground visual observations;

- Collecting and analyzing soil and groundwater samples from one boring;
- Reviewing available reports for information pertaining to soil and groundwater contamination in the study area; and
- Compiling our findings and preparing this report.

II SITE DESCRIPTION

A. Site and Surrounding Area

The site is in the Iwilei district of Honolulu on the island of Oahu. The approximately 5.6-acre site is described by the State of Hawaii, First Division Tax Map Keys (TMKs) 1-5-7:1, 14, 15, 18, 57, 58, and 60 through 78 (Hawaii Tax Department, 1991).

The site is bounded by North King Street to the east and Iwilei Road to the south. The site is bounded to the west and north by various industrial and commercial businesses. The study area is occupied predominantly by residential, light industrial, and commercial businesses.

B. Topography and Geology

The project area is on the coastal plain of southeastern Oahu. This plain, formed on the eroded flanks of the Koolau volcano which forms the eastern half of the island of Oahu, is composed primarily of sedimentary rocks collectively known as caprock. The site is level with an elevation of approximately 10 feet above Mean Sea Level (MSL).

The U.S. Department of Agriculture (USDA, 1972) has classified the soil in the study area as Ewa silty clay loam and as mixed fill land. The Ewa silty clay loam is a well-drained soil common on alluvial fans. The Ewa soil lies inland of the fill areas and is underlain by coral limestones at depths of 20 to 50 inches. The fill areas are found along the southeastern shores of Oahu, particularly in the Pearl Harbor and Honolulu areas. The fill areas are composed of material dredged from the ocean or hauled from nearby areas, garbage and general material from other sources. This land type is used for urban development, including airports, housing areas, and industrial facilities.

C. Hydrology

The average annual precipitation in the vicinity of the site is approximately 30 inches. Runoff from the site is collected by an on-site storm water drainage system and then discharged to the municipal storm system. Approximately 0.25 mile south of the site is Honolulu Harbor. Nuuanu Stream, the nearest surface water, is approximately 0.10 mile east of the site. Sanitary sewage is discharged to the municipal sewer system. Water is supplied to the site from the City and County of Honolulu Board of Water Supply.

The site is above the Kaihi Aquifer System. Most of southern Oahu is underlain by an extensive basal aquifer (Visher and Mink, 1964). The upper part of the aquifer contains fresh water that floats on heavier sea water forming a lens-shaped body. Southern Oahu's coastal plain, which includes the site, is underlain by sedimentary deposits that form a wedge (caprock) under the ocean shore that retards the seaward movement of fresh groundwater from the basal aquifer. The caprock is on top of the basal aquifer and has a relatively low permeability when compared to the permeable basaltic aquifer. Generally, the capacity of caprock to store and transmit water is small. The caprock is usually not a source of drinking water but is used for irrigation, nonpotable industrial water supply, and waste fluid injection. Mink and Lau (1987) classify the caprock as unconfined, nonpotable, not ecologically vital, moderately saline, replaceable, and with a high vulnerability to contamination.

The site is landward of the underground injection control (UIC) line. The UIC boundary was established for the protection of subsurface drinking water sources generally located landward of the UIC line. Seaward of the UIC line, the subsurface groundwater is commonly used for either irrigation or cooling water and, with proper

permits, injection of nonhazardous waste fluids. Landward of the UIC line, underground injection is generally restricted.

There are twenty wells on record on the UIC program Map (DOH, 1989c) within the study area including one on site. According to available groundwater and well data (USGS, 1986):

- Two wells are classified as injection wells, and both wells have been sealed;
- Seventeen wells are classified as other use wells:
 - Five of these wells have been sealed or abandoned;
 - Twelve of these wells are industrial withdrawal wells (four are owned by Cal Packing Corporation; two are owned by Honolulu Gas; and six are owned by Dole Corporation); and
 - One on-site well is classified as an other use well. This 10-inch-diameter well is approximately 630 feet deep and was constructed in 1900. It is not currently in use. The owner is listed as Oahu Railroad and Land Company.

The closest source of drinking water is approximately one mile north of the site near Farrington High School.

III SITE HISTORY

A. Oral and Written History

City and County of Honolulu tax assessment records (C&C, 1991) indicate that the 25 parcels comprising the site are owned by the State (Plate 3B). Some of the parcels are currently leased to various tenants. See Table 1 for parcel and tenant information.

A 1897 Monsarrat map and two USGS maps (1938 and 1954) were reviewed for historic information of the study area. The Monsarrat map identifies the site as a railway depot with four structures visible. Kawa Pond is south of the site across Iwilei Road. Oahu Jail is southwest of the site and rice fields to the west. Streets and structures are indicated to the north and east of the site but not identified. The USGS maps showed urban development of the site and surrounding area.

According to *Railroads of Hawaii* (Best, 1978), the site (5.6 acres) and property north and west of the site (approximately 7 acres) was the location for the Oahu Railway and Land Company's (OR&L) Honolulu station. The station was built in 1889 by Benjamin F. Dillingham on land granted by King Kalakaua. A review of Sanborn Fire insurance maps, and a 1942 site plan (Plate 4) from *Sugar Trains Pictorial* (Condé, 1975), indicated that a passenger depot and office building, a freight shed, a paint shop, a land department building, two garages, a truck scale, and truck and trailer stalls were located on the site. Other buildings are indicated on the plan but are not identified.

The roundhouse, engine repair and machine shops, a blacksmith and car shop, a fumigating shed, truck and trailer stalls and warehouses were on the 7 acres of property located approximately within 0.10 mile of the site's north and west boundaries. These buildings were apparently razed in the late 1950s. Love's Bakery,

Aela Fish Market and Warehouse No. 7 are indicated south of Iwilei Road. Hawaiian Gas Product Company, Ltd., is identified adjacent to Kuwili Street. Various commercial buildings and a gas station are indicated north of the site adjacent to North King Street near Dillingham Boulevard.

Railroads of Hawaii indicated most of the maintenance, repairs, reconstruction and painting on the trains were conducted in and surrounding the roundhouse. Coal and oil were used as fuel in the locomotives until approximately 1922. After 1922, oil was the primary fuel for locomotives. Gasoline-powered rail-motor cars were used for passenger service. Diesel-electric locomotives were also in use after the mid-1940s, along with the oil-burning locomotives.

According to representatives of the Hawaiian Railroad Society, Bunker C fuel was burned in the locomotives. Apparently, this fuel was stored in an aboveground storage tank (AST) on the roof of the roundhouse. Photographs in *Railroads of Hawaii* and *Sugar Trains Pictorial* show a structure on the roof.

OR&L ceased operations in 1947, but the Honolulu station remained active until 1962, serving the docks, the cannery and the Kalihi stockyards. The state acquired approximately 5.6 acres of the Honolulu station in 1961 as a result of a lawsuit with Dillingham Corporation. After 1961, portions of the site and buildings were leased to various tenants. The approximately 7 acres of land in the vicinity of the roundhouse was retained by Dillingham Corporation. In 1972, the few remaining miles of track and switching operations were abandoned, and the railway disappeared in Honolulu.

B. Aerial Photograph Review

Historic uses of the study area were reviewed by examining aerial photographs taken in 1952 and 1962 (R.M. Towill); and 1970, 1980 and 1990 (Air Survey Hawaii).

In the 1952 photograph (Plate 5), the passenger depot (OR&L Building), a freight house, the present-day fruit and vegetable (F&V) warehouse, and truck and trailer stalls shed along Iwilei Road are visible. The paint shop (the abandoned building adjacent to the ramp on the west side of the site) is visible at the northwest corner of the site and is attached to the passenger coach barn on the 7-acre portion of the Honolulu station. The land department building (Kalihi-Palama Culture & Arts, Inc. [K-P Building]), a gasoline station and other similar-sized buildings were observed near the east boundary of the site. Railway cars and track are also visible.

Residential and commercial buildings appear to the east of the site. The present-day location of Aala Park is occupied by small commercial and/or residential buildings. The roundhouse, buildings adjacent to the roundhouse, the coach barn and vehicle parking lots are north of the site. Commercial buildings face North King Street and Dillingham Boulevard. North of Dillingham Boulevard residential buildings are visible. South and west of the site, large warehouse buildings appear along Nimitz Highway, Piers 18 to 23, and Iwilei Road. The east-bound portion of Nimitz Highway is under construction.

The 1962 photograph (Plate 6) indicates some significant changes to the study area. The two buildings (freight house and shed) west of the F&V warehouse are no longer visible. The OR&L Building, the K-P Building, the abandoned paint shop building, and the gas station are still visible. Some track and railway cars are visible on the western portion of the site.

To the north of the site, the roundhouse, the maintenance buildings adjacent to the roundhouse, the coach barn and the vehicle parking lots have disappeared. Railway tracks appear to be still in place. Further to the north across Dillingham Boulevard, it appears more commercial buildings have replaced residential buildings. East of the site, commercial and residential buildings are visible.

South and west of the site in the 1962 photograph, the piers, and commercial and warehouse building are visible, along with large aboveground storage tanks. The east-bound portion of Nimitz Highway has been completed. A large warehouse building with parking on the roof, located between the west boundary of the site and Kuwili Street, has replaced smaller warehouse buildings visible in the 1952 photograph. A ramp on site leads up to the roof-top parking level from Iwilei Road.

The 1970 photograph shows that smaller buildings have been added to the F&V warehouse. The OR&L building, the abandoned paint shop building, the gas station, and the K-P building are visible. Vehicle parking areas are located throughout the site.

The area north of the site that was open in the 1962 photograph is now developed with commercial and industrial buildings. Keaahi Street, Keaahi Place and Kaamahu Place have been constructed between the northern boundary of the site and Dillingham Boulevard. The commercial and residential buildings observed northeast of the site facing North King Street in the earlier photographs, are still visible. Across North King Street, to the east, the small commercial and residential buildings have been replaced by multistory residential buildings. Also, Aala Park has been redeveloped. The area to the south and the west of the site appears similar to the earlier photographs.

The 1980 photograph of the study area appears to be similar to the 1970 photograph. Surrounding the site, some buildings observed along North King Street and Dillingham Boulevard in the earlier photographs have been replaced with other

buildings. The large building observed across Iwilei Road (Aala Fish Market) has been replaced by a parking lot.

The 1990 photograph (Plate 7) shows the site similar as it is today. The area surrounding the site appears to be similar to the 1980 photograph except that a parcel of land at the intersection of Dillingham Boulevard and King Street appears under construction.

Aerial photographs were reviewed for historic uses of the sites and surrounding areas. The photographs confirmed locations of buildings and activities that were discovered from historical documents that may have had hazardous materials associated with them. There is a possibility that hazardous materials may have affected the site because the railroad station occupied the 5.6-acre site as well as land to the north and west of the site. The photographs did not reveal additional potential sources or activities which might have caused hazardous materials to affect the sites, but did not rule out such activities either.

IV INVESTIGATION ACTIVITIES AND FINDINGS

A. Site Visit

A site visit was conducted by HLA personnel on February 7, 1992, to view areas of potential environmental concern related to the presence or use of hazardous materials. Right-of-entry for HLA was obtained from D.A.G.S. through the State of Hawaii, Department of Land and Natural Resources (DLNR).

The site is occupied by five primary buildings (Plate 3B):

- The OR&L Building, 333 North King Street, is a two-story structure with concrete walls and slab, and a tile roof. Tenants in this building include:
 - State of Hawaii, Hawaii Housing Authority (Kalihi-Palama Service Center);
 - Catholic Charities;
 - St. Francis Medical Center;
 - State of Hawaii, Honolulu Community Action Program (HCAP); and
 - State of Hawaii, Department of Human Services.

This building is not scheduled for renovation or demolition activities as part of the proposed Lihua Civic Center. Therefore, D.A.G.S. requested that HLA not view interior spaces.

West of this building, we observed two concrete abutments (probably part of the old railroad track system) and an unmarked manhole cover. Asphalt parking lots, a chain-link fence, and landscaped areas surround this building.

The F&V warehouse, 918 and 920 Iwilei Road, is a one-story building with a steel-framed structure, corrugated metal siding and roof, and an asphalt-paved floor. Detached buildings, sheds and Matson-type containers are located around the warehouse and are used for storage of supplies and produce by the tenants. Some of the containers are coolers and freezers. The tenants in the warehouse include:

- D. Olan Produce (wholesale produce business);
- Waialua Products, Ltd./No Ke OI Ice (wholesale produce and ice manufacturing business);

- Sunset Produce (wholesale produce business);
- City Produce (wholesale produce business);
- Kawalo Pickle Products (food pickling business);
- Oahu Produce (wholesale produce business);
- Produce Market (wholesale produce business); and
- Xpress Trucking (general hauling and transportation business).

During the walk-through of these tenants spaces, we observed:

- Fluorescent lighting;
- Containers (boxes and crates) of vegetables and fruits;
- Wood-framed offices and storage rooms on the ground level and mezzanine levels;
- Walk-in coolers and freezers with refrigeration equipment (large tanks of refrigerants were not observed in association with No Ka Oi Ice);
- Kitchen equipment used for preparing and processing vegetables for pickling (Kawalo Pickle Products); and
- Suspected asbestos-containing materials (ACM): vinyl floor tile; acoustical ceiling tile; spray-applied ceiling texture; gypsum board; and insulation in metal flues.

In the area surrounding the warehouse and the detached buildings, sheds and containers, we observed:

- Discarded supplies, trucks, cars, railroad equipment, wood pallets and refuse;
- Asphalt driveways and parking areas;
- 55-gallon drums with petroleum products (some leaking);
- Oil stains on the ground;
- An aboveground storage tank (AST), approximately 500-gallon capacity, marked "Fuel Oil," located west of a building used by Na Ka Oi Ice for storage of supplies and bags of ice. This building was boarded up from a recent fire and not entered because of health and safety considerations; and

- Two sets of electrical transformers mounted on poles that are owned by Hawaiian Electric Company (HECO) and are located adjacent to Iwilei Road and the warehouse.

The K-P Building, 355 North King Street, is a two-story structure with concrete walls and slab, and a built-up roof. The tenants in the building are the Kalani-Palema Culture & Arts Society and the King Kamehameha Celebration Commission. During a walk-through of the building, we observed:

- Fluorescent light fixtures;
- Suspected ACMs that include plaster, vinyl floor tile, and built-up roofing; and
- A concrete vault attached to the north side of the building.

West of this building, we observed what appears to be an approximately 10-inch-diameter, capped steel-cased well; a steel cover plate marked "Oil Storage System"; and an unmarked manhole cover. Two capped galvanized metal pipes, each approximately 2 inches in diameter, were located below the cover plate. An asphalt parking lot is west and south of this building.

A former Union Oil of California gasoline station, 377 North King Street, is a one-story structure with concrete and masonry walls, a concrete slab and a built-up roof. The building tenant is HCAP. During the walk-through of the building, we observed:

- Fluorescent light fixtures;
- A hydraulic lift;
- An office, two toilet rooms, and a storage room with motor vehicle parts, supplies and equipment; and
- Suspected ACM that include plaster and built-up roofing.

Outside the building, a fuel dispenser was observed for USTs. Two registered 4,000-gallon tanks, each approximately 30 years old, were used for storing gasoline and diesel fuel. The area around the building is asphalt-paved.

The abandoned building at 870 Iwilei Road, formerly a paint shop, is a one-story structure with concrete and masonry walls, a concrete slab and a saw-tooth concrete roof. During a walk-through of the building, we observed:

- An asphalt parking area for storage of The Handi-Van buses, a bus converted for office use, and two ASTs, approximately 2,000 gallons each, marked "Propane" on the parcel leased by T&Y Enterprises, Inc., north of the F&V warehouse; and
- An asphalt parking lot on the parcel leased to Aloha Fender Works, Inc., for storage of vehicles.

During the site visit, we looked for but did not find evidence of treatment or disposal operations for hazardous materials and/or waste, distressed vegetation, odors, waste ponds, or landfills.

B. Off-Site Reconnaissance

Reconnaissance of the off-site area (the surrounding area within 0.25 mile of the site) was performed on January 23, 1992. The businesses or activities in the area surrounding the site are primarily residential, and light industrial, commercial and retail businesses. To the north of the site, we observed:

- Aloha Fender Works, Inc.;
- G. Von Hamm Textiles, Inc.;
- Thom Equipment Co., Inc.;
- Maunawili Produce, Inc. (fuel dispensers for USTs observed);
- R&G Trucking;
- Burger King;
- First Hawaiian Bank;
- Nishimoto Trading Co. (ASTs observed);
- Cocktail lounges;
- Jack-In-The-Box;
- New and used car lots;
- Two electrical transformer stations; one is owned by HECO and the other by Dole Corporation;

- Refuse scattered throughout the building;
- Incandescent light fixtures;
- Building components broken, or in disrepair; and
- Built-up roofing which is a suspected ACM.

Outside the building, we observed:

- A pole-mounted electrical transformer with suspected PCBs (the pole and electrical equipment appear to be not in use);
- Asphalt driveways and parking areas;
- Railroad tracks;
- Roll-up overhead doors stacked in the parking area;
- A chain-link fence around the building;
- Two islands that may have been a fuel-dispensing location. We did not observe UST fill caps because parked trucks, refuse, ground cover, and asphalt paving may have covered up any visual indications of possible USTs.
- During the walk-through of the site, we also observed:
 - A concrete ramp with discarded supplies, trash, batteries, plywood, 50-pound bags of powdered calcium carbonate, tires, furniture, mixing equipment, paint cans, and a bottle of tetrafluoroethane observed in the area below the ramp. The ramp serves an off-site, two-story warehouse facing Kuwili Street.
 - 55-gallon drums of diesel fuel, round concrete piping, wood pallets, furniture, appliances, bags of sugar and doughnut mix, and refuse within a fenced area east of the concrete ramp and next to Iwilei Road;
 - A truck parking and storage area for Xpress Trucking west of the F&V warehouse;
 - A deteriorated commercial oven with suspected asbestos insulation next to the Xpress Trucking parking area;
 - Concrete slabs, rubble, round clay piping, abandoned equipment and cars, furniture and refuse within a fenced area west of the K-P Building. The slabs may have been garages identified on the 1942 site plan (Plate 4);

- Gas stations (fuel dispensers for USTs observed):
- Auto body repair and paint shops;
- Warehouses with commercial and retail businesses that include import/export companies, printing companies, restaurants, trucking companies and grain storage;
- Dole Can Plant and Cannery (55-gallon drums, ASTs and fuel dispensers for USTs observed);
- Dole Cannery retail and commercial buildings;
- Brewer Chemical Corporation (55-gallon drums, ASTs and fuel dispensers for USTs observed); and
- A fire station.

Further west are large fuel tanks for Shell, Unocal and PRI, and warehouses and piers next to Kapalama Channel.

Stressed vegetation, odors, discolored soil or other obvious signs of major surface spills or leaks were not observed within the off-site area. Observations of these properties were made from public streets and from public rights-of-way.

No other evidence of potential sources of significant quantities of hazardous materials or wastes were observed. During the off-site reconnaissance, HLA looked for but did not find evidence of the following potential sources of hazardous materials:

- Waste ponds; and
- Landfills.

C. Review of Regulatory Records

The discussion presented in this section is based on available information provided by government agencies or obtained from nongovernmental sources. HLA reviewed agency lists that contain general information about sites that have reported hazardous materials or petroleum products. We also contacted agency personnel for

- Gas stations (fuel dispensers for USTs observed); and
- Two-story residential structures and various businesses in the Tung Fat Co., Ltd. Building bordering on 377 North King Street.

Further to the north, across Dillingham Boulevard, is Yick Lung Co., Inc. (registered USTs), Kingsgate Shopping Center, Honolulu Community College, gasoline stations, and other retail and commercial businesses.

East of the site, we observed:

- Aala Park;
- Kukui Gardens;
- Mayor Wright Homes;
- Hale O'Pili (registered UST); and
- Other low-rise and high-rise residential buildings.

Further to the east across Vineyard Boulevard, we also observed multifamily and single-family buildings, gas stations, and retail and commercial businesses.

South of the site, we observed:

- An Apco parking lot (former site of Aala Fish Market);
- Nuuanu Stream;
- Warehouses with commercial and retail businesses;
- Chinatown with various commercial and retail businesses, restaurants, markets, shops, night clubs, cocktail lounges, and art galleries; and
- Piers and warehouses (ASTs observed) next to Honolulu Harbor.

West of the site, we observed:

- Facilities for the Salvation Army (registered UST);
- City Mill Co., Ltd. (registered USTs);
- Home Improvement Warehouse (ASTs observed);

information concerning additional sites that have been identified but have not yet been placed on the lists, or information about areas of potential environmental concern that may not be covered by the available lists.

1. Review of Published Regulatory Agency Information

As part of the assessment of whether there are areas that may pose potential environmental concerns relative to the site, HLA reviewed and evaluated the following regulatory agency lists:

- a. U.S. Environmental Protection Agency (USEPA) National Priorities List (NPL) for Uncontrolled Hazardous Waste Sites, updated through July 1990

The NPL provides a list of federal Superfund and proposed Superfund sites. No businesses or activities in the study area are on the NPL.

- b. USEPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), September 1990

CERCLIS provides a list of businesses or properties that have been nominated for inclusion in the federal Superfund program. Businesses and properties thus identified are subject to preliminary assessment by the EPA to assess whether or not the site should become a federal Superfund site, needs further investigation, or requires no further action (NFA). The following businesses or activities within the study area appear on the CERCLIS list:

Site Name and Address	EPA I.D. No.	NFA Flag
Brewer Chemical Corp 311 Pacific Street	HID 859472357	Yes
Dole Pineapple Cannery 801 Dillingham Blvd.	HID 981424385	No
Pacific Resources, Inc. (Gasco) 739 North Nimitz Highway	HID 982392367	No
Unocal/Wilei Tank Farm 411 Pacific Street	HID 000633081	No

- c. The EPA Resource Conservation and Recovery Act (RCRA) I.D. Number Inventory

The following businesses or activities within the study area have been identified as entities that either: 1) generate 1,000 kilograms per month of non-acutely hazardous waste, or 1 kilogram per month of acutely hazardous waste (G-1); generate 100 kilograms per month, but less than 1,000 kilograms per month of non-acutely hazardous waste (G-2); or generate less than 100 kilograms per month of non-acutely hazardous waste (G-3); 2) transport (T); and/or 3) dispose (D) of hazardous materials.

Site Name and Address	RCRA Facility I.D. No.	Activity Type
Art Omnia Auto Service 602 Dillingham Boulevard	HID 981629199	G-1
Brewer Chemical Corporation 311 Pacific Street	HID 059472357	G-1
Castle & Cooke Foods Dole Can Plant 650 Iwilei Road	HID 009143637	G-1
Dole Packaged Foods Company 650 Iwilei Road	HID 981424385	G-2
Honolulu Nissan Chrysler Plymouth 735 Dillingham Boulevard	HID 982354078	G-2
Miaco Auto Painting 447 North Nimitz Highway	HID 982496150	G-2
Manna Pro Corporation 701 Nimitz Highway	HID 981653512	G-2
Old World Products of Hawaii, Inc. 717 A North King Street	HID 982320301	G-2
Pacific Resources Terminals, Inc. 739 North Nimitz Highway	HID 980735443	G-1
R&G Trucking 906 Kaahii Place	HID 069804755	T
Sonny's Auto Repair 818 Iwilei Road	HID 981629280	G-1
Toguchi Service Station, Ltd. 826 North Vineyard Boulevard	HID 981665466	G-2
Typehouse Hawaii 250 North Beretania Street	HID 981162647	G-1, T
Union Oil Company of California 411 Pacific Street	HID 000633081	G-1

Site Name and Address	RCRA Facility I.D. No.	Activity Type
Unocal 76 Honolulu Learning Center 411 Pacific Street	HID 981652696	G-2

d. Notification of USTs Listing of Owners and Operators

The following businesses or activities within the study area have notified the state DOH UST Program Office and the USEPA that they have one or more UST on their property. The list indicates that there are at least 85 USTs within the study area. This includes the two registered tanks at 377 North King Street.

Site Name and Address	No. of Tanks	Product Stored in Tank(s)
Art Omnia Auto Service 581 Dillingham Boulevard	7	Gasoline, used oil and GST 46
Auto Center 735 Dillingham	1	Used oil
B&A Automotive 1739 Liliha Street	2	Gasoline
Brewer Chemical Corporation 311 Pacific Street	2	Diesel and gasoline
C.O. Yee Hop & Co., Ltd. 111 North King Street	2	Gasoline
City Mill 660 Nimitz Highway	2	Gasoline and diesel
Dole Can Plant 650 Iwilei Road	4	Vinyl coating, vinyl lacquer and solvents

Harding Lawson Associates

Site Name and Address	No. of Tanks	Product Stored in Tank(s)
Dole Cannery P.O. Box 3380	3	Gasoline and solvents
H.C.A.P. 377 North King Street	2 (on site)	Gasoline and diesel
Hala O'Pili (Ewa Tower) 155 North Beretania Street	1	Diesel
Halt-Mark Cleaners 1470 Liliha Street	2	Diesel
Handi Pantry No. 14 666 North King Street	3	Gasoline
Honolulu Harbor Pier 42 414 Kuwili Street	3	Gasoline
Iwilei Fire Station 840 Iwilei Road	1	Gasoline
Kingsgate Plaza 516 Dillingham Boulevard	6	Not listed
Lester's Chevron 743 North King Street	3	Gasoline
Manna Pro Corporation 701 North Nimitz Highway	3	No. 5 boiler fuel, gasoline and diesel
Maunawili Produce, Inc. 906 Kaaha Place	1	Gasoline
Maunawili Produce, Inc. 914 Kaaha Place	2	Gasoline and diesel
Miss Fuel L-3282 540 North Nimitz Highway	5	Hydraulic oil, gasoline and used oil

0344R

22

Harding Lawson Associates

Site Name and Address	No. of Tanks	Product Stored in Tank(s)
Nakaoka Painting, Inc. 922 Keamahu Place	2	Solvent and gasoline
Pacific Resources Terminals, Inc. 739 North Nimitz Highway	3	Ethanol and gasoline
PHT, Inc. dba Polynesian Hospitality 330 Pacific Street	3	Diesel, gasoline and used oil
Richard K.W. Tom, Inc. 963 Robello Lane	2	Gasoline and diesel
The Salvation Army 806 Iwilei Road	1	Diesel
The Salvation Army-Adult Rehabilitation 806 Iwilei Road	1	Diesel
Toguchi Service Station, Ltd. 825 North Vineyard Boulevard	5	Gasoline and used oil
Unocal 411 Pacific Street	5	Diesel and used oil
Waterfront Fire Station 111 North Nimitz Highway	1	Gasoline
Yejima Convenience Center 581 Dillingham Boulevard	2	Gasoline
Yick Lung Co., Inc. 602 Dillingham Boulevard	4	Gasoline and used oil
Yick Lung Co., Inc. 580 Dillingham Boulevard	1	Gasoline

Our site investigation indicated two possible locations for unknown USTs. One location was next to the K-P Building, the other is south of the abandoned building. Besides the USTs listed above, there could be additional

0344R

23

unregistered USTs, and USTs that no longer have features visible at the ground surface.

- e. State of Hawaii, Department of Health, Underground Storage Tank Section LUST (Leaking Underground Storage Tank) Releases (By I.D. Number), dated April 1991

The listing includes releases which tank owners or operators have reported to the state DOH UST Office in accordance with federal requirements promulgated in Title 40, Code of Federal Regulations, Part 280. The following releases are listed within the study area:

Site Name and Address	Leak I.D. No.	Notification Date
Dole Can Plant 650 Iwilei Road	890003	None
Hall-Mark Cleaners 1470 Liliha Street	900085	None
Kingsgate Plaza 516 Dillingham Boulevard	900030	01/12/90
PHT, Inc. dba Polynesian Hospitality 330 Pacific Street	910046	03/28/91
Waterfront Fire Station 111 North Nimitz Highway	910027	03/06/91

2. Regulatory Agency Contacts

In addition to reviewing published regulatory agency lists, HLA also contacted agency personnel regarding their knowledge of potential or known environmental concerns at the site and surrounding properties. A list of the agency personnel who were contacted is presented in the Appendix. Files and documents that were examined are listed in Section VII, Bibliography.

The UIC Section of the Safe Drinking Water Branch of DOH was not aware of any additional active water supply or injection wells within the study area. The Department of Land and Natural Resources (DLNR) informed HLA that prior to demolition of the site, the well located next to the K-P Building should be sealed.

The state DOH Underground Storage Tank Section was queried about the possibility that USTs had been added to the study area since the available listing was compiled. According to the DOH official, no tanks had been installed. HLA also inquired whether any additional UST releases had been reported in the study area. The representative of the section was not aware of any additional leaking USTs.

HLA reviewed available files at DOH regarding LUST releases. The records indicated that:

- During excavation for construction of a parking lot for Dole Can Plant, oily material was observed. This was attributed to four USTs which were later removed. During removal, three of the four were punctured. The product was pumped out, and contaminated soil removed. No closure report for the USTs removal was available, nor was there any further information regarding the extent of contamination or the present condition.
- Evidence of leaks from USTs were discovered during the closure of the tanks containing diesel oil and solvent at Hall-Mark Cleaners. The soil was contaminated with TPH as diesel. Hall-Mark Cleaners is in the process of seeking guidance regarding remediation.
- Soil and groundwater contamination was discovered at Kingsgate Plaza in 1989 during the closure of USTs. The site was a former gasoline station. Monitoring wells were installed and petroleum-contaminated soil was remediated in-situ by means of aeration. Additional monitoring wells were installed that indicated low-level groundwater contamination. No further action has been taken.
- During removal of a waste oil UST at PHT, Inc., product leakage was discovered. The UST was pumped empty, and the excavation pit was cleaned up. A release investigation was planned.

D.A.G.S., the samples were collected from one test boring in the vicinity of existing USTs. Samples were collected and analyzed for the presence of gasoline and diesel in the soil and groundwater.

One boring was drilled approximately 20 feet east of the UST fill pipes located in the driveway of the service station lot. Soil samples were collected at the soil/groundwater interface where petroleum hydrocarbons may exist. The groundwater level in the borehole was found to be 9.1 feet below the ground surface. Soil samples were collected by driving an 18-inch-long, 2-1/2-inch-diameter, split-spoon sampler into the soil using a 140-pound weight. The soil was found to be a medium dense, pale gray-brown, silty coralline gravel with sand. The test boring log is presented in Plate 8.

To collect groundwater samples, the boring was drilled to a depth of 15 feet below the ground surface, and a temporary well point was lowered into the borehole. At the request of D.A.G.S., a monitoring well was not installed. The temporary well point was used to expedite the collection of the water samples. The well point is a 2-inch-diameter, machine-slotted, PVC casing, 15 feet in length with a pointed bottom cap. The well point was placed in the borehole to a depth of 14.5 feet below the ground surface, and the groundwater was allowed to flow into the casing.

Approximately five well volumes (4 gallons) were purged from the well using a disposable bailer.

Field parameters such as pH, specific conductivity and temperature were measured during purging. After the field parameters stabilized, a water sample was collected. The well point casing was removed from the borehole after sample collection, and the borehole was filled with grout to ground level.

The samples (soil and groundwater) were delivered to Brewer Environmental Industries, Inc., for analysis. The soil sample and the groundwater sample were

Free product was found floating on groundwater beneath Waterfront Fire Station. The gasoline UST was closed, and the free product skimmed off the groundwater. Test borings and analyses were scheduled to be conducted.

HLA reviewed available files at DOH regarding CERCLIS properties. The records indicated that:

- Brewer Chemical had in the past buried drums of caustic compounds on adjacent property, now the Unocal Tank Farm. The location and condition of these drums are unknown. The potential exists for a release of CERCLA-designated hazardous substances from the buried drums.
- Dole Can Plant - See the LUST release description on the previous page.
- This Pacific Resources, Inc. site was the old Gasco Iwilei gas manufacturing plant. The site was under investigation because of the large amount of petroleum-based products that moved through the site. Some stained soil was noted but may have been due to heavy machinery involved in dismantling the plant. No further conclusions were made.

Neither the Hazard Evaluation and Emergency Response Program office nor the Hazardous Waste Section of the state DOH were aware of spills, leaks, or other hazardous material incidents other than those listed in Section IV.C.1. Review of Published Regulatory Agency Information.

To date, no evidence of hazardous levels of radon have been reported in the state of Hawaii. Measurements by the state DOH indicate airborne concentrations of radon in some subsurface portions of state buildings, but at levels consistently below the EPA-established hazard levels.

D. Soil and Groundwater Sampling

On January 9, 1992, samples of soil and groundwater were collected at 377 North King Street, the site of an abandoned service station. At the request of the

V CONCLUSIONS AND RECOMMENDATIONS

Based on our observations and the information gathered and evaluated during our investigations, HLA recommends the following activities to be completed prior to commencing site demolition activities:

- Conduct a survey and collect bulk samples of building materials suspected of containing asbestos. If building materials contain asbestos, plans and specifications should be prepared for removal and disposal of ACM.
- Collect samples of the dielectric/cooling fluid from the pole-mounted electrical transformer near the abandoned building. Soil samples should also be collected from the base of the pole if it appears the transformer may have leaked. If PCBs are detected, plans and specifications may be prepared for removal and disposal of the transformer and the soil.
- Prepare a work plan to close the two USTs at 377 North King Street, in accordance with federal, state and county regulations. Also, the fluid in the hydraulic lift should be characterized prior to disposal.
- Conduct a physical search for: 1) USTs suspected of being near the two islands south of the abandoned building; and 2) USTs and/or piping that could be part of an oil storage system near the K-P Building. Also, the unmarked manholes should be investigated to determine if they are part of UST systems. If UST systems are discovered, work plans should be prepared to close the USTs in accordance with federal, state and county regulations.
- The State should investigate and ensure that tenants be responsible for the removal, disposal, cleanup, and remediation, if necessary, of their hazardous and regulated materials prior to vacating. We observed 55-gallon drums with petroleum products on Parcel 7:15 (leased to Xpress Trucking) and 55-gallon drums of petroleum products (some leaking with stains on the ground) adjacent to the F&V warehouse.
- Prepare a work plan for sealing the well adjacent to the K-P Building in accordance with state requirements.

Additional information regarding our recommendations are discussed below.

analyzed for total petroleum hydrocarbons as gasoline (TPH gasoline) in accordance with EPA Method 8015. The soil sample was analyzed for benzene, toluene, ethylbenzene and xylene (BTEX) in accordance with EPA Method 8020. The groundwater sample was analyzed for BTEX in accordance with EPA Method 608. TPH as gasoline and BTEX were not detected above the method detection limit.

A. ACM

Based on the age of the buildings and the observed building materials, it appears that vinyl floor tile, ceiling tile, built-up roofing, plaster, insulation and gypsum board are suspected ACMs. Asbestos is a known human carcinogen when inhaled into the lungs. Asbestos was banned from many commercial products during the mid-1970s. U.S. EPA Title 40, CFR, Part 763 Asbestos, banned by law the manufacture, importation and processing of many asbestos products in August 1990 (the first of a three-stage ban). Removal and disposal of friable ACMs (and damaged nonfriable ACMs) are required by EPA, 40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants (NESHAP), regulations for protection of health and the environment when a building is to be demolished. Removal and disposal of ACMs are also required during building renovation where new construction and repair work will disturb ACM.

ACM should be removed and disposed of properly by an experienced abatement contractor. The contractor must possess a valid State of Hawaii Contractor License Classification C-19. Abatement of friable ACM must be accomplished with a temporary pressure differential and air-circulating system, and meet federal, state and local requirements for removal and disposal of asbestos. Respiratory protection, as well as other safety and health measures, must be employed during asbestos abatement. ACM can be disposed at the Waianalo Gulch Sanitary Landfill.

B. PCBs

The pole-mounted electrical transformer adjacent to the abandoned building is not owned by HECO. The transformers on the other poles are owned by HECO.

Transformers with 1.36 kilograms (approximately 3 pounds) or more of dielectric fluid are classified as large capacitors.

There are three categories for transformers:

- PCB transformer: >500 parts per million (ppm) PCBs;
- PCB-contaminated transformer: 50 - 500 ppm PCBs; and
- Non-PCB transformer: <50 ppm PCBs.

PCBs are a known human carcinogen and an environmental contaminant requiring special handling and disposal in accordance with U.S. EPA Title 40, CFR, Part 761. The manufacture of PCBs was banned in 1977, and the distribution of commerce of PCBs was banned in 1979. If PCBs are identified in the transformer adjacent to the abandoned building, it may require disposal at an approved landfill as hazardous waste. Hawaii does not have a landfill approved for hazardous materials. If PCBs are detected in the soil, remediation may be required.

According to a HECO representative, approximately 95 percent of their transformers are non-PCB. Transformers purchased after July 1979 are not considered PCB-contaminated. If not tested for PCBs, units purchased before July 1979, by law, must be considered PCB-contaminated. October 1990 was the deadline for the removal of PCB transformers in and around commercial buildings. However, 40 CFR 761.30 permits PCBs at any concentration to be used in transformers for the remainder of their useful lives, subject to certain conditions such as: labeling, registration with the fire department, periodic inspections and enhanced electrical protection.

Fluorescent light ballasts, classified as small capacitors, could contain PCBs. Small capacitors containing less than 1.36 kilograms (approximately 3 pounds) of

dielectric fluid may be disposed of as municipal solid waste. Most light ballasts are below this limit.

C. USTs

U.S. EPA Title 40, CFR, Part 200, the State of Hawaii Department of Health (DOH), and the C&C fire department have regulations regarding closure of USTs and associated piping. Leaking USTs can release contaminants into the soil and groundwater that could require remediation.

We recommend that the two USTs at the former gasoline station be closed without conducting precision tank-tightness tests as specified in D.A.G.S.' "Proposed Guidelines for Consultants, Underground Storage Tank Design," dated November 19, 1991. The precision testing is not recommended for the following reasons:

- Soil and groundwater samples collected from a single boring next to the USTs contained no detectable TPH gasoline or BTEX; and
- The residual amount of gasoline and diesel fuel in the two tanks (estimated to be 4,000 gallons each) is not known. Therefore, it is possible that the water used to fill the tanks for the tightness tests could be mixed with petroleum products requiring special disposal of 4,000 gallons of petroleum product-water mixture.

Sampling and testing of soil and groundwater are required to check for releases when USTs are removed regardless of the results of previous testings or chemical analyses. The single test boring does not necessarily mean that the USTs have not released petroleum products or that remediation will not be necessary.

The physical search for suspected USTs and associated piping systems should be conducted by procedures such as toning and/or ground-penetrating radar (GPR). If USTs and/or piping systems are discovered, they should be removed in accordance with federal regulations.

0344R

D. Well

The DLNR requested that the recorded well be permanently sealed prior to starting site demolition. Usually, this requires filling the casing with concrete. This sealing method is designed to keep contaminants from entering the subsurface water source that is associated with this well.

E. Other Sources of Contaminants

It is possible that subsurface contamination could have occurred at off-site sources and migrated to the site. The large number of USTs around the sites (some leaking), and CERCLIS- and RCRA-regulated activities in the off-site area are identified as possible sources of contaminants. The site and the area immediately to the north were part of the Honolulu train station for more than 50 years. It is possible that past practices at the railroad yard could have resulted in releases of contaminants. A program of soil and groundwater sampling would provide specific information about subsurface conditions. Based on our observations, the history of the site and surrounding area, suspected USTs on site, and known soil and groundwater contaminants in the Iwila district, subsurface investigations of the site will be necessary if contaminants are encountered during construction of the civic center.

HLA did not identify other potential sources of significant concentrations of hazardous materials during a review of available records, aerial photographs, a site visit and off-site reconnaissance, or discussions with regulators and persons familiar with the study area.

0344R

VI LIMITATIONS

The PSA activities were conducted in accordance with practices and procedures generally accepted in the consulting engineering field. Information presented in this report does not necessarily indicate significant amounts of surface and subsurface contamination at the property, but that sources of pollutants and hazardous materials were identified on the site as a result of this investigation.

Our professional judgment to assess the potential for contamination was based on limited data; no other warranty is given or implied by this report. A more extensive assessment that would include a surface and/or subsurface investigation and chemical analysis of soil and/or groundwater samples would provide more definitive information concerning site-specific conditions.

0344R

34

VII BIBLIOGRAPHY

- Air Survey Hawaii (ASH), 1970, Aerial photograph no. 8-7, November 11.
 _____, 1980, Aerial photograph no. 766-5, October 27.
 _____, 1990, Aerial photograph no. 1218-215, September 25.
 Best, Gerald M., 1978, *Railroads of Hawaii*, Golden West Books, San Marino, California.
 Condé, Jesse C., 1975, *Sugar trains pictorial*, First Edition, Greenwood Publishers, Felton, California.
 Condé, J.C., and Best, G.M., 1973, *Sugar trains*, First Edition, Greenwood Publishers, Felton, California.
 Giambelluca, Thomas W., 1986, *Land-use effects on the water balance of a tropical island*, National Geographic Research 2(2):125-151.
 Hawaii (State of), Department of Health (DOH), 1989a, Groundwater contamination maps for the state of Hawaii.
 _____, DOH, 1989b, *Groundwater/drinking water summary of reported positive results*.
 _____, DOH, 1989c, Underground injection control program map O-13, Honolulu, Oahu, Hawaii, scale 1:24,000.
 _____, Department of Taxation, 1990, Tax map for first taxation division, zone 1, section 5, plat 7, scale 1 inch = 100 feet, May 31.
 Hawaii Business Directory, Inc., 1991, *Hawaii business directory 1990-91*.
 Honolulu, City & County of (C&C), 1991, Real Property Assessment Division, Real property assessment records for first tax district tax map 1-5-7, Honolulu.
 Mink, J.F. and Lau, S.L., 1987, *Aquifer identification and classification for O'ahu: groundwater protection strategy for Hawaii*, technical report no. 179, Water Resources Research Center, University of Hawaii at Manoa.
 Sanborn Fire Insurance Maps, 1947.
 Stearns, H.T. and Voksvik, K.N., 1935, *Geology and groundwater resources of the island of Oahu, Hawaii*, Bulletin 1, Honolulu.
 R.M. Towill Corporation, September 20, 1952, Aerial photograph no. 894.
 _____, August 24, 1962, Aerial photograph no. 2582-11.

0344R

35

U.S. Department of Agriculture (USDA), 1972, *Soil survey of the islands of Kauai, Oahu, Maui, Molokai, and state of Hawaii*, Soil Conservation Service in cooperation with the University of Hawaii Agricultural Experiment Station.

U.S. Department of Commerce, Environmental Science Administration, 1967, *Climates of the states, Hawaii*, Climatology of the United States No. 60-51.

U.S. Environmental Protection Agency (EPA), February, 1990a, *National priorities list, final and proposed sites*, (by state).

_____, July, 1990b, Resource Conservation and Recovery Act (RCRA), I.D. Number Inventory.

_____, May, 1991, *Comprehensive environmental response, compensation, and liability act information system (CERCLIS)*, September, with quarterly updates published in *Inside EPA's Superfund Report*, Washington, D.C..

_____, July, 1989, *Title 40, Code of federal regulations, protection of environment, parts 61 to 80; 190 to 299; 700 to 789*.

U.S. Geological Survey (USGS), 1956, Topographic map of Oahu, scale 1:62,500.

_____, 1983, Topographic map, Honolulu quadrangle, scale 1:24,000.

_____, 1986, Summary of available groundwater data for the island of Oahu, Hawaii, open-file report 86-233.

_____, 1988, *Water resources data, Hawaii and other Pacific areas*, Water year 1986, vol. 1, Hawaii, Water data report HI-86-1.

University of Hawaii, Department of Geography, 1983, *Atlas of Hawaii*, second edition, University of Hawaii Press, Honolulu, Hawaii.

Visher, F.N. and Mink, J.F., 1964, *Groundwater resources in southern Oahu, Hawaii*, U.S. Geological Survey Water Supply paper 1778.

VIII TABLE 1

0344R	36	0344R	37
-------	----	-------	----

TABLE 1. TMK 1-5-7: PARCEL INFORMATION

Heading Lawson Associates

Parcel No.	Parcel Area Sq. Ft.	Current Lessee and Address	Additional Information
1	6,681	Honolulu Community Action Program, Inc. (HCAP) 377 North King Street	- A Union Oil service station and Kekona Sight Sealing Tours from 1952 to 1979. - Two USTs on site. - Leased to HCAP since 1979.
14	100,149	Various tenants 918 & 920 Iwilei Road	- Fruit & Vegetable (F&V) warehouse. - Warehouse constructed circa 1939 with additions in 1948 and 1964.
15	15,380	XPRESS Trucking 918 Iwilei Road	- 9,000 square feet of vehicle parking west of the F-V warehouse. - Floating parcel in the F&V warehouse is 6,380 square feet. - Honolulu Soda Water, Ltd., was a tenant in 1946.
18	2,650	None	- No recorded tenants.
57	21,910	None	- Leased to various tenants from 1964 through 1978 for storage and vehicle parking.
58	5,661	None	- Leased to Leeward Bus Co., Ltd., from 1968 to 1974 for vehicle parking.
60	400	None	- Leased as a taxi substation and a magazine stand in 1967.
61	26,701	None 870 Iwilei Road	- Old OR&L Paint Shop (building construction year not recorded). - A former tenant was McKinley Auto Paint Shop from 1964 to 1989.
62	1,437	None	- A portion of the OR&L Building used for a residence from 1963 to 1969.

0344R

38

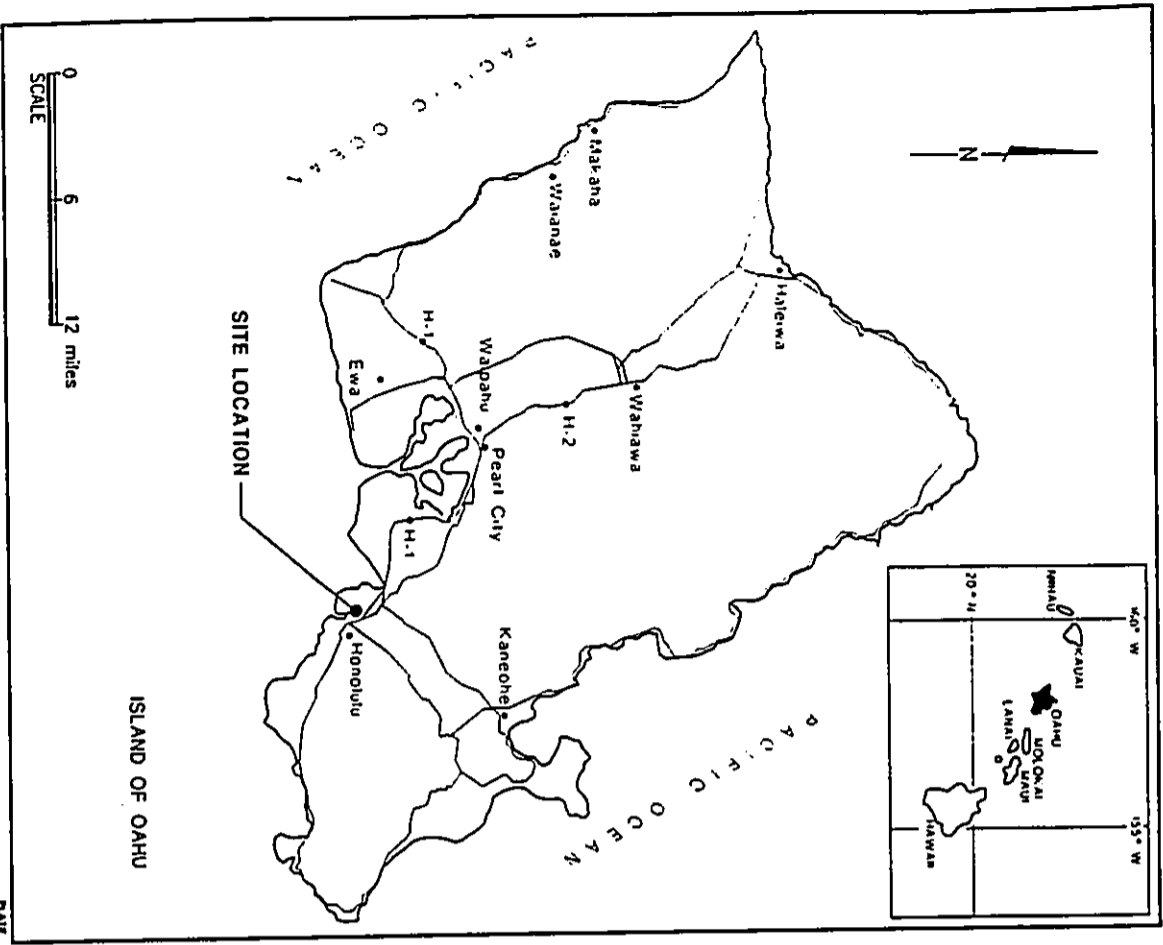
TABLE 1. TMK 1-5-7: PARCEL INFORMATION

Heading Lawson Associates

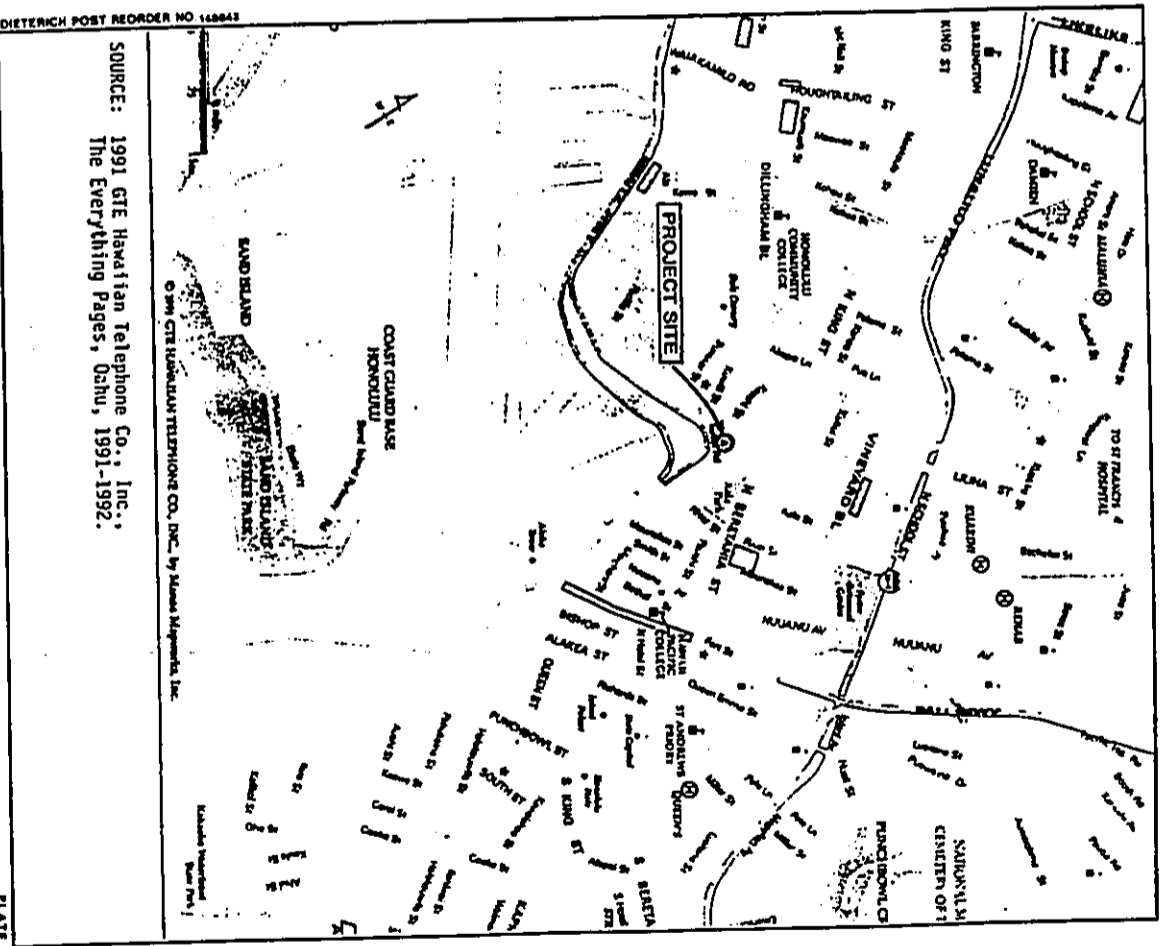
Parcel No.	Parcel Area Sq. Ft.	Current Lessee and Address	Additional Information
63	3,310	None	- Leased to Leeward Bus Co., Ltd., from 1963 to 1974 for vehicle parking.
64	80	None 315 N. King Street	- Leased as a magazine stand from 1969 to 1970.
65	8,000	None	- Leased to Ray's Express from 1974 to 1978 for vehicle parking.
66	2,445	None 918 (3) Iwilei Road	- A parcel in the F&V warehouse and leased to Shin's Produce from 1976 to 1990.
67	2,000	Honolulu Community Action Program, Inc. (HCAP)	- A parcel in the F&V warehouse and leased to HCAP since 1976 to operate Farrington Alternative High School.
68	1,575	Sunset Produce Co., Ltd. 920 (5) Iwilei Road	- A parcel in the F&V warehouse and leased to Sunset Produce since 1976.
69	1,215	City Produce Company 918 (8) Iwilei Road	- A parcel in the F&V warehouse and leased to City Produce since 1976.
70	5,930	None 920 Iwilei Road	- A parcel in the F&V warehouse and leased to Waihua Products, Ltd., from 1976 to 1988.
71	1,575	Dwight S. Otani Produce, Inc. 918 (7) Iwilei Road	- A parcel in the F&V warehouse and leased to Otani Produce since 1976.
72	2,210	Kawalo Pickle Products, Inc. 920 Iwilei Road	- A parcel in the F&V warehouse and leased to Kawalo Pickle since 1978.

0344R

39



Harding Lawson Associates
 Engineering and
 Environmental Services
 1.97
 JOB NUMBER
 03911.137.06
 APPROVED
DLV
 LOCATION
 LITHA CIVIC CENTER
 HONOLULU, HAWAII
 DATE
 1/92
 REVISION DATE
 ICC-111



DIETZSCH POST REORDER NO 148843
 SOURCE: 1991 GTE Hawaiian Telephone Co., Inc.,
 The Everything Pages, Oahu, 1991-1992.
Harding Lawson Associates
 Engineering and
 Environmental Services
 1.97
 JOB NUMBER
 03911.137.06
 APPROVED
DLV
 VICINITY MAP
 LITHA CIVIC CENTER
 HONOLULU, HAWAII
 DATE
 2/92
 REVISION DATE

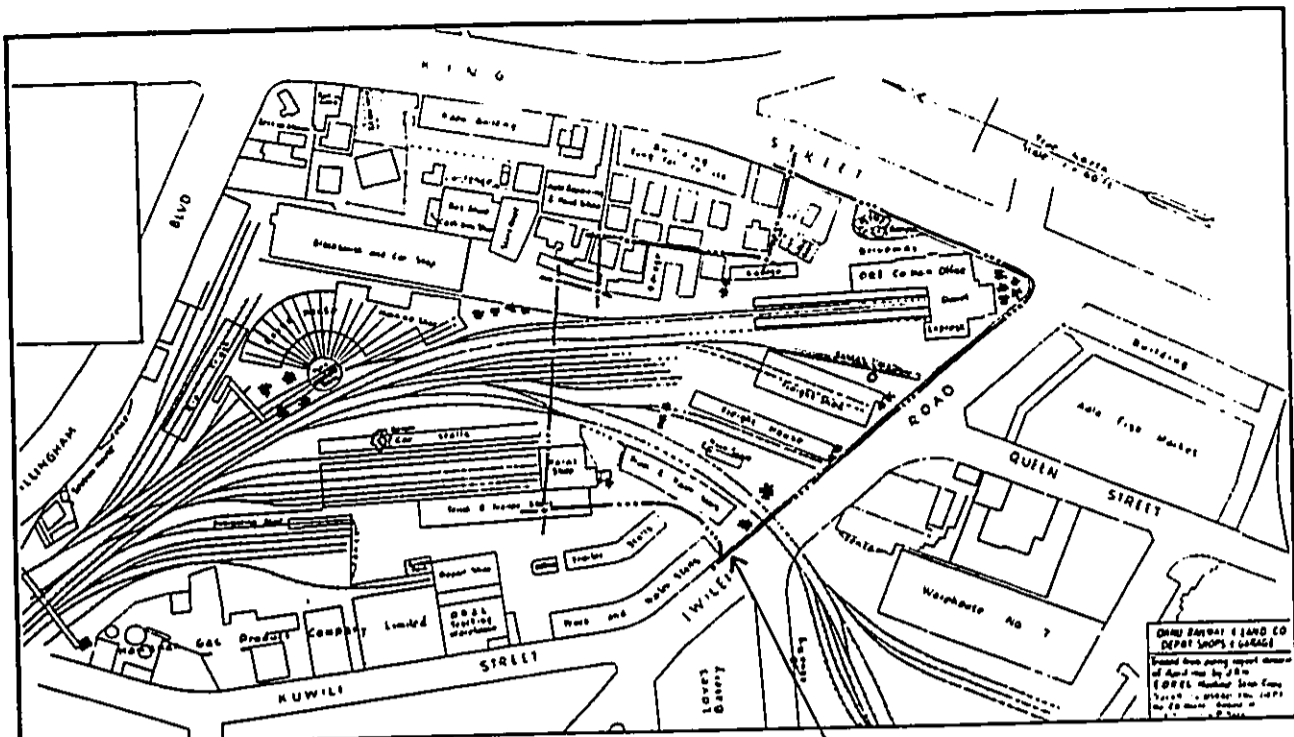
PLATE 2

TABLE 1. TMK 1-5-7: PARCEL INFORMATION

Parcel No.	Parcel Area Sq. Ft.	Current Lessee and Address	Additional Information
73	700	None	<ul style="list-style-type: none"> A parcel in the F&V warehouse and leased to Waialua Products, Ltd., from 1978 to 1988.
74	10,384	Aloha Fender, Inc. 915 Kaazahi Place	<ul style="list-style-type: none"> Leased to Aloha Fender since 1980 for storage of vehicles.
75	21,844	T&Y Enterprises, Inc. 500 Kaazahi Street	<ul style="list-style-type: none"> Leased to T&Y Enterprises since 1986 for storage of transportation and baggage vehicles; two ASTs on site. Leased to Plumbing Specialties Supply, Inc., from 1980 to 1988.
76	1,750	None	<ul style="list-style-type: none"> A parcel in the F&V warehouse leased to Waialua Products from 1980 to 1988.
77	5,055	Waialua Products, Ltd. and No Ka Oi Ice 920 Iwilei Road	<ul style="list-style-type: none"> A floating parcel in the F&V warehouse leased to Waialua Products and No Ka Oi Ice since 1988.
78	1,367	Oahu Produce 920-1 Iwilei Road	<ul style="list-style-type: none"> A floating parcel in the F&V warehouse and leased to Oahu Produce since 1989.

NOTE: The tenant information was extracted from the C&C tax assessment records. The OR&L Building and the K-P Building were not identified as being on a parcel, so tenant information for these buildings was not available. Current tenants for these two buildings are listed in Section IV, Investigation Activities and Findings.

IX ILLUSTRATIONS



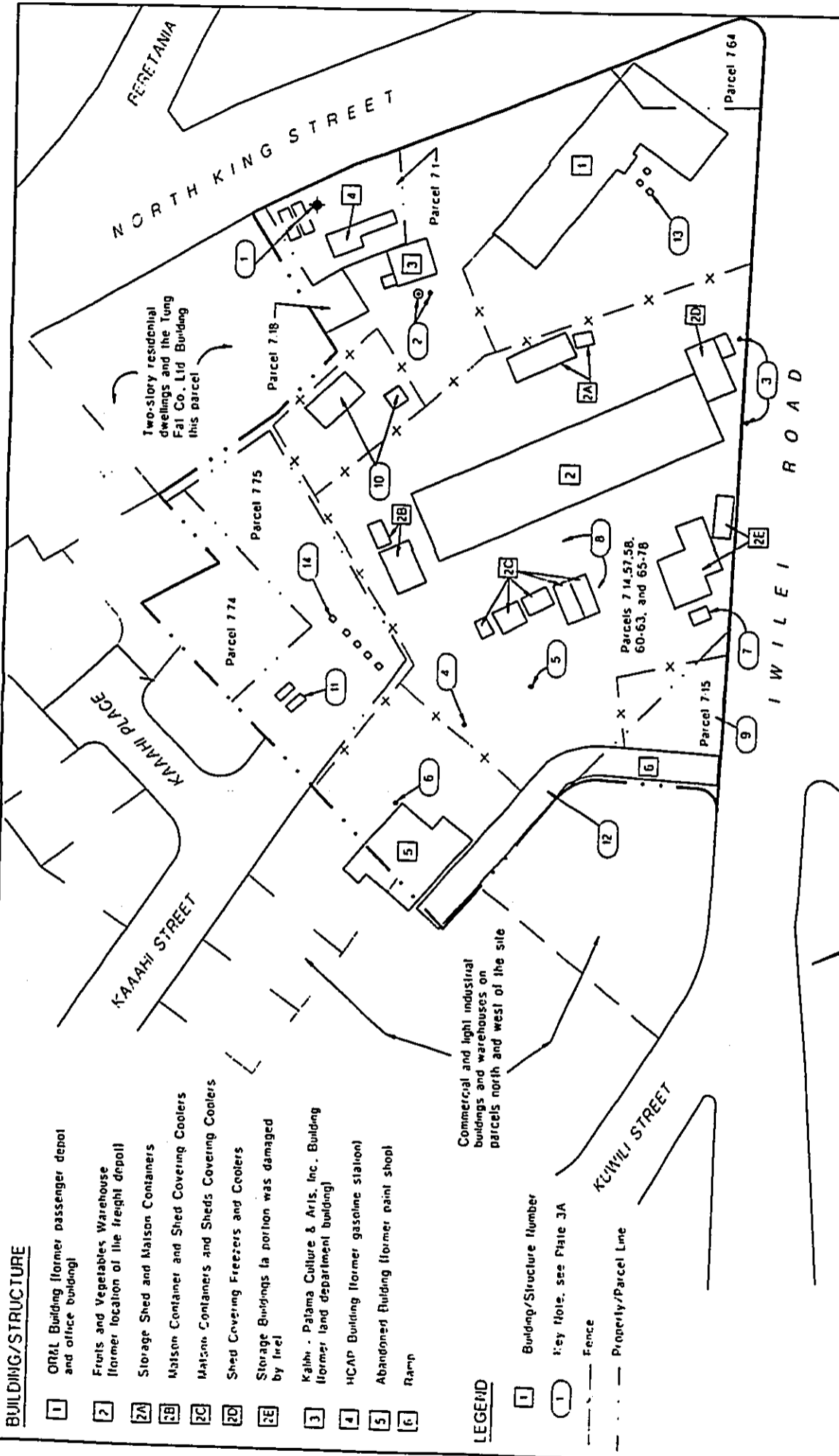
SOURCE Conde, Jesse C., "Sugar Trains Pictorial",
Glenwood Publishers, page 178

<p>Harding Lawson Associates Engineering and Environmental Services</p>	<p>Site Plan - 1942 Lihua Civic Center Honolulu, Hawaii</p>	<p>PLATE 4</p>
	<p>Drawn kar</p> <p>JOB NUMBER 03911,137.06</p>	<p>APPROVED DAV</p> <p>FILE lcc-sp</p> <p>DATE 2/92</p>

KEY NOTES

1. The approximate location of two USTs and the test boring (H).
2. The approximate location of a wall, a cover plate marked "Oil Storage System" (suspect UST location) and an unmarked manhole cover.
3. Two pole-mounted electrical transformers owned by HECO.
4. The approximate location of two concrete islands where fuel dispenser(s) may have been located for possible UST(s).
5. The approximate location of an abandoned oven with suspect ACM.
6. A pole-mounted electrical transformer with suspect PCBs.
7. An estimated 600-gallon AST marked "Fuel Oil."
8. Discarded vehicles, railroad equipment, wood pallets, refuse and 55-gallon drums of petroleum products (some leaking) were observed in this area.
9. Discarded appliances, furniture, bags of sugar and doughnut mix, and 55-gallon drums marked diesel fuel were observed in this area.
10. Two concrete slabs and discarded equipment were observed within this fenced area.
11. The approximate location of two estimated 2,000-gallon ASTs marked "Propane."
12. Discarded equipment, furniture, trash, supplies, plywood and paint cans were observed below the concrete ramp.
13. Two concrete abutments and an unmarked manhole cover.
14. A series of grates in the asphalt paving presumed to be part of the storm-water drainage system.

<p>Harding Lawson Associates Engineering and Environmental Services</p>	<p>Key Notes for Plate 3B Lihua Civic Center Honolulu, Hawaii</p>	<p>PLATE 3A</p>
	<p>Drawn dmg</p> <p>JOB NUMBER 03911,137.06</p>	<p>APPROVED DAV</p> <p>FILE lcc-n3a</p> <p>DATE 2/92</p>



BUILDING/STRUCTURE

- 1 OR&L Building (former passenger depot and office building)
- 2 Fronts and Vegetables Warehouse (former location of the freight depot)
- 2A Storage Shed and Mason Containers
- 2B Mason Container and Shed Covering Coolers
- 2C Mason Containers and Sheds Covering Coolers
- 2D Shed Covering Freezers and Coolers
- 2E Storage Buildings (a portion was damaged by fire)
- 3 Kapihā - Palama Culture & Arts, Inc. Building (former land department building)
- 4 HCAP Building (former gasoline station)
- 5 Abandoned Building (former paint shop)
- 6 Ramp

LEGEND

- 1 Building/Structure Number
- 1 Key Hole, see Plate 3A
- - - Fence
- - - Property/Parcel Line

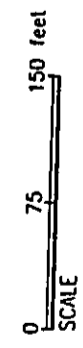
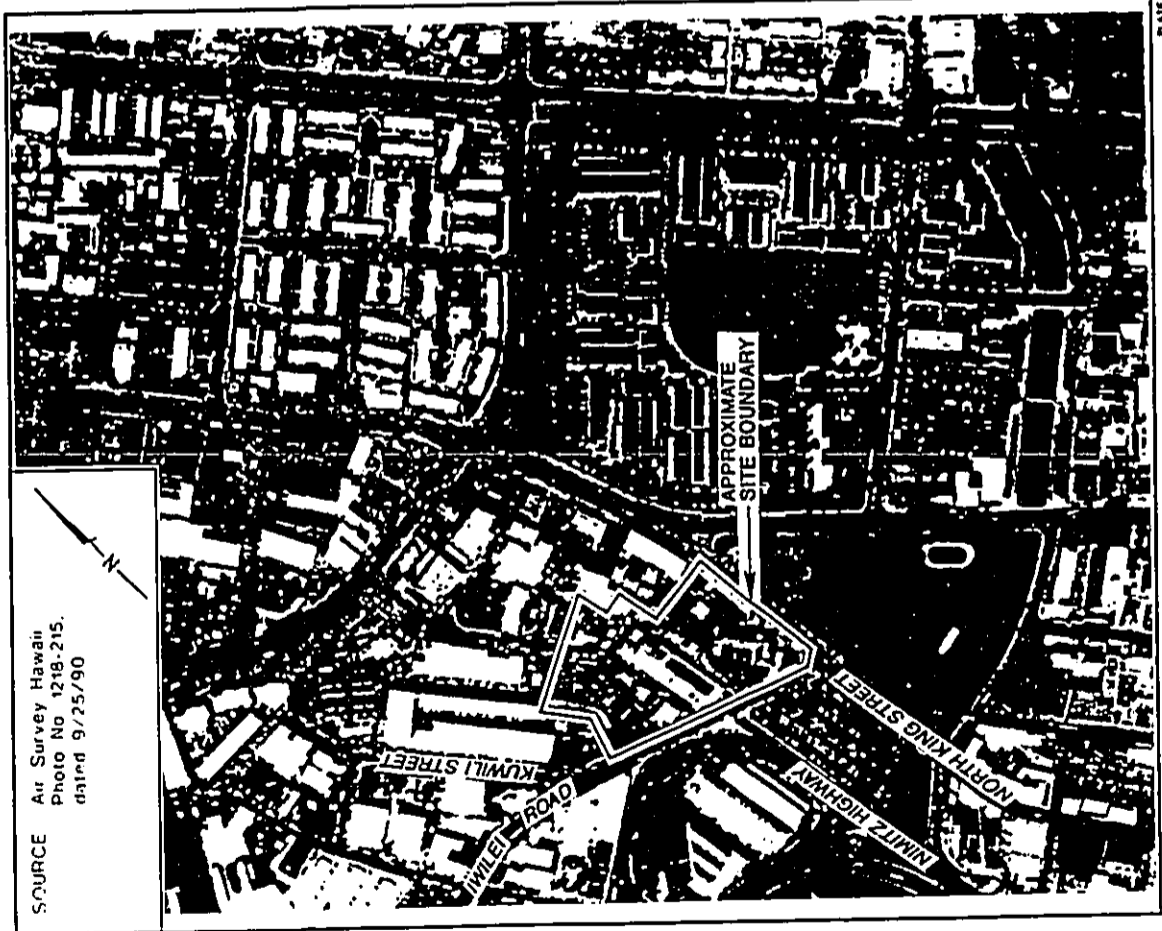


PLATE
3B

Site Plan
Liliha Civic Center
Honolulu, Hawaii

Harding Lawson Associates
Engineering and
Environmental Services

APPROVED: [Signature] DATE: 2/92
DRAWN: k3r JOB NUMBER: 03911.137.06
DATE: 2/92

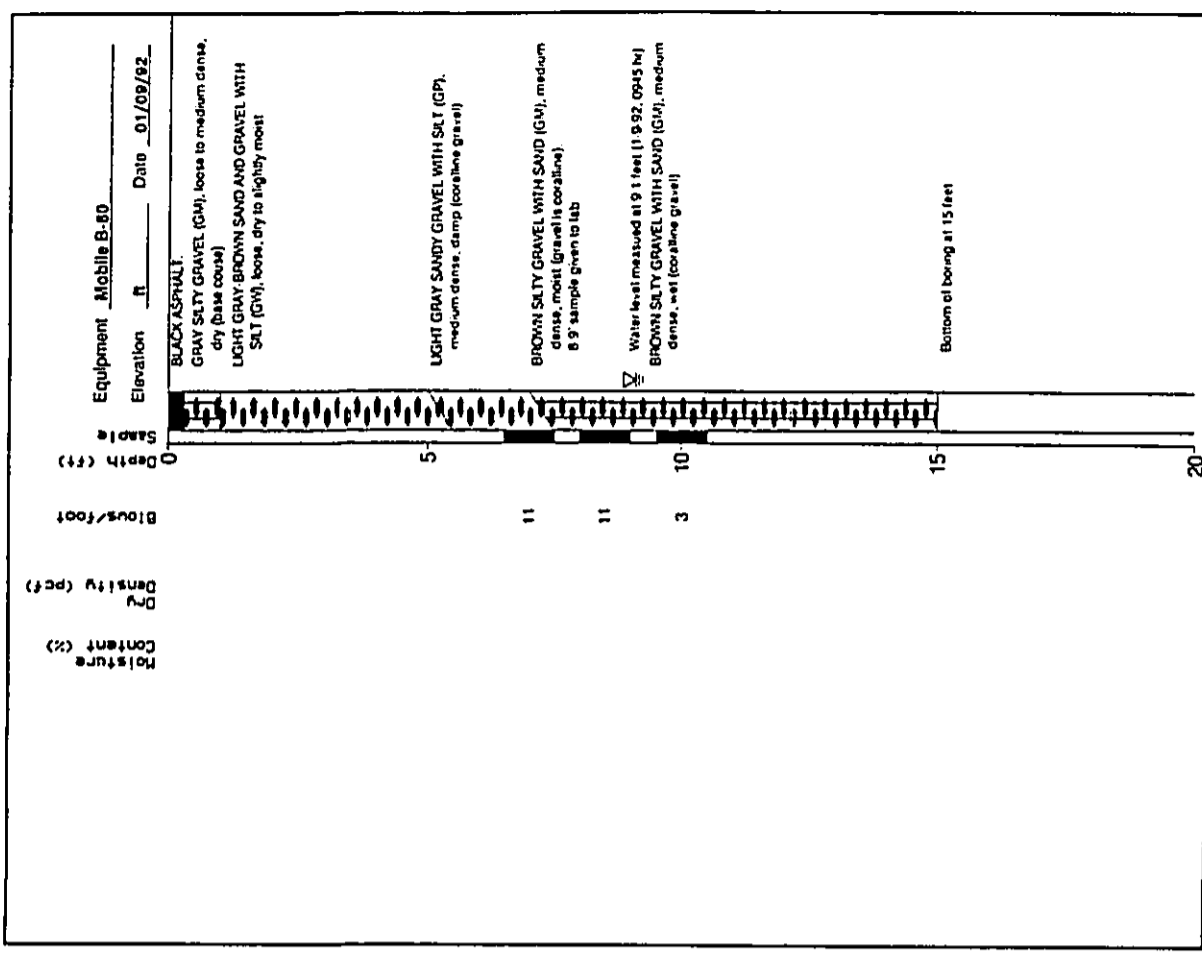


SOURCE Air Survey Hawaii
 Photo No 1218-215,
 dated 9/25/90

Heading Lawson Associates
 Engineering and
 Environmental Services

DRAWN 13r
 JOB NUMBER 03911.137.06
 FILE lcc-1990
 DATE 2/92
 APPROVED DAA
 ALTIMO DATE

PLATE 7



Equipment Mobile B-80
 Elevation ft Date 01/09/92

Harding Lawson Associates
 Engineering and
 Environmental Services

DRAWN kar
 JOB NUMBER 03911.137.06
 FILE LCC
 DATE 2/92
 APPROVED DAA
 REVISED DATE

PLATE 8

AGENCIES AND PERSONNEL CONTACTED

The following agencies and respective personnel were contacted regarding their knowledge of the site's environmental history and of potential or known environmental concerns at the site and surrounding properties. The results of these contacts are presented in Section IV.C.1 (Review of Published Regulatory Agency Information) and Section IV.C.2 (Regulatory Agency Contacts) of this report.

- Mrs. Roxanne Kwan
State of Hawaii, Department of Health
Solid and Hazardous Waste Branch
Underground Storage Tank Section
Five Waterfront Plaza, Suite 250
500 Ala Moana Boulevard
Honolulu, Hawaii 96813
Phone: 808/543-8233
- Mrs. Grace Simmons/Mr. Paul Kalaiwaa
State of Hawaii, Department of Health
Solid and Hazardous Waste Branch
Hazardous Waste Section
Five Waterfront Plaza, Suite 250
500 Ala Moana Boulevard
Honolulu, Hawaii 96813
Phone: 808/543-8242
- Mr. Chauncey Hew
State of Hawaii, Department of Health
Safe Drinking Water Branch
Underground Injection Control Program
Five Waterfront Plaza, Suite 250
500 Ala Moana Boulevard
Honolulu, Hawaii 96813
Phone: 808/543-8273

APPENDIX A

AGENCIES AND PERSONNEL CONTACTED

- Ms. Liz Galvez
State of Hawaii, Department of Health
Hazard Evaluation and Emergency Response Office
Five Waterfront Plaza, Suite 250
500 Ala Moana Boulevard
Honolulu, Hawaii 96813
Phone: 808/543-8249
- Mr. Don Sakoda
State of Hawaii, Department of Land and Natural Resources
1151 Punchbowl Street, Room 227
Honolulu, Hawaii 96813
Phone: 808/548-7643
- Mr. Robert Yatchmenoff, Director of Logistics
Mr. Robert Paau, Historian
Hawaiian Railroad Society
P.O. Box 1208
Ewa Station
Ewa Beach, Hawaii 96706
Phone: 808/681-5461
- Mr. Michael Choy
Hawaii Electric Company, Inc.
Environmental Department
P.O. Box 2750
Honolulu, Hawaii 96840
Phone: 808/543-7022

APPENDIX B
LABORATORY REPORT



BREWER
ENVIRONMENTAL
INDUSTRIES, INC.

Harding Lawson Associates

Environmental Services Division
LABORATORY ANALYSIS
REPORT

DISTRIBUTION

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
LILIHA CIVIC CENTER
HONOLULU, OAHU, HAWAII
FEBRUARY 26, 1992

CLIENT: HARDING LAWSON & ASSOC.
803 KAHEHAMEHA HWY, ROOM 404
PEARL CITY, HAWAII 96782

ATTN: SYLVIA NEWSON
JOB NUMBER: 6098
DATE: JAN. 13, 1992

SAMPLE LOCATION: LILIHA CIVIC CENTER
JOB #91,760.06

Date/Time Sampled: 01/09/92 @ as noted
Date/Time Received: 01/10/92 @ 0715

Matrix: SOIL/WATER

SAMPLE ID#: B1

Time Sampled: 0916

ANALYSIS	RESULT mg/kg	Reporting Limit mg/kg	Analysis Date	Method Number
Benzene	ND	0.005	01/10/92	M 8020
Toluene	ND	0.005	01/10/92	M 8020
Ethylbenzene	ND	0.005	01/10/92	M 8020
Total Xylenes	ND	0.010	01/10/92	M 8020
TPH as Gasoline	ND	5.0	01/10/92	M 8015
Analyst Initials:	DW	Extraction:	01/10/92	5030

SAMPLE ID#: TMW1

Time Sampled: 1035

ANALYSIS	RESULT mg/l	Reporting Limit mg/l	Analysis Date	Method Number
Benzene	ND	0.005	01/10/92	M 608
Toluene	ND	0.005	01/10/92	M 608
Ethylbenzene	ND	0.005	01/10/92	M 608
Total Xylenes	ND	0.010	01/10/92	M 608
TPH as Gasoline	ND	0.5	01/10/92	M 8015
Analyst Initials:	DW	Extraction:	01/10/92	5030

ND = NOT DETECTED

BREWER ENVIRONMENTAL INDUSTRIES, INC.
PO BOX 102
PEARL CITY, HAWAII 96782
TEL: (808) 941-5292

Approved By *James M. ...*

COPY NO. 5

COPY NO.

1 - 6

State of Hawaii
Department of Accounting and
General Services
Project Management Branch
1151 Punchbowl Street, Room 427
Honolulu, Hawaii 96813

Attention: Ms. Gina Ichijama

7

HLA - Novato (Unbound)

8 - 9

Office Files: HLA - Honolulu

DAA/bcc:0344R

QUALITY CONTROL REVIEWER

Ronald L. Sproos
Ronald L. Sproos
Engineering Geologist - 1056 (California)

Liliha Civic Center

Appendix B

AIR QUALITY ANALYSIS
Environmental Technologies, Inc.

Executive Summary

The Department of Accounting and General Services is proposing to develop an area at the corner of Iwilei Road and North King Street which is Ewa of the historic Chinatown district in downtown Honolulu, Oahu, Hawaii. The site is in the vicinity of the former Oahu Railway & Land (OR&L) depot in Iwilei, which presently serves as offices for several social agencies and state organizations. As part of the requirements of the Environmental Impact Statement for the project, an air quality analysis was conducted.

The analysis addressed potential short-term direct and indirect air quality impacts of fugitive dust, carbon monoxide (CO) and nitrogen oxides (NO_x) due to Phase I of the project construction. In addition, long-term CO air quality impacts associated with motor vehicle traffic on nearby roadway intersections were determined with computerized emission and dispersion models. These impacts were evaluated for three scenarios: Year 1992 with present conditions; Year 1997 without the project; and Year 1997 with the project.

The results of the short term impact assessments indicated that fugitive dust emissions would be minimized by establishing a dust control plan during the construction phase. This plan would include frequent watering of demolition and bare dirt surfaces and paving of parking areas or landscaping in the earlier construction phase. In addition, CO and NO_x emissions from vehicular and stationary construction equipment are expected to be insignificant when compared to vehicular emissions on nearby roadways. These insignificant CO and NO_x construction-related impacts could be further mitigated by moving the heavy construction equipment as well as commuting construction workers during low traffic periods.

The results of long term CO impact assessment for all scenarios indicate that the predicted 1-hour CO impacts are below the National Ambient Air Quality Standard (NAAQS) of 40,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). However, the predicted 1-hour CO impacts for the three scenarios may exceed the State of Hawaii Ambient Air Quality Standard (SAAQS) of 10,000 $\mu\text{g}/\text{m}^3$ on occasion at receptor locations within the project area. In comparison, the 8-hour NAAQS of 10,000 $\mu\text{g}/\text{m}^3$ could be exceeded near one roadway intersection evaluated and the 8-hour SAAQS of 5,000 $\mu\text{g}/\text{m}^3$ may be exceeded at several locations. These CO impacts could be mitigated by reducing traffic, improving roadways, using mass transit, carpooling, and adjusting local school/business hours to off peak hours.

Air Quality Analysis

For the Proposed

Liliha Civic Center Project

Honolulu, Oahu, Hawaii

Prepared For:

Wilson Okamoto & Associates
P.O. Box 3530
1150 South King Street
Honolulu, Hawaii 96811

By:

Environmental Technologies, Inc.
737 Bishop Street, 22nd Floor
Honolulu, Hawaii 96813

July 1982
Revised

LIST OF TABLES

Table	Page
1. Annual Wind Speed and Direction Frequency Distribution Based on Honolulu International Airport Data	4
2. State of Hawaii and National Ambient Air Quality Standards	6
3. Summary of Emissions Inventory for City and County of Honolulu, 1980	8
4. Annual Summaries of Background Air Quality Concentrations from Ambient Monitoring Stations Nearest Liliha Civic Center Project	9
5. Worst-Case 1-Hour CO Impacts ($\mu\text{g}/\text{m}^3$) along Roadway Receptors near Liliha Civic Center Project	15
6. Worst-Case 8-Hour CO Impacts ($\mu\text{g}/\text{m}^3$) along Roadway Receptors Near Liliha Civic Center Project	17
7. Indirect Air Pollutant Liliha Civic Center Project Electrical Demand	18
8. Uncontrolled Air Pollution Emission Factors for Municipal Refuse Incinerators (lb/ton) and Estimated Annual Emissions Increase after Project	19

LIST OF FIGURES

Figure	Page
1. Site and Project Location	2
2. Proposed Project Site Plan	3

TABLE OF CONTENTS

Section	Page
Executive Summary	1
1.0 Introduction and Project Description	1
2.0 Climatology	1
3.0 Air Quality	5
3.1 Air Quality Standards	5
3.2 Existing Air Quality	7
4.0 Short-Term Project Impact	11
5.0 Long Term Project Impact	12
5.1 Roadway Traffic	12
5.2 Parking Structure	16
5.3 Electrical Demand	18
5.4 Solid Waste Disposal	16
6.0 Summary of Impacts and Mitigative Measures	20
6.1 Summary	20
6.2 Probable Mitigative Measures	20
7.0 References	21

1.0 Introduction and Project Description

The Department of Accounting and General Services is proposing to develop a parcel of land near the corner of Iwilei Road and North King Street. The site is the old Oahu Railway & Land (OR&L) depot in Iwilei, which presently serves as offices for several social agencies and state government organizations. Figure 1 shows the site and project location.

The Liliha Civic Center project is located on approximately 5.6 acres of land. The project will be completed in two phases. Phase I will consist of an office building and parking complex. The buildings will house State of Hawaii government offices and non-profit organizations in an approximate gross floor area of 285,000 square feet. The existing 20,000 square foot OR&L building will remain and will continue to be used. A new parking structure, with approximately 623 stalls, will be constructed adjacent to the new office buildings. Parking provisions also include a 186-stall at-grade parking lot. Phase I is scheduled for completion in 1997. Vehicular access will be from North King Street, Iwilei Road, and Kaaahiki Street off Dillingham Boulevard.

The proposed Honolulu Rapid Transit route is expected to be located along the westerly (makai) border of the project site. A passenger station is planned near the site, but not necessarily immediately adjacent to the project site.

Phase II of the project would add an additional 191,000 square feet of gross floor area and a 477-stall parking garage. However, Phase II will not be developed until sometime after 1997, and is not included as part of this analysis. Figure 2 shows the proposed project plan.

The purpose of this study is to describe existing air quality conditions in the project area and to assess potential short and long term direct and indirect air quality impacts that could occur from the subsequent construction activities involved in the development. In addition, measures to mitigate associated impacts are also suggested where appropriate.

2.0 Climatology

The air quality of a given location is affected by both regional and local climatology. The wind speed, wind direction, ambient temperature, atmospheric turbulence, mixing height and rainfall influence air quality. The climate of the Hawaiian Islands is generally moderate throughout most of the year; however, differences in the climatological parameters occur from location to location. The mountainous topography within Hawaii contributes to significant differences in regional and local climate conditions.

The Hawaiian Islands are located within the northeasterly trade wind belt which is generated by the semi-permanent Pacific high pressure system located to the north and east of the island chain. On the island of Oahu, the Koolau and Waianae Mountain Ranges are situated nearly perpendicular to the trade wind flow. This orientation accounts for much of the local climatological variation on Oahu. The proposed project is located in downtown Honolulu and is in a coastal area leeward of the Koolau Mountains. The long-term meteorological data recorded at the Honolulu International Airport which is located approximately 3.2 miles to the northwest is deemed representative of the site.

The wind speed and direction frequency data provided in Table 1 from the Honolulu International Airport indicates that the annual prevailing wind direction for this leeward area of Oahu is east-northeast. The annual summary indicates that 37.5 percent of the time the wind is blowing from this direction and approximately 75 percent of the time the wind is blowing from the northeast quadrant. The southerly wind components are infrequent and occur mostly in winter during kona storms. The wind speeds average about 10 knots (12 mph) with a range between 5 and 15 knots (6 and 17 mph). The surface winds in Honolulu and within the project area are similar to those at the airport, however, they would likely be channeled and deflected at some locations due to the numerous high-rise buildings.

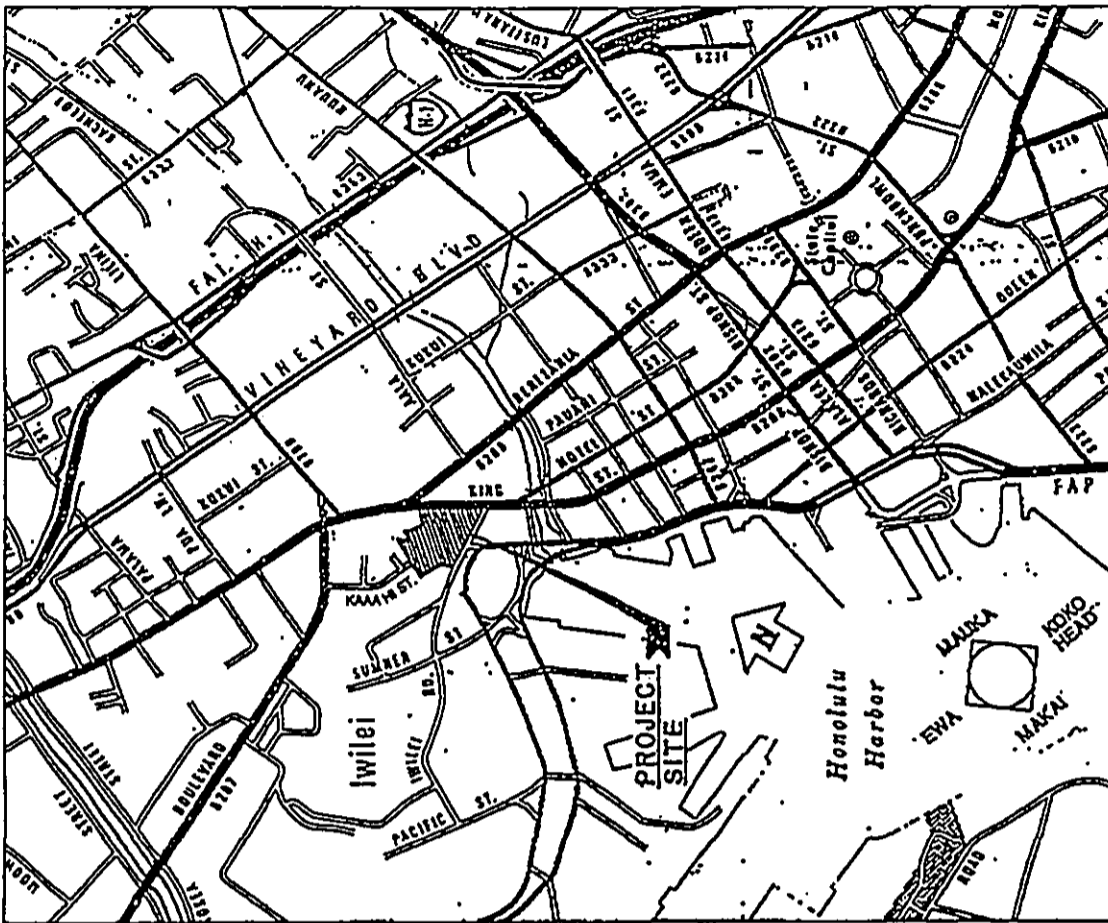


Figure 1
Site and Project Location

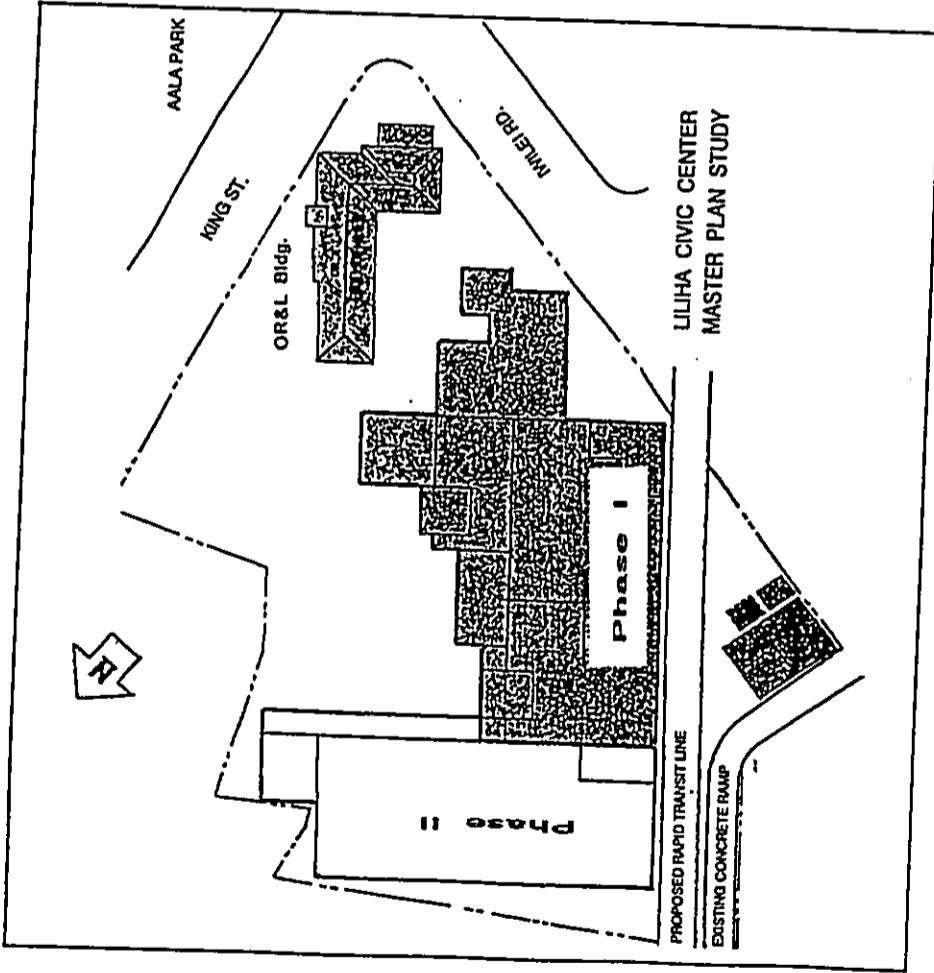


Figure 2
Proposed Project Site Plan

Table 1
Annual Wind Speed and Direction Frequency Distribution (Percent)
Based on Honolulu International Airport

Wind Direction	Wind Speed (Knots)										Total
	0-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	> 40		
N	0.5	2.5	1.3	0.5							4.8
NNE	0.3	1.2	1.6	1.5	0.2						4.7
NE	0.3	2.1	6.1	11.0	3.2	0.3					23.0
ENE	0.2	2.5	10.9	16.6	4.1	0.3					34.7
E	0.1	1.0	2.5	2.8	0.5						7.0
ESE	0.0	0.3	0.4	0.3							1.1
SE	0.0	0.3	0.8	1.0	0.1						2.2
SSE	0.1	0.4	1.2	0.7	0.1						2.4
S	0.1	0.5	1.4	0.6	0.1						2.7
SSW	0.0	0.3	0.8	0.3							1.5
SW	0.0	0.2	0.8	0.4							1.5
WSW	0.0	0.3	0.5	0.4							1.2
W	0.1	0.5	0.2	0.2							1.1
WNW	0.2	1.4	0.3	0.1							2.0
NW	0.4	2.3	0.8	0.1							3.8
NNW	0.5	2.3	0.8	0.2							3.8
CALM	2.5										2.5
TOTAL	5.4	18.3	30.6	36.5	8.5	0.7					100.0

Notes:

1. Frequency distribution obtained from Climatology of the United States No. 90 (1965-1974), Airport Climatological Summary, Honolulu International Airport, Honolulu, Hawaii, U.S. Department of Commerce, National Climatic Data Center, Asheville, NC August 1978.

Air pollution levels emitted by motor vehicles, photochemical smog and height of the effluent plumes will be a function of air temperature. Cooler temperatures contribute to an increase of automobile pollutant emissions but suppress the formation of photochemical smog and minimize ground-level concentrations from elevated plumes. The annual and diurnal temperature variations in Hawaii are a function of trade wind exposure, terrain elevation and distance from the coastlines. The average temperatures near sea level are warmer than those in elevated terrain. Areas exposed to trade winds have very small temperature variations while leeward and inland locations experience greater variation. The average daily minimum and maximum temperatures at the Honolulu Airport are 70°F and 84°F, respectively. The minimum and maximum temperatures of record at the airport were 53°F during February 1983 and 94°F during September 1988. It is expected that temperatures in the downtown project area would be slightly higher than the airport due to the localized urban heating effects.

Atmospheric turbulence is small scale random atmospheric motions, which cause air pollutants to be dispersed as a function of distance and time from the emission source. Turbulence is a result of thermal and mechanical forces in the atmosphere. The conventional way to measure and describe this in terms of the Pasquill-Gifford stability classification scheme. There are six stability classes with turbulence Class 1 (for A) being the most unstable (turbulent) and Class 6 (for F) the most stable. In general, stability Class 1 conditions provide the best dispersion of air pollution, while stability Class 6 is the worst condition. Honolulu, which is an urban area and influenced by the lower level slightly unstable air mass associated with the tropical Pacific waters, will typically experience a stability class no greater than Class 4 (neutral condition).

The mixing height is the height above the earth's surface through which vigorous vertical mixing occurs. Mixing heights that are relatively low to the surface can produce high ground level air pollutant concentrations when pollutants emitted at or near the surface become trapped within the shallow mixing layer. In Hawaii, mixing heights are quite high because of the vigorous mechanical mixing associated with the trade winds and the temperature moderating effect of the ocean. Reduced mixing heights seldom occur. When they do occur, they will be mainly at inland locations and possibly along coastal areas in early morning hours after a clear, cool, windless night. Coastal areas such as Honolulu may experience low mixing heights when sea breeze conditions advect cooler ocean air over warmer land. The mixing heights in the state are generally above 3,000 feet (920 meters). It is expected that low mixing heights in downtown Honolulu would be inhibited by urban effects. These urban effects are due to the heating and cooling of the concrete and building structures, which contribute mechanical and thermal turbulence that suppresses low mixing heights.

Rainfall has a positive effect on air quality in that it helps to "washout" and "suppress" water soluble gaseous pollutants and fugitive dust matter. Downtown Honolulu is a leeward location near sea level and experiences a relatively dry climate. The annual average rainfall in Honolulu is 24 inches. Monthly rainfall amounts may vary from a trace to well over 20 inches. The driest months typically occur during the summer season.

3.0 Air Quality

3.1 Air Quality Standards

Ambient air quality concentrations are regulated by both national and State of Hawaii standards. The National Ambient Air Quality Standards (NAAQS) are defined in Section 40, Part 50 of the Code of Federal Regulations, while the State of Hawaii Ambient Air Quality Standards (SAAQS) are defined in Chapter 11-59 of the Hawaii Administrative Rules. Table 2 provides a summary of both the applicable NAAQS and SAAQS. The SAAQS have been patterned after the NAAQS and are currently established for six pollutants. These pollutants include: particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, and lead.

Table 2
State of Hawaii and National
Ambient Air Quality Standards

POLLUTANT	AVERAGING PERIOD	ALLOWABLE CONCENTRATION ($\mu\text{g}/\text{m}^3$)		
		National Standards Primary	National Standards Secondary	Hawaiian Standards
Particulate Matter (PM)	24-Hour	None	None	150
	Annual	None	None	60
Particulate Matter Less Than 10 Microns (PM-10)	24-Hour	150	150	None
Sulfur Dioxide (SO_2)	3-Hour	None	1,300	1,300
	24-Hour	365	None	365
	Annual	None	1,300	80
Nitrogen Dioxide (NO_2)	Annual	100	100	70
Carbon Monoxide (CO)	1-Hour	40,000	None	10,000
	8-Hour	10,000	None	5,000
Ozone (O_3)	1-Hour	235	235	100
Lead (Pb)	Calendar Quarter	1.5	1.5	1.5

Notes:

1. The PM and PM-10 standards are based on a geometric mean.
2. The National Primary, Secondary, and State of Hawaii standards are not to be exceeded more than once per year.

Table 3
Summary of Actual Air Pollution Emissions Inventory
for City and County of Honolulu

SOURCE CATEGORY	EMISSIONS (tons/year)				
	PM	SO _x	NO _x	CO	
Electric Power Plants	2,092	36,736	12,455	1,065	
Gas Utilities	14	0	199	0	
Fuel Combustion in Agricultural Industry	1,088	579	358	0	
Refinery Industry	622	7,096	2,149	266	
Petroleum Storage	0	0	0	0	
Metallurgical Industry	28	96	40	0	
Mineral Products Industry	6,884	1,883	597	0	
Municipal Incineration	42	145	2,029	0	
Motor Vehicles	1,413	1,014	17,270	239,198	
Construction, Farm and Industrial Vehicles	184	193	2,507	3,729	
Aircraft	382	145	1,751	5,594	
Vessels	42	386	438	533	
Agricultural Field Burning	1,399	0	0	15,982	
TOTALS	14,190	48,273	39,793	266,367	

Notes:

1. The emissions inventory is based on State of Hawaii, Department of Health statistics for period in 1980.

The NAAQS are also stated in terms of primary and secondary standards. The primary standards are designed to protect the public health with an adequate margin of safety. The secondary standards are designed to protect public welfare from any known or anticipated adverse pollutant effects. The Hawaii SAAQS are given in terms of a single standard that is defined to protect public health and welfare as well as prevent significant deterioration of the ambient air quality.

The NAAQS and SAAQS specify maximum allowable concentrations for specific air pollutants for varying averaging times (i.e., 1- to 24-hour). The SAAQS in some cases are more stringent than the applicable NAAQS. Specifically, the 1-hour carbon monoxide Hawaii SAAQS is four times as stringent as the carbon monoxide NAAQS.

The U.S. Environmental Protection Agency (EPA) periodically reviews and re-evaluates the NAAQS in light of research reports more recent than those used when the NAAQS were originally promulgated. Recently, the NAAQS for particulate matter have been revised to address the respirable fraction with particulate diameters less than 10 microns (PM-10). Hawaii has not specifically addressed whether to set up a similar PM-10 standard, however the NAAQS prevails where the states have not promulgated their own standards that are more stringent than federal levels.

3.2 Existing Air Quality

The existing air quality within the proposed project area is primarily affected by mobile sources, industrial and/or natural sources and distant agricultural sources. The best available source specific summary of actual air pollutant emissions for the City and County of Honolulu is presented in Table 3. It is expected that the emissions have increased since the completion of the summary in 1980. The mineral products industry was the significant source category for particulate matter. Sulfur oxides emissions were primarily from the fossil fuel-fired power plants while motor vehicles accounted for the majority of nitrogen oxides, carbon monoxide and hydrocarbons.

The project area is located near the heavily traveled Dillingham Boulevard and King Street thoroughfares. Nitrogen oxide and carbon monoxide emissions from motor vehicles on this highway would be advected over the project site during infrequent periods of Kona (southerly) winds.

The Hawaiian Electric Company, Inc. (HECO) Honolulu Power Plant is located in proximity to the project site. This steam-electric generating facility consists of two units fired by low sulfur fuel oil. The existing air quality in the project vicinity could be affected by nitrogen oxide and sulfur oxide emissions existing in the relatively short boiler stacks. HECO is planning to phase these units out and eventually shut down the plant during a 1994-1996 timeframe.

Natural sources of air pollutants, which are difficult to quantify, could also affect the project area. These include ocean (sea spray salts), vegetation (allergens), wind-blown dust and volcanic gases advected from the island of Hawaii. The Hawaii State Department of Health (DOH) has conducted ambient air quality monitoring at numerous locations on Oahu. Table 4 provides an annual summary of air quality measurements that were recorded at monitoring stations in proximity to the project location during the six-year period 1985 through 1991.

Sulfur Dioxide (SO₂) monitoring data in the vicinity of downtown Honolulu is not available. However, SO₂ was monitored at a site located in the Campbell Industrial Park several miles west of the project site. SO₂ concentrations were recorded as 24-hour averages every sixth day. The highest 24-hour concentration recorded during this period was 48 micrograms per cubic meter (µg/m³) with daily mean values at or below 5 µg/m³ during the past four years. There has never been an exceedance of the State of Hawaii National 24-hour ambient SO₂ standard during this six-year period at this station.

Table 4 (cont'd)

Annual Summaries of Background Air Quality Concentrations
From Ambient Monitoring Stations Nearest Liliha Civic Center Project

POLLUTANT (ug/m ³)/LOCATION	1985	1986	1987	1988	1989	1990
O ₃ /Sand Island						
Highest 1-Hour Value	198	88	84	---	94	---
Average Daily 1-Hour Max Value	43	39	38	---	15	---
Number of State of Hawaii Exceedances	3	0	0	---	0	---
Lead/Downtown Honolulu						
Highest 24-Hour Value	0.3	0.2	0.2	---	0.1	0.0
Average Quarterly Value	0.2	0.0	0.0	---	0.0	0.0
Number of State of Hawaii Exceedances	0	0	0	---	0	0

Notes:

1. N/A - Not applicable. There is no Hawaii State Standard for PM-10 particulates.
2. The annual ambient air quality summaries were obtained from the State of Hawaii Department of Health.
3. The 1990 air quality concentrations are based on a six-month period from January through June.

Table 4

Annual Summaries of Background Air Quality Concentrations
From Ambient Monitoring Stations Nearest Liliha Civic Center Project

POLLUTANT (ug/m ³)/LOCATION	1985	1986	1987	1988	1989	1990
SO ₂ /Barbers Point						
Highest 24-Hour Value	48	10	13	19	6	5
Average 24-Hour Value	24	< 5	< 5	< 5	< 5	< 5
Number of State of Hawaii Exceedances	0	0	0	0	0	0
PM/Downtown Honolulu						
Highest 24-Hour Value	48	61	59	45	48	45
Average 24-Hour Value	24	25	25	26	30	33
Number of State of Hawaii Exceedances	0	0	0	0	0	0
PM-10/Liliha						
Highest 24-Hour Value	52	35	33	25	32	19
Average 24-Hour Value	23	18	17	17	16	14
Number of State of Hawaii Exceedances	NA	NA	NA	NA	NA	0
CO/Downtown Honolulu						
Highest 1-Hour Value	10,400	13,500	11,100	7,400	7,800	---
Average Daily 1-Hour Maximum Value	1,500	2,200	1,700	2,600	1,900	---
Number of State of Hawaii 1-Hour Exceedances	1	3	1	0	0	---
Highest 8-Hour Value	4,400	4,700	3,900	---	---	---
Average Daily 8-Hour Maximum Value	1,300	1,400	1,200	---	---	---
Number of State of Hawaii Exceedances	0	0	0	---	---	---

Total suspended particulate matter (PM) is monitored in downtown Honolulu and in proximity to the project area. The highest 24-hour average PM concentration recorded during the 1985 through 1990 period was 61 $\mu\text{g}/\text{m}^3$. The mean daily concentrations during this period were less than 30 $\mu\text{g}/\text{m}^3$. These values are well below the state standard of 150 $\mu\text{g}/\text{m}^3$.

Particulate matter less than 10 microns in size (PM-10) is monitored at the Kauluwela School located within proximity to the project. The highest 24-hour average concentration recorded during the 1985 through 1990 period was 52 $\mu\text{g}/\text{m}^3$. The average daily concentrations were generally less than 25 $\mu\text{g}/\text{m}^3$. This monitored data is well below the national ambient standard of 150 $\mu\text{g}/\text{m}^3$.

Carbon monoxide (CO) concentrations were recorded at the DOH building in downtown Honolulu. The maximum 1-hour CO concentration recorded during the 1985 through 1990 period was 13,500 $\mu\text{g}/\text{m}^3$. The average daily maximum 1-hour concentrations during the same period are approximately 2,000 $\mu\text{g}/\text{m}^3$. Exceedances of the 1-hour ambient state standard of 10,000 $\mu\text{g}/\text{m}^3$ occurred in 1985, 1986, and 1987. The maximum 8-hour concentration during this period was 4,700 $\mu\text{g}/\text{m}^3$. The average daily maximum 8-hour value was about 1,300 $\mu\text{g}/\text{m}^3$. Exceedances of the 8-hour ambient state standard of 5,000 $\mu\text{g}/\text{m}^3$ have not been recorded.

Ambient ozone (O_3) measurements were recorded at the DOH Sand Island station located approximately 0.5 mile northwest of the project site. Except for 1985, the maximum 1-hour O_3 concentration recorded during 1986 and 1987 has averaged about 80 $\mu\text{g}/\text{m}^3$. Exceedances of the state 1-hour ambient O_3 standard of 100 $\mu\text{g}/\text{m}^3$ have not occurred since 1985.

Ambient lead (Pb) concentrations were recorded at the DOH downtown monitoring station from 1985 through 1990. The average quarterly concentrations during this period were at or below the detection limit. Exceedances of the state quarterly average standard of 1.5 $\mu\text{g}/\text{m}^3$ have never been recorded.

Nitrogen dioxide (NO_2) monitoring was discontinued by the DOH in 1976. Concentrations were measured from 1971 through 1976 at Barbers Point and annual mean values ranged from 11 to 29 $\mu\text{g}/\text{m}^3$. These concentrations are well below the applicable state and national standards of 100 $\mu\text{g}/\text{m}^3$ and 70 $\mu\text{g}/\text{m}^3$, respectively.

4.0 Short-Term Project Impacts

The short-term direct and indirect air quality impacts associated with a project typically result from project construction. Fugitive dust from demolition work, vehicle movement, soil excavation and vehicular exhaust emissions from on-site construction equipment are the primary construction-related pollutants. In addition, indirect short-term impacts could occur as a result of slow-moving construction equipment traveling within the project site and from a temporary increase in local traffic associated with commuting construction workers.

The fugitive dust emissions may occur during the demolition and removal of existing structures on site and during site preparation (i.e., grading and dirt-moving activities). A fugitive dust emission rate for these construction activities is difficult to estimate. An emission estimate based on an EPA AP-42 document (EPA, 1988) provides an approximate estimate for uncontrolled fugitive dust emissions from construction activities of 1.2 tons per acre per month under medium activity, for soils having a moderate silt content (30%), and precipitation/evaporation P/E index of 50. It is likely that uncontrolled fugitive emissions in downtown Honolulu would probably be greater since the P/E index would be higher due to its drier climate. The State of Hawaii air quality regulations prohibits visible emissions of fugitive dust from construction activities at the project property line. As a result, a dust control plan for the construction phase is essential.

Fugitive dust control can usually be accomplished by frequent watering of demolition and bare-dirt surface. The control regulations also require that moving open-body trucks be covered at all times if

their materials are likely to generate airborne dust. Paving of parking areas or landscaping in the early construction phase can also lower the potential for fugitive dust emissions.

Vehicular and stationary construction equipment will emit air pollutants from exhausts. Diesel-powered equipment is the primary source contributor. Nitrogen oxides (NO_x) emissions from diesel engines are usually greater when compared to gasoline-powered engines. However, the standard for nitrogen dioxide (NO_2) is based on an annual basis and is not likely to be exceeded due to short-term construction equipment emissions. The carbon monoxide (CO) emissions from diesel engines are low and would be insignificant when compared to gas-powered vehicular emissions on roadways.

Slow-moving construction vehicles on nearby/associated roadways within/around the project could obstruct traffic flow and contribute to an overall vehicular emissions increase. However, this impact can be mitigated by moving the heavy construction equipment during low traffic periods. This approach could also be used for commuting construction workers. In summary, the majority of potential short-term air quality impacts due to project construction can be mitigated.

5.0 Long Term Project Impacts

5.1 Roadway Traffic

The proposed project will increase motor vehicle traffic on nearby roadways principally resulting in an increase of CO, NO_x , and Lead pollutants. Gasoline-fueled engines are sources of CO and NO_x , and those few burning leaded gasoline contribute lead to the atmosphere. The consumption and use of leaded gasoline in newer automobiles is now prohibited and as older vehicles are removed from the roadways through attrition, lead emissions will approach zero. As discussed in Section 3.0, the ambient average quarterly lead concentrations recorded in urban Honolulu have been zero since 1986. As a result, ambient lead is not considered a problem in the state.

The potential long-term indirect air quality impacts due to the increased roadway traffic were evaluated for CO with computerized emission and dispersion models. This approach is similar to the air quality analysis performed for the Kauluwela Revitalization Project (ETI, 1991). CO was chosen because it is the most stable as well as most abundant pollutant generated by motor vehicles. In addition, CO is often considered a microscale problem while NO_x is typically of regional concern. This is reflected in the NAAQS where CO is specified on a short-term basis (1-hour and 8-hour average) while NO_x is based on an annual average.

In this project, three scenarios were selected for the CO modeling study:

- Year 1992 with present conditions.
- Year 1997 without the project, and
- Year 1997 with the project.

In the modeling study, critical receptors located in proximity to the project were identified for analysis:

Roadway intersections are of greatest concern because of traffic congestion and the vehicular emissions associated with traffic cycling (i.e., decelerating, stopping, queuing, and accelerating). In this study, three key intersections identified in the traffic study were also selected for the air quality analysis. These include: N. King Street, Dillingham Boulevard and Liha Street; N. King Street at Beretania Street; and N. King Street at Iwilei Street. The traffic impact assessment report prepared by Austin, Tsutsumi & Associates, Inc. for the project describes the present and future conditions and configurations of these intersections in detail.

The purpose of the modeling study is to estimate the existing and projected levels of the maximum 1-hour average CO concentrations and compare them to the NAAQS and SAAQS. The traffic study conducted indicates that the volumes generally are or will be higher during the afternoon peak hour than during the morning peak period. The worst-case emissions and meteorological dispersion conditions usually occur during the morning hours. However, due to effects from vehicle cold start and queuing at intersections, both morning and afternoon peak traffic hours were examined to ensure that worst-case concentrations were identified.

EPA's MOBILE4 (EPA, 1989) emission model was used to calculate a composite vehicular CO emissions for each year studied. A key input to MOBILE4 is vehicle mix. Based on recent Honolulu vehicle registration figures, the present and project vehicle mix in the project area is estimated to be 91.9% light-duty gasoline-powered vehicles, 4.2% light-duty gasoline-powered trucks and vans, 0.5% heavy-duty gasoline-powered vehicles, 1% light-duty diesel-powered vehicles, 1% heavy-duty diesel-powered trucks and buses, and 1% motorcycles.

A certain percentage of the vehicles used by the MOBILE4 model is classified as being in a cold or hot start mode. Motor vehicles operating in cold start mode emit excess CO. The stabilized operating temperatures for motor vehicles are reached after approximately four miles of driving. For the total traffic operating within the project area, it was assumed that during the morning peak hour about 25 percent of the vehicles would be operating in the cold-start mode and about 5 percent in the hot-start mode. For the afternoon peak hour, the cold/hot start mix was assumed to be 50 percent and 10 percent, respectively. These operational modes were estimated based on a California Department of Transportation report (Benson) and take into consideration the morning/afternoon traffic in the project area.

Another input into MOBILE4 is the ambient temperature used for the emission calculation. Ambient temperatures of 59°F and 68°F were used for the morning and afternoon peak-hour emission computations, respectively. These values are conservative assumptions since morning/afternoon ambient temperatures will generally be warmer and MOBILE4 emission estimates are inversely proportional to ambient temperature.

The predicted CO emissions from MOBILE4 were input to the CAL3QHC (EPA, 1990) dispersion model. CAL3QHC is a recently released EPA line source model that was especially designed to handle near-saturated and/or over-capacity traffic conditions and complex intersections where major roadways intersect with ramps and elevated highways. CAL3QHC combines the CALINE3 (CA DOT, 1989) line source dispersion model with an algorithm that internally estimates the length of queues formed by idling vehicles at signalized intersections. The roadway lengths are specified as either freeflow or queue links in the model. If only free flow links interact, the model will produce the same results as CALINE3.

The input peak traffic data used were obtained from the traffic study conducted by Austin, Tsutsumi and Associates. The traffic volumes presented in the study for the existing (1992) and future (1997) case include project traffic as well as traffic from other growth.

The model roadways were set up to reflect roadway geometry, physical dimensions and operating characteristics. Since pedestrian walkways in the project area are located close to the travelled roadways, model receptor sites were located approximately 5-10 feet (1.5-3.0 meters) from the edge of roadways near intersections studied. Receptor heights were positioned at 6 feet (1.8 meters) above ground to simulate a normal breathing zone.

The input meteorological conditions used for this study were defined to provide worst-case impacts. An atmospheric stability class category 4 was assumed for both morning and afternoon cases. This stability category is the most conservative that can be used in urban locations. A surface roughness length of 321 centimeters was assumed. This was obtained from the CAL3QHC user's guide. Although mixing heights are generally expected to be above 3,000 feet (920 meters), a conservative

(flow) height of 1,640 feet (500 meters) was utilized to limit vertical mixing dispersion and provide a higher predicted concentration. The worst-case wind conditions were defined as a wind speed of 2.2 mph (one meter per second) with wind direction resulting in highest predicted impact.

Table 5 provides a summary of the predicted worst-case 1-hour morning and afternoon CO concentrations for the three scenarios: Year 1992 with present conditions, Year 1997 without the project, and Year 1997 with the project. The locations of these worst-case 1-hour concentrations all occurred at or very near the indicated intersections.

The afternoon peak 1-hour CO impacts for the existing case were higher than the morning peak values for all three intersections. The estimated 1992 existing worst-case 1-hour CO impact in the project area was 28,000 $\mu\text{g}/\text{m}^3$ and occurred at the N. King, Dillingham and Liha intersection. Worst-case 1-hour impacts within the project vicinity ranged from 3,000 $\mu\text{g}/\text{m}^3$ to 28,000 $\mu\text{g}/\text{m}^3$.

The predicted worst-case 1-hour CO impact without the 1997 proposed project was 24,514 $\mu\text{g}/\text{m}^3$ and also occurred during the morning peak period. This worst-case impact also occurred at the N. King, Dillingham and Liha intersection. Predicted impacts at other receptor locations ranged from 3,000 $\mu\text{g}/\text{m}^3$ to 24,514 $\mu\text{g}/\text{m}^3$.

The predicted 1-hour peak CO impacts with the 1997 project range from 3,000 $\mu\text{g}/\text{m}^3$ to 24,980 $\mu\text{g}/\text{m}^3$. The absolute peak of 24,980 $\mu\text{g}/\text{m}^3$ occurred during the morning period at the N. King, Dillingham and Liha intersection.

The predicted 1-hour peak model CO concentrations at all roadway intersections for the 1992 present case are higher than the predicted values for the 1997 scenarios with and without the project. The concentrations for the 1992 case are higher because the MOBILE source model predicts higher vehicular emission rates for the 1992 mix of older vehicles than for the newer 1997 vehicle emission mix.

The higher 1-hour CO impacts in the vicinity of the N. King, Dillingham and Liha intersection were due to the increased vehicular flow. All of the predicted 1-hour CO impacts are well below the NAAQS of 40,000 $\mu\text{g}/\text{m}^3$. However, the predicted 1-hour CO impacts for the three scenarios may exceed the SAAQS of 10,000 $\mu\text{g}/\text{m}^3$ on occasion at locations within the project area.

The worst-case 8-hour CO impacts were determined by multiplying the worst-case 1-hour CO values by a persistence factor of 0.5. This factor considers two factors: (1) meteorological dispersion conditions are more variable for an 8-hour period than for a 1-hour period (greater dispersion provides better conditions), and (2) traffic volumes averaged over eight hours are much lower than for a peak hour period. DOH monitoring data indicate a 1-hour to 8-hour persistence factor between 0.4 and 0.5. EPA guidelines (EPA, 1978) recommend using a range from 0.6 to 0.7 and modeling analyses prepared for the Kahanu parking structure development (Neal, 1990) utilized a persistence factor of 0.5. Upon consideration of this information, a 1-hour to 8-hour persistence factor of 0.5 is deemed appropriate for this application.

The estimated peak 8-hour impacts are presented in Table 6. For the 1992 present case, the predicted worst-case 8-hour CO impact was 14,000 $\mu\text{g}/\text{m}^3$ and occurred at the N. King, Dillingham and Liha intersection. The other two locations ranged from 1,975 $\mu\text{g}/\text{m}^3$, respectively; and also occurred at the N. King, Dillingham and Liha intersection.

The worst-case 8-hour CO impacts are also higher at old intersections for the 1992 case than the 1997 scenarios with or without the project. The reason for the 8-hour impact increase is the same as that provided for the 1-hour impacts i.e. the model assumes a higher vehicle emission rate mix in 1992. In comparing these results to the applicable standards, it appears that the 8-hour SAAQS of 5,000 $\mu\text{g}/\text{m}^3$ would be exceeded at several locations along N. King, Dillingham, and Liha intersections. The NAAQS was exceeded at receptors near the N. King, Dillingham and Liha intersections.

Table 5

Worst-Case 1-Hour CO Impacts ($\mu\text{g}/\text{m}^3$)
Along Roadway Receptors Near Liliha Civic Center Project

ROADWAY INTERSECTION	YEAR AND SCENARIO					
	1992 - Present		1997 Without Project		1997 With Project	
	AM	PM	AM	PM	AM	PM
N. King, Dillingham and Liliha	28,000	13,710	24,514	11,502	24,980	12,083
N. King at Beretania	3,950	6,158	3,601	5,228	3,601	5,228
N. King at Iwāiwi	10,572	10,572	9,875	8,714	10,224	9,527

Notes:

1. The National Ambient Air Quality Standard (NAAQS) and State of Hawaii Ambient Air Quality Standards (SAAQS) are 40,000 $\mu\text{g}/\text{m}^3$ and 10,000 $\mu\text{g}/\text{m}^3$, respectively.

Table 6

Worst-Case 8-Hour CO Impacts ($\mu\text{g}/\text{m}^3$)
Along Roadway Receptors near Liliha Civic Center Project

ROADWAY INTERSECTION	YEAR AND SCENARIO					
	1992 - Present		1997 Near Project		1997 With Project	
	AM	PM	AM	PM	AM	PM
N. King, Dillingham and Liliha	14,000	6,585	12,257	5,751	12,490	6,042
N. King at Beretania	1,975	3,079	1,800	2,614	1,800	2,614
N. King at Iwāiwi	5,286	5,386	4,937	4,357	5,112	4,763

- Notes:
1. The National Ambient Air Quality Standard (NAAQS) and State of Hawaii Ambient Air Quality Standards (SAAQS) are 10,000 $\mu\text{g}/\text{m}^3$ and 5,000 $\mu\text{g}/\text{m}^3$, respectively.

5.2 Parking Structure

The proposed Phase I project calls for a seven-floor above-ground parking structure and an at-grade open parking lot. The above-ground structure and at-grade open parking lot will contain approximately 623 and 166 stalls, respectively.

In the absence of any construction drawings, it has been assumed that the above-ground parking levels will have a combined floor area of about 25,000 square feet (ft²) and accommodate about 90 stalls on each level. In addition, it is assumed that the at-grade level will have a floor area of about 5,000 ft². It is assumed that wind speeds of 1 mph or lower should provide adequate natural ventilation for the at-grade level and above-ground parking structure when the wind direction is from the north, east or west (trade winds) or the infrequent southerly direction (kona winds).

5.3 Electrical Demand

The proposed project would contribute to indirect emissions from the Hawaiian Electric company (HECO) generating facilities due to increased electrical power requirements. It is expected that the annual electrical demand of the project when fully developed will be less than 7 million kilowatt-hours. This increased power demand would most likely be provided by HECO oil-fired generating facilities located on Oahu. In order to meet the electrical needs of the proposed project, the HECO facilities will be required to burn more fuel resulting in increased emissions of air pollution at these facilities. Table 7 presents estimates of the indirect air pollution emissions that would result from the project demand assuming all electrical power is provided by burning more fuel at HECO facilities. If the power were supplied by coal or solid waste burning facilities, emissions will likely be greater.

5.4 Solid Waste Disposal

It is assumed that solid waste generated by the completed project will be less than 1 ton refuse per day. The majority of the refuse will be trucked to either a landfill or an incinerator at another location for disposal. If all the refuse is landfilled, air pollution emissions will be due to exhaust fumes and fugitive dust from trucks and heavy equipment used to place the refuse in the landfill. However, if all or part of the refuse is burned at a waste-to-energy facility such as H-Power, the disposal of solid waste will result in the generation of particulate, carbon monoxide and other emissions. Table 8 provides emission factors for uncontrolled emissions (i.e. emissions not controlled by a baghouse, electrostatic precipitator, acid gas scrubber, or other control device) associated with municipal refuse incinerators. It should be noted that if all combustible waste from the project is utilized by the H-Power facility, the emissions from HECO's generating facility and a waste incinerator which would be required to dispose of waste from this project would be reduced.

Table 7

Estimated Indirect Air Pollutant Emissions Increase From Liliha Civic Center Project Electrical Demand

POLLUTANT	EMISSION RATE INCREASE (TONS/YEAR)
Particulate	<1.0
Sulfur Dioxide	18.0
Carbon Monoxide	1.5
Volatile Organics	<1.0
Nitrogen Oxides	5.0

Notes:

1. Emission rate increases are based on EPA AP-42 emission factors for industrial boilers. Emission increase assumes electrical demand of 7 million kw/hrs per year and low sulfur fuel oil (0.5 percent by weight) to generate power.

Table 8

Uncontrolled Air Pollution Emission Factors
For Municipal Refuse Incinerators (lb/ton)
and Estimated Uncontrolled Annual Emissions Increase After Project

Air Pollutant	Uncontrolled Emission Factor (lb/ton)	Estimated Uncontrolled Project Emissions (tons/yr)
Particulate	14	5,110
Sulfur Oxides	2.5	913
Carbon Monoxide	35	12,775
Organics	1.5	54
Nitrogen Oxides	3	1,095

Notes:

1. Emission Factors are based on EPA AP-42 document.

6.0 Summary of Impacts and Mitigative Considerations

6.1 Summary

The major short-term impact will be potential emissions of fugitive dust due to project construction. It was estimated that uncontrolled fugitive dust emissions would be less than 1.2 tons per acre per month. During the construction, carbon monoxide (CO) and nitrogen oxide (NO_x) emissions will occur from on-site construction equipment and from construction worker vehicles traveling to and from the project.

Increased motor vehicle travel resulting from the project will cause the significant long-term air pollution impact. Mathematical modeling of projected vehicular traffic emissions and atmospheric dispersion estimates of those emissions indicate that CO concentrations would increase at some locations within proximity of the project. The predicted 1-hour CO impacts would be in compliance with the EPA's 1-hour CO NAAQS. However, the predicted 8-hour impacts exceed EPA's 8-hour NAAQS near the N. King, Dillingham, and Liliha intersection. The stringent Hawaii 1-hour and 8-hour CO ambient standards are exceeded at receptors located near the N. King, Dillingham, and Liliha intersection, as well as the N. King and Iwilei intersection. The low state standard is probably exceeded at many intersections within the state that experience moderate traffic flow.

The atmospheric dispersion modeling of the vehicular emissions provide conservative estimates of projected CO concentrations. The modeling was performed with default input parameters (e.g. temperature, windspeed, stability class, and receptor distance from roadway) which tend to predict high CO concentrations. The use of actual input parameters may result in the stringent Hawaii CO ambient standards not being exceeded.

CO concentrations for at-grade and above-ground levels of the parking structure will be maintained by natural ventilation.

Other long-term impacts could occur due to indirect emissions from power generating facilities supplying the project with electrical needs. However, it would appear that any impacts would be insignificant since emissions from supplying the project with electrical power would be less than one percent of the existing emissions on Oahu.

6.2 Probable Mitigative Measures

A regular dust-watering program and covering of dirt-hauling trucks will be mandatory to mitigate fugitive dust emissions from construction activities. Watering twice per day could substantially suppress dust emissions. In addition, paving parking areas and early construction landscaping could also help to control the fugitive dust. On-site vehicular emissions could also be reduced by moving equipment and personnel during off-peak hours.

Traffic related air pollution can be mitigated by reducing traffic and improving roadways. The roadway improvements mentioned in the traffic impact study could be implemented to move traffic efficiently through the project area. Air pollution impacts due to vehicular emissions can be mitigated by reducing traffic, using mass transit, carpooling and adjusting local school/business hours to off peak hours. In addition, cleaner-burning fuels as well as a state motor vehicle inspection and maintenance program would further reduce emissions.

Indirect emissions from project electrical demand could be reduced by utilizing alternate energy (solar) designs. This could include solar water heaters, photovoltaic systems, positioning windows to maximize indoor light without sacrificing indoor heat, and landscaping for shade to help reduce air conditioning use.

7.0 References

- Benson
Corrections to Hot and Cold-Start Vehicle Fractions for Microscale Air Quality Modeling. California Department of Transportation, Transportation Laboratory (CA DOT), Sacramento, CA.
- CA DOT, 1989
CALINE4 - A Dispersion Model for Predicting Air Pollutant Concentrations Near Roadways. FHWA/CA/TL-84/15, California State Department of Transportation (CA DOT), November, 1989, Revised June, 1989.
- Cooper, 1989
Persistence Factors for Mobile Source (Roadway) Carbon Monoxide Modeling. C. David Cooper, Journal of the Air & Waste Management Association, Volume 39, Number 5, May 1989.
- ETI, 1991
Air Quality Analysis for Kaka'ūke Revitalization Project, February 1991, Environmental Technologies International, Inc.
- Neal, 1990
Air Quality Impact Assessments for Proposed Kaahumanu Parking Structure Redevelopment Project, Honolulu, Oahu, Hawaii, March 1990, Barry D. Neal & Associates.
- Newall, 1990
Memorandum from Terry B. Newall, USEPA, Ann Arbor, MI to MOBILE4 users concerning "Adjustment of MOBILE4 Idle CO Emission Factors to Non-Standard Operating Conditions", January 4, 1990.
- EPA, 1978
Guidelines for Air Quality Maintenance Planning and Analysis; Indirect Sources, Volume 9, Revised, USEPA, September, 1978.
- EPA, 1988
Compilation of Air Pollution Emission Factors, Volume I: Stationary Point and Area Sources, Fourth Edition, AP-42, USEPA, Research Triangle Park, NC, September, 1988.
- EPA, 1989
User's Guide to MOBILE4 (Mobile Source Emissions Factor Model), EPA-AA-TEB-89-01, USEPA, Ann Arbor, MI, February, 1989.
- EPA, 1990
User's Guide to CAL3QHC, Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections, Office of Air Quality, Planning and Standards, USEPA Research Triangle Park, NC, September 1990.

Liliha Civic Center

Appendix C

***HISTORICAL LITERATURE
AND DOCUMENTS SEARCH***

Aki Sinoto Consulting

ASC 92 - 3

**HISTORICAL LITERATURE AND DOCUMENTS SEARCH
FOR THE PROPOSED LILIIHA CIVIC CENTER DEVELOPMENT
HONOLULU, O'AHU
TMK 1-5-07:1, 14, 15, 18, 57, 58, 60-78**

by
Gwen Hurst
Historical Archaeologist
and
Jeffrey Panaleo, M. A.
Supervisory Archaeologist

for
Wilson Okamoto & Associates
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

March 1992

Aki Sinoto Consulting
2333 Kapiolani Blvd., No. 2704
Honolulu, Hawaii 96826

INTRODUCTION

A pre-field literature and documents search was undertaken by Aki Sinoto Consulting under contract to Wilson Okamoto and Associates for the proposed Liliha Civic Center Project north of downtown Honolulu. Objectives of the literature search were threefold:

- 1) to determine pre-Contact and post-Contact land uses of the project area through documentation;
- 2) to evaluate the evidence indicating potential subsurface archaeological remains that may be impacted during development;
- 3) and to provide recommendations for further archaeological work, if any, for review.

SITE DESCRIPTION

The proposed Liliha Civic Center Development project is located north of Nu'uuanu Stream in the Ahupua'a of Kapalama, Kona District, O'ahu, Hawaii. The site area includes TMK 1-5-07:1, 15, 18, 57, 58, 60-78, and is bounded on the east by North King Street, and on the southwest by Iwilei Road (formerly Prison Road). The northern boundary is generally defined at right angles to the dead-end of Ka'aahi Street (Figure 1).

Historical development of the proposed site property began with a partial "reclamation" of the ancient Kuwili Fish Pond in 1890 for the first railway terminal of the Oahu Railway and Land Company. In 1925, the second Oahu Railway Terminal Building was completed, and it is currently located on the proposed site on the corner of North King Street and Iwilei Road. The existing terminal building was determined to be eligible for the National Register of Historic Places on 12 February 1979 and was placed on the Hawaii Register of Historic Places on 17 August 1987 (50-Oa-80-14-1380). The grounds around the terminal building are currently paved and utilized for parking.

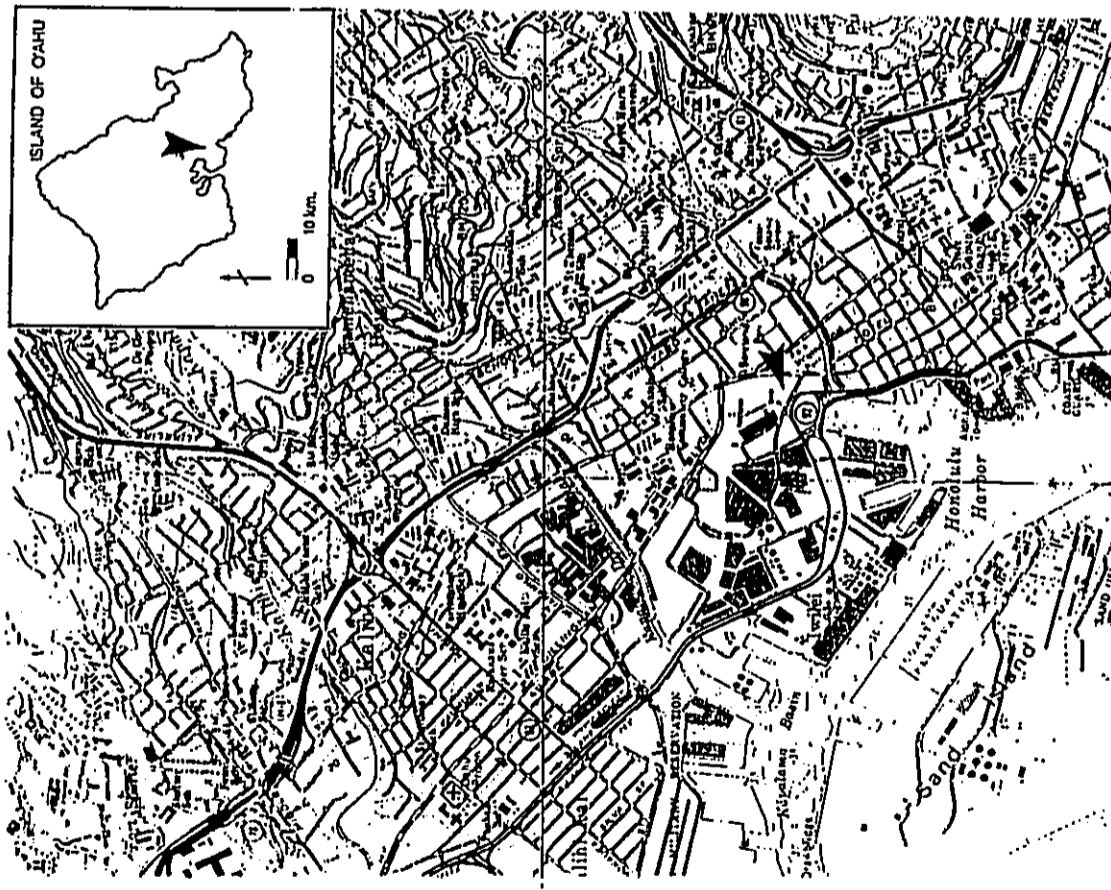


Figure 1: SITE LOCATION. (U. S. Geological Survey 1983).

stalls. In the rear of the terminal building is a low warehouse roofed with corrugated metal.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

South of Nu'uauu Stream, two redevelopment projects in the interior of downtown Honolulu, and two redevelopment sites along the Honolulu Harbor waterfront have been archaeologically investigated. North of Nu'uauu Stream, no archaeological sites are recorded, and no archaeological studies in the area of the proposed Lithia Civic Center Project have been undertaken.

A parking lot in downtown Honolulu (TMK 2-1-02:38, 39), bounded by Nu'uauu, Hotel, and Bethel Streets, was tested by Joseph Kennedy of Archaeological Consultants of Hawai'i in July 1984. After preliminary testing, the history of the site indicated that cultural materials recovered were imported backfill deposited following a fire, and archaeological testing at the site was terminated (Kennedy 1984).

Across from the previous site, The Chinatown Gateway Plaza Project in downtown Honolulu (50-Oa-A5-14), on the corner of Hotel and Bethel Streets, was monitored and tested by Jeffrey Pantaleo of the Public Archaeology Section, Applied Research Group, Bishop Museum in 1989. Prior development and impacts to the site had extensively disturbed subsurface remains and limited recovery of historic remains were reported. No pre-Contact cultural materials were recovered from the site (Pantaleo 1989).

Emergency salvage operations at the River-Nimitz Site (50-Oa-A5-16), on the southeast corner of River Street and Nimitz Highway was conducted by Jim Landrum of the Public Archaeology Section, Applied Research Group, Bishop Museum in June 1989. The River Street boundary of the site had been filled with dredged materials from the Honolulu Harbor and Nu'uauu Stream in 1897. The installation of a sewerage pumping station in 1927 also heavily impacted the site. One pre-Contact burial was removed from an intact deposit underlying the fill (Landrum 1992).

HISTORIC BACKGROUND AND IMPACTS

Captain James Cook, on his third voyage of discovery, is chronicled as the first European to discover the Sandwich Islands in 1778. Neither Cook nor his crew landed or explored the Island of O'ahu during this initial contact (Cook 1967:1221-1236). European goods, such as iron which was highly valued, domestic sheep and goats, and garden seeds were introduced to the Hawaiian Islands during Cook's voyage in trade for pigs, salt, yams, taro, and objects of curiosity (Cook 1967:276, 501). Following the departure of Cook's ships in 1779, the Sandwich Islands were seldom visited. Occasional English fur trading ships anchoring offshore to obtain water stores, and salt (to preserve fish, meat, and fur skins), are mentioned in Turnbull's voyages (Turnbull 1813:109). Honolulu Harbor was first entered by a longboat from the British ship *King George* in 1786 (Seon 1968:1). An increase in explorations and fur trade ships anchoring off the islands began in the early part of the 1790s, and cattle were introduced by Captain Vancouver in 1793 (Vancouver 1984:812).

Westervelt briefly hints at an early description of the proposed project site area:

"Honolulu was probably a name given to a very rich district of farm land near what is now known as the junction of Liliha and School Streets. Because its chief was Honolulu, one of the high chiefs of the time of Kakuhihewa, according to the legends" (Westervelt 1915:14).

A French chart of Honolulu Harbor and shoreline (Figure 2), was mapped by L. I. Duperey, a cartographer with Freycinet's exploration voyage in 1819. Shown on Duperey's map is the Fort at Honolulu Point; "Riviere d'eau douce" (Niu'uanu Stream); a walled "Pecherie" (Kawa Fish Pond), and an "Etang" (Kuwili Fishpond), which appears to have been a natural embayment in 1819.

A description of the fish ponds was given by Captain Jacobus Boelen, a Dutch merchant, during a trading voyage to Hawai'i in 1828:

North of Niu'uanu Stream, a redevelopment property for the Kingsgate Plaza on the northwest corner of Dillingham Boulevard and North King Street was excavated by backhoe under the auspices of the Hawai'i Bottle Collectors Association in December 1989. Fill materials at the site overlay wooden building foundations, coral block-alignments, and privy features. Asian community deposits from the 1890's and European manufactured cultural materials from 1860 to 1880 were present (personal observations).

Preliminary testing and excavations at the Ka'ahumanu Project, located at the intersection of Bethel and Queen Streets and Nimitz Highway on the Honolulu waterfront, was conducted by the Public Archaeology Section, Applied Research Group, Bishop Museum in July and August 1991. Archaeological remains included ruins of building foundations intruding through pre-Contact and post-Contact deposits with concrete floors placed over Contact-era deposits (Hurst 1992). The presence of a transitional period layer at the juncture of pre-Contact and Contact period deposits was deemed significant.

RESEARCH SOURCES

Primary document sources consulted to obtain a land use history, and of the historical impacts to the proposed project property, included archived Hawai'i Department of the Interior documents, letters and maps filed with the Department of Public Works, and claims for land between 1847 and 1852 filed with the Board of Land Commissioners. Early explorers, Hawai'i Government Survey, and fire insurance maps were collected in addition to land grant maps. Reports of the Oahu Railway and Land Company from 1890 to 1951 were reviewed, and secondary historic accounts, such as local newspaper articles were searched. Collected maps of the proposed site area from 1819 show land use and changes to the property, that are cited in the documents, and locate archaeological features which may, or may not, be preserved.

"...we arrived at the beach (from a trip to Pearl River) and came upon a small hamlet of several scattered fishermen's huts. The whole arrangement of the place seemed pleasant and cozy. Now we had to wade through the water with our horses along the banks of the fish ponds of the king of these islands, situated north of the port of Honoruru. These ponds are irregularly shaped basins enclosed by walls of stone from the coral banks. These walls have openings through which the fish can enter the pond, but not, I was assured, leave it again to seek their freedom in the sea. When we approached this part of our trip, it happened to be at low tide so that it was very easy to step through the water with the horses. While doing so, we met a number of Indians, most of them women, busily looking for crabs and shellfish. Not far from Honoruru we reached firm ground again, and shortly thereafter entered the north side of the village, all extremely well satisfied with the pleasant excursion we had made in cheerful company (Broeze 1988:69).

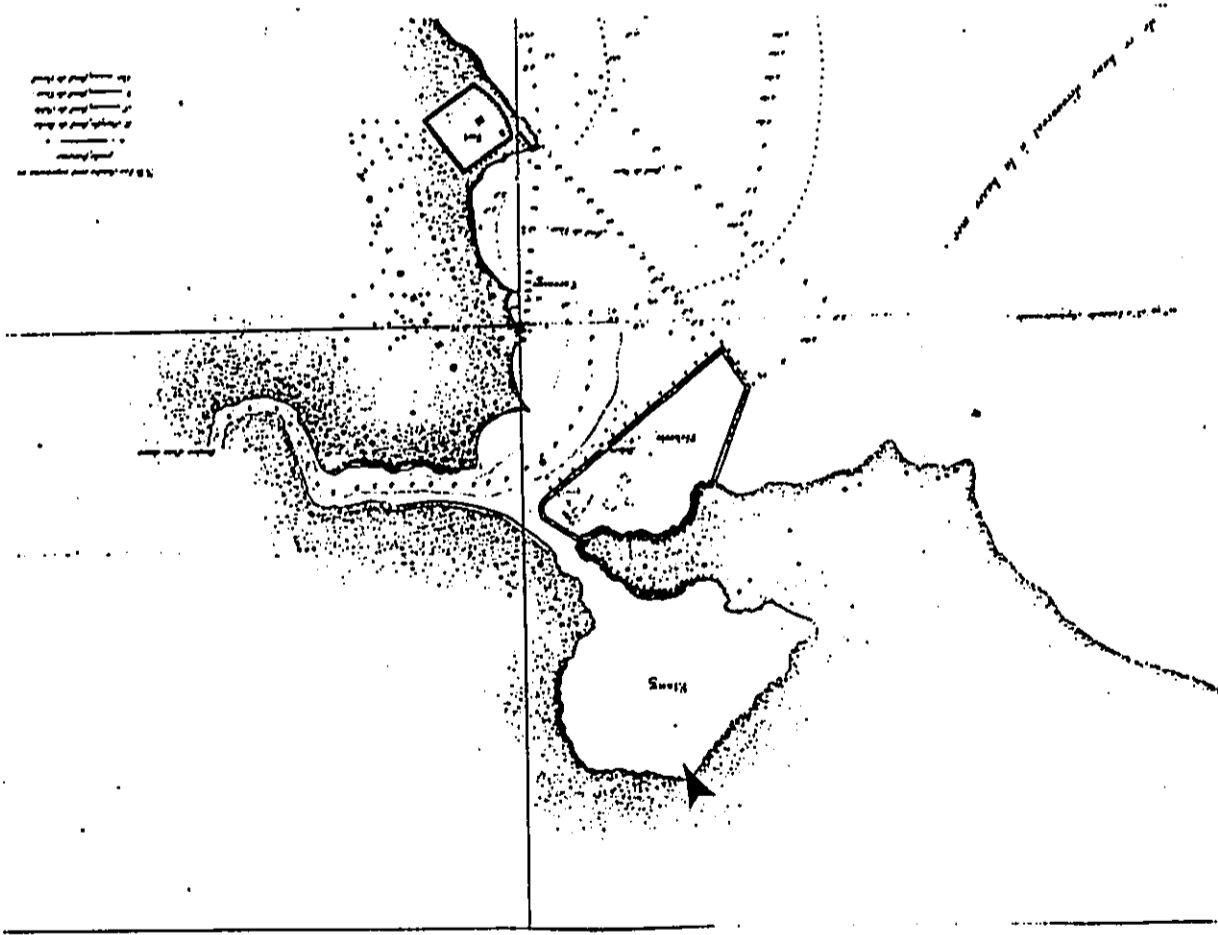
In January 1855, a second French chart of the Honolulu Harbor and shoreline (Figure 3), was mapped by M. de Lapasse of the ship L'Eurydice, and the map was published by order of the emperor in 1858. de Lapasse's map adds the roadways in Honolulu, the locations of housesites, and shows taro patches on both sides of Nu'uuanu Stream. Kuwili and Kawa Fish Ponds are shown having a stone wall placed across the entrance of the ponds.

Neither Kuwili or Kawa Fish Ponds are identified by name in Boelen's account nor do the names of the ponds appear on either of the French maps. In the *Hawaiian Dictionary* (Pukui and Elbert 1986), Kawa is defined: "to cast overboard from a canoe, as fish nets, or as a victim to be executed at sea; a method of deep sea fishing" (p. 139). Kuwili is defined: "to move restlessly, embrace, pet, caress. To spin as in a dance" (p. 187).

LAND USE 1846-1882

In 1846, a Board of Land Commissioners was organized to take applications for lands that were to be divided between the Hawaiian Government, the Royalty, and the people. The division of lands was conducted by taking claims from individuals and recording supporting testimonies of neighbors or acquaintances. When the land claim was validated, the land was awarded to the claimant by a Land Claim Award (L.C.A.). Following surveys of the claimed land and payment of the surveyor fee, a Royal Patent (R.P.), to the land was issued. During the

Figure 2: PLAN-DU FORT D'ONKOU ROU SUR L'ILE WAHOU, 1819. (L. I. Duperry)



division of the lands, on 7 June 1848, Kuwili Fish Pond, in the 'ili (a land division of an Ahupua'a) of Kuwili was:

"...in accordance with ancient custom...set apart for the use of the Fort in Honolulu to be cultivated by soldiers and other tenants..." (Commissioner of Public Lands 1919:21-22).

Around the perimeter of Kuwili Fish Pond application for fifteen land claims were made between 1847 and 1852 and fourteen claims were awarded (Table 1). Two unclaimed parcels, and Kuwili Pond, were later sold by Land Grants¹. Use of these plots of lands in the late 1840s and early 1850s appear in the *Native Registers* and in the *Native and Foreign Testimonies*. Eleven house lots, ten lo'i (taro patches), and two ponds (one described as a "sand pond"), were awarded.

TABLE 1
Land Claim Awards

L.C.A. No.	Individual	Land Use Description	Citation/Year	Not Awarded
227				
665	Kahaleaahu	Fenced; three houses.	FT 1847:2.1088	
26.1	Koukahiwa	Kalo patch.	FT 1848:2.236	
826.2	Keukahiwa	Kalo patch.	FT 1848:2.236	
826.3	Keukahiwa	Kalo patch.	FT 1848:2.236	
1089	Kapehe	House lot; kalo patches.	FT 1848:2.343	
2440B Ap.2	Kauaua	Taro patch; one sand pond	NT 1851:10.39	
12FL	Kahoowahalo	House lot; one lo'i.	NR 1851:3.721	
27FL	Ukumaa	House lot.	NR 1851:3.729	
61FL	Aholo	House lot; one lo'i.	NR 1852:3.745	
63FL Ap.2	Kamai	House lot; one lo'i; pond	NR 1852:3.746	
64FL	Kapulani	House lot.	NR 1852:3.747	
66FL	Kamaala	Two lo'i.	NR 1852:3.748	
66FL Ap.2	Kamaala	House lot.	NR 1852:3.748	
77FL Ap.2	Kalaliko	House lot.	NR 1852:3.754	

Board of Land Commissioners: FT = *Foreign Testimony*.
NT = *Native Testimony*. NR = *Native Register*.

¹ Grant No. 2551, a dry kula (taro land) was awarded to Kalaliko on 7 January 1859; Grant 3475:2 (Kuwili Fish Pond) to Oahu Railway and Land Company on 27 March 1890; and Grant 4804 was exchanged by the Government to H. M. Von Holt in 1904 for lands taken in widening King Street (Board of Commissioners, Grants, 1859:3.331-332; 1890:17.313-314; 1904:23.695-697).



Figure 3: GRAND OCEAN. (ISLES SANDWICH. PLAN DU MOUILLAGE D'HONOLULU. (de Lapasse), 1855).

Iwilei Prison, better known to the inmates as "The Reef", was built on a rocky promontory on the southwest shore of Kuwili Fish Pond in 1857 (Figure 4). The main prison building was a central dwelling for the overseer and guards, and was flanked by two, two-story wings having thirty-two cells in each wing. In the Commercial Advertiser newspaper in 1857, "The New Prison" conveniences were:

"In the yard is a substantial cook house, sentries' lodges and other conveniences, not excepting a full supply of the valley water. The whole is enclosed by a wall twelve feet in height. All of the buildings, as well as the enclosing wall, are built of coral stone, laid up with solid masonry..." (Commercial Advertiser 1857:2.4).

Outside the prison walls in 1885 (Figure 4), were coral walls enclosing Kawa Fish Pond, and a wall crossing the entrance to Kuwili Fish Pond. Around the banks of Kuwili Fish Pond were walled enclosures for four *ki'o pau* (small ponds for stocking fish spawn or schools of fish), two *lo'i kalo* (taro patches), and on the southeast bank of the fish pond were two unidentified rectangular enclosures.

Kuwili Fish Pond was rented out by the Hawaiian Government for the months of November and December 1858 \$25.00 in revenues were reported to the Department of the Interior (Receipts 1859). Apparently the *ki'o pau* and *lo'i kalo* enclosures along the banks were also leased to fish and taro farmers by the Government. L. B. Brickwood applied to the Commissioner of Crown Lands on 1 February 1873 to lease "the fish pond and kalo lands at Kuwili for \$150.00 a year (Department of the Interior, Records:1873), and in 1887, Fong Long was assigned Lease No. 314 for one of the fish ponds at Kuwili (Department of the Interior, Records:1887). In 1890 Kuwili Fish Pond was granted to the newly chartered Oahu Railway and Land Company.

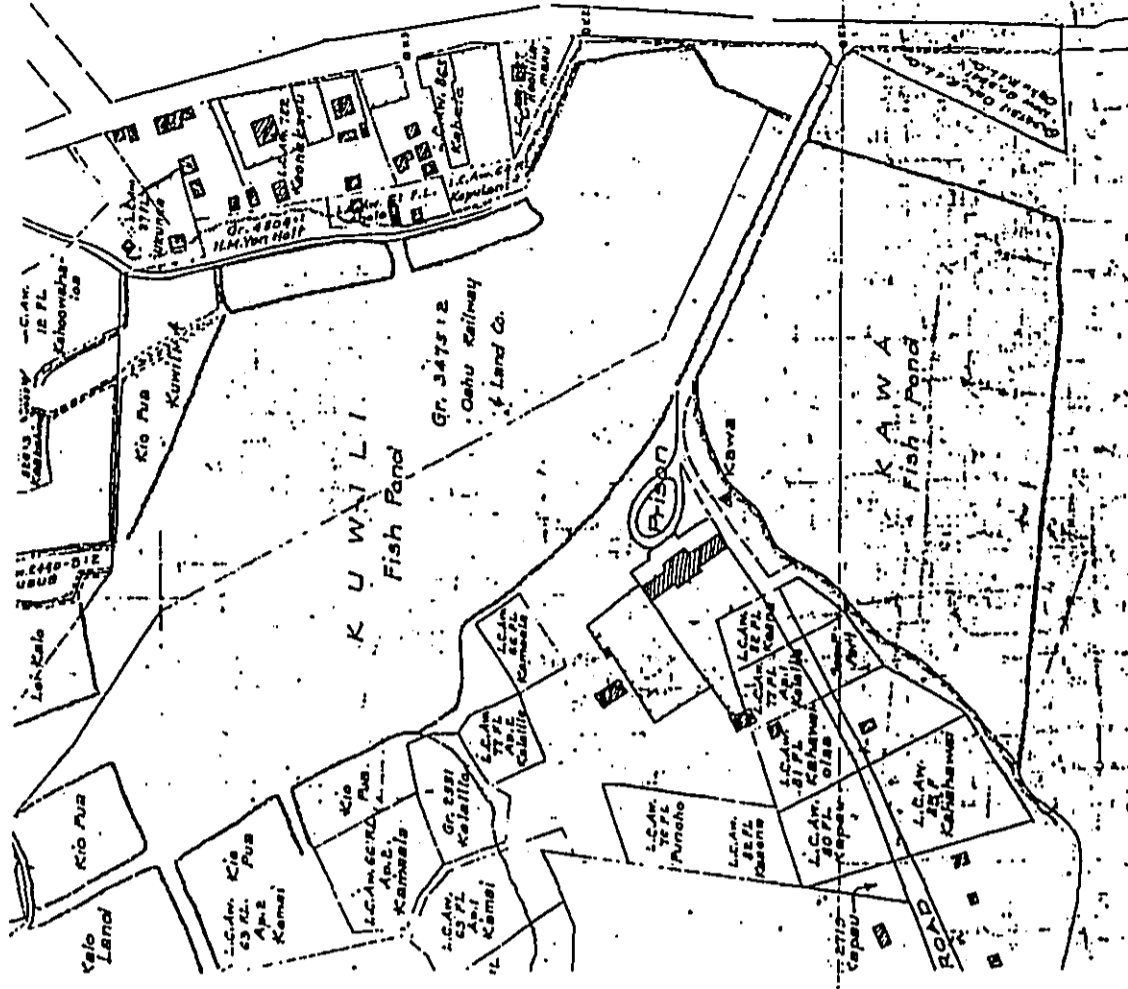


Figure 4: KAPALAMA, KONA, OAHU, 1885. (J. F. Brown)

QAHU RAILWAY AND LAND COMPANY, 1889-1901

A fifty year Charter of Incorporation of the Oahu Railway and Land Company (O. R. & L. Co.), was granted on 4 February 1889 to Benjamin F. Dillingham and Mark P. Robinson. Under the charter O. R. & L. Co. obtained an exclusive twenty year right "for the purpose of constructing, maintaining and operating a line or lines of railway...dealing in lands...for the purpose of inducing settlement of population along or near said line or lines of railway and on the Island of Oahu". The Charter of Incorporation was made possible by an 1878 Act "to promote the construction of railways" in Hawai'i and was signed by the Legislature on 4 December 1888 (O. R. & L. Co. 1890:1-32).

Kuwili Fish Pond covering a total of 25 acres was obtained by O. R. & L. Co on 27 March 1890 by Government Grant 3475:2. The eastern portion of Kuwili Fish Pond covering 11 19/100 acres had a "natural coral bank", however, the depths of the pond were not recorded. Rights to erect buildings, stations, depots, a store house and other structures, and a right-of-way for railroad tracks were provisions guaranteed to O. R. & L. Co. by the 1890 Grant (Bureau of Land Commissioners, Grants 1890:17.313-314). O. R. L. & Co. reported in its "Second Annual Report" in 1890 that the company had purchased in fee "25 acres of tide lands on the west side [sic] of Honolulu Harbor, with the reclamation of six acres of such lands..." (O. R. & L. Co. 1890:8).

The 11 19/100 acres of the eastern portion of Kuwili Fish Pond was re-evaluated by a government survey (Figure 5), and the metes and bounds of this portion of the pond found to cover 14.6 acres. Two small pond enclosures, and two *Airwai* (irrigation ditches), for the watering of rice fields along the east bank of the pond are shown in Figure 5. (In 1885, the east bank of Kuwili Fish Pond is shown in Figure 4 as being cultivated with taro). In 1892, an additional one and one-half acres fronting 324' of King



Figure 5: KUWILI 2ND, POND, 1890. (Department of Public Works 1906)

Street was reclaimed by O. R. & L. Co. for the purpose of building warehouses (O. R. & L. Co. 1892:13).

An outbreak of cholera centered on both sides of the mouth of Nu'uauu Stream in 1895 prompted the Honolulu Board of Health to recommend "the filling in of the old fish pond [Kawa] across from the railway depot" (Pacific Commercial Advertiser 1895:2.2). In 1896 dredging of the inner harbor (Nu'uauu Stream) was reported to have been started:

"The dredging serves the further beneficial purpose of filling in the low land partly occupied, till recently, by the old wash houses, on the northern side of Nu'uauu stream which is to be assigned to park purposes...this with the change of the wash houses to [w]ater...were imperative health measures adopted during the cholera visitation" (Thrum 1896:143).

An agreement between the Hawaiian Government and O. R. & L. Co. in 1899 exchanged a portion of the harbor owned by O. R. & L. Co. for "Kawa Pond, which has been filled, and a good portion of Kuwili Pond adjoining the present freight yard [had also been filled]" (O. R. & L. Co. 1899:8). In making harbor improvements, 600,000 cubic yards of mud, sand, and loose coral had been dredged, and several thousand cubic yards of hard coral had been blasted by O. R. & L. Co. in 1901. "All of this material was used in reclaiming and filling in low land near the harbor and terminal" (O. R. & L. Co. 1901:7).

O. R. & L. Co. TERMINAL/DEPOT, 1890-1951

The first, or original O. R. & L. Co. terminal, office, and depot was located near the intersection of Prison Road (Twilei Road) and (North) King Street (Figure 6). The mapped location of the original terminal suggests that its location then was west of the current existing terminal location. Figure 7, an 1890 photo of the main tracks and loading dock, at the rear of the first terminal building, indicates the unfilled, low land condition of

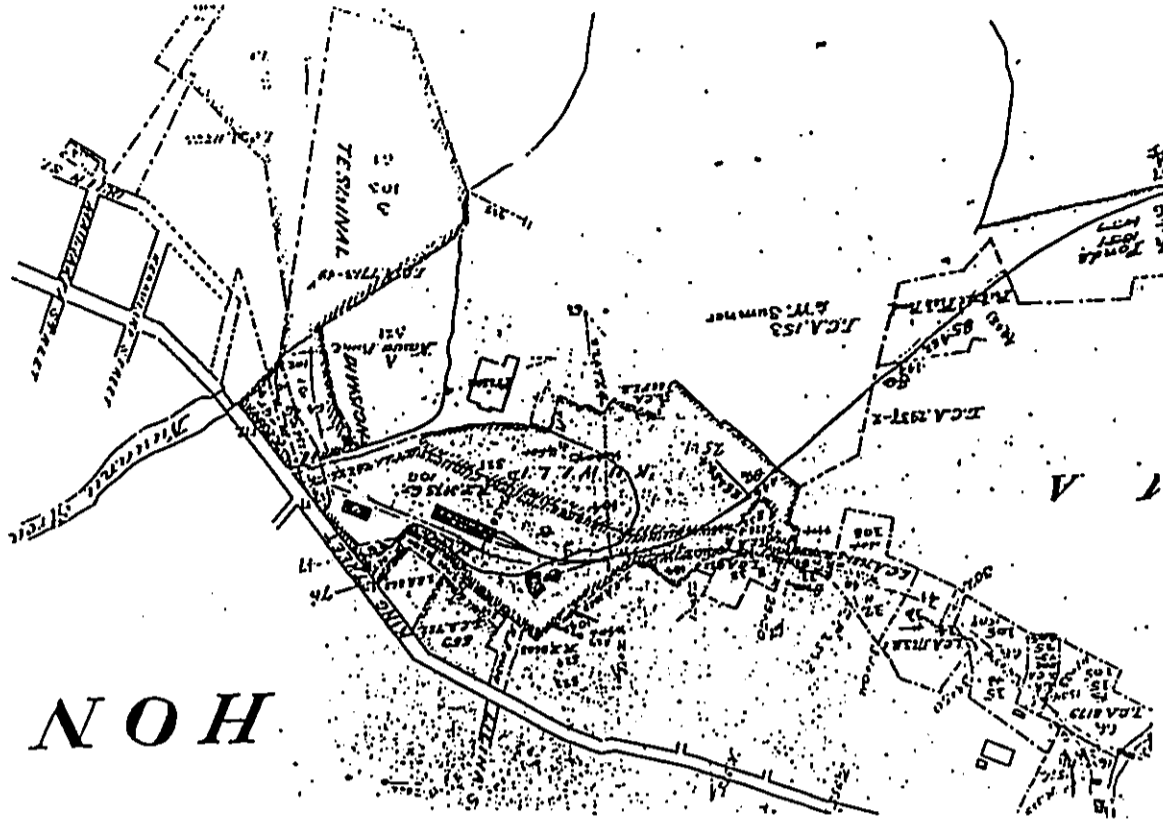


Figure 6: O. R. & L. Co. MAP #9, 1891. (C. H. Kluepfel)

the proposed project site in that year. Following reclamation of Kawa Fish Pond in 1895 through 1897, and Kuwili Fish Pond between 1895 and 1901 (see above section), O. R. & L. Co. announced in 1903 that:

"The passenger station has been raised and moved to permit the erection of a train shed 50 x 400 feet, covering three tracks; also a lanai at the end of the depot so arranged as to permit passengers to alight from or take carriages without being exposed to the weather.

The station building was thoroughly repaired, painted, and sanitary plumbing installed. Concrete walls have been laid around the station, under the lanai, and train shed..." (O. R. & L. Co. 1903:9).

Major revenues earned by O. R. & L. Co. were from the Honolulu Harbor wharves owned by the firm; from sugar plantations and cattle ranches in which the firm had capital investments; and from an interest in the Metropolitan Meat Market. Pineapple freight from the ranches of Pearl City Fruit Co. at Waiawa, and the colonists at Waiawa, were added in 1904. Passengers, excess baggage, mail, express, and special train services were other sources of railway revenues (O. R. & L. Co. 1890-1947; 1904:11).

Further O. R. & L. Co. developments to the proposed project site occurred in 1913 with the erection of a two-story fire-proof concrete building for an engineer's office and map room "the lower floor being used for the storage of old records"¹. Also a new baggage, mail, and express room were added in 1913 (O. R. & L. Co. 1913:11-12).

"A new concrete paint shop at the end of the car shed was built and foundation work for a new boiler and blacksmith shop [were] underway in 1919", however, in 1916 B. F. Dillingham reported that the large amount of work done in remodeling other properties south of the terminal "has kept the concrete gang so continuously employed that work on the new boiler and blacksmith shop has been postponed" (O. R. & L. Co. 1915:9; 1916:10). A 1914-1927 fire insurance

¹The Documents and Storage Building was placed on the Hawai'i Register of Historic Places in 1987.



Figure 7: OAHU RAILWAY TERMINAL, 1890. (Hawaii State Archives)

map (Figure 8), of the O. R. & L. Co. depot and freight Yards indicates that the boiler and blacksmith shop were not built near the terminal.

For the year-end report of 1924 W. F. Dillingham reported:

"In order to provide better accommodations for the traveling public an addition to and rebuilding of the Honolulu Station was authorized and work started late in the year. After tearing down portions of the old station it was found advisable to rebuild entirely; a building of pleasing appearance and furnishing ample accommodations... will soon be completed" (O. R. & L. Co. 1924:10).

The new terminal and office building was completed in 1925 at a cost of \$128,800.00 (O. R. & L. Co. 1925:7).

Development impacts to the proposed project area between 1927 and 1951 appear to be minimal (Figure 9). These impacts are the additions of a loading shed near Iwilei Road; the discontinuance of a lawn fronting North King Street with a 3" water pipe installed through the area; and the addition of a small building fronting North King Street in front of the Documents Storage Building.

In 1946, Walter F. Dillingham announced: "that changes in transportation methods make necessary the abandonment of mainline rail operations". "With the abandonment of main line railroad operations on December 31, 1947, a radical change took place in the Company's maintenance of way program". Dismantling of railroad tracks, and the burning and scrapping of railroad cars, begun in 1948 was continued through 1951. A merger with Young Brothers Division of O. R. & L. Co. became effective on 31 January 1952 (O. R. & L. Co. 1946:11; 1948:8; 1951:4, 7). "The Iron Horse Rides No More!", a 1 January 1948 newspaper article in the Honolulu Star-Bulletin laments the end of the railroad era on O'ahu:

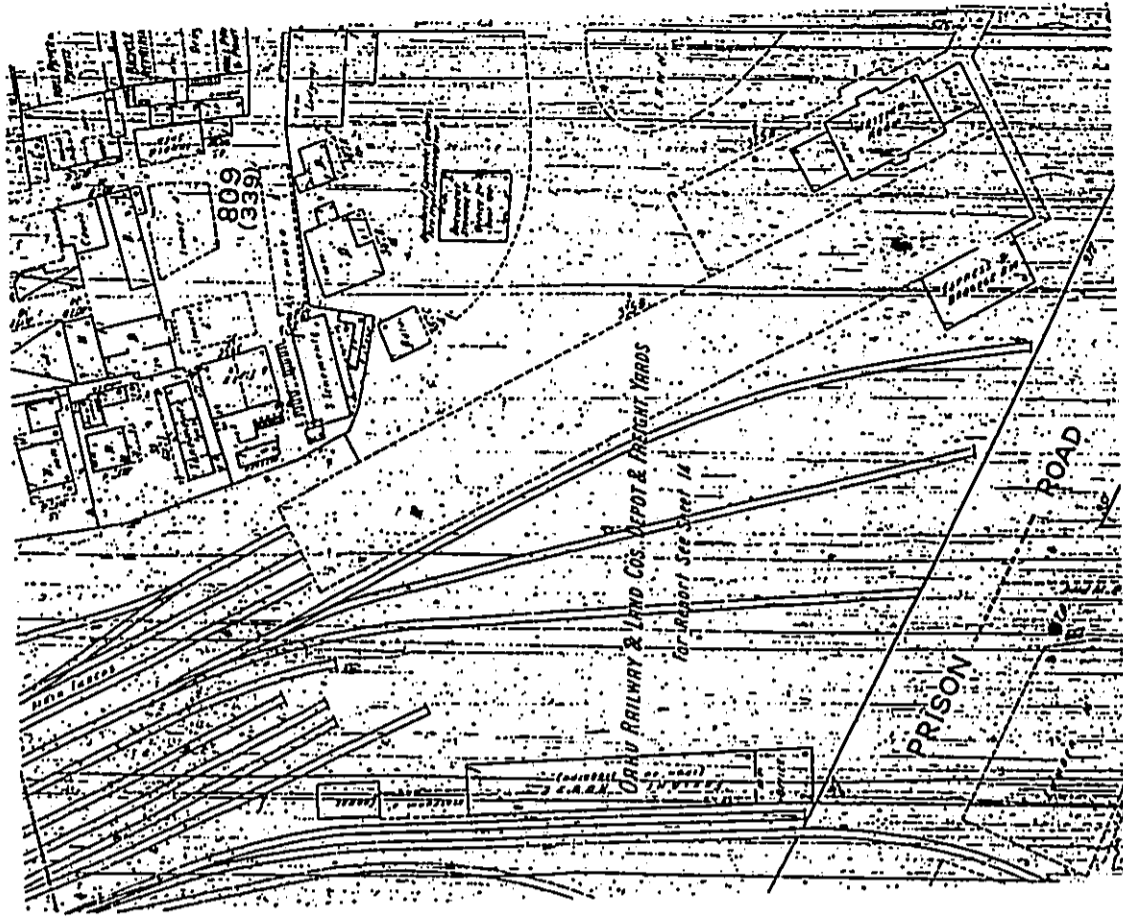


Figure 8: PROJECT SITE, 1914-1927. (Sanborn Map Company)

Wednesday the struggling locomotive of the 'Kahuku Cannonball' - famed train of the Oahu Railway & Land Co. - pulled into the Honolulu depot for the last time.

The train, loaded with 250 Honoluluans who wanted to be on hand for the historic last trip of the 58 year old train, steamed into the depot at 1 in the afternoon.

It was met by the cheers of waiting crowds, the music of the Royal Hawaiian band, and greetings from Mayor Wilson.

To kamaainas, the ending of the railway career marks the close of one phase of an era of mechanized development in the territory - the era which first opened up windward Oahu" (Honolulu Star-Bulletin, 1948:1.5).

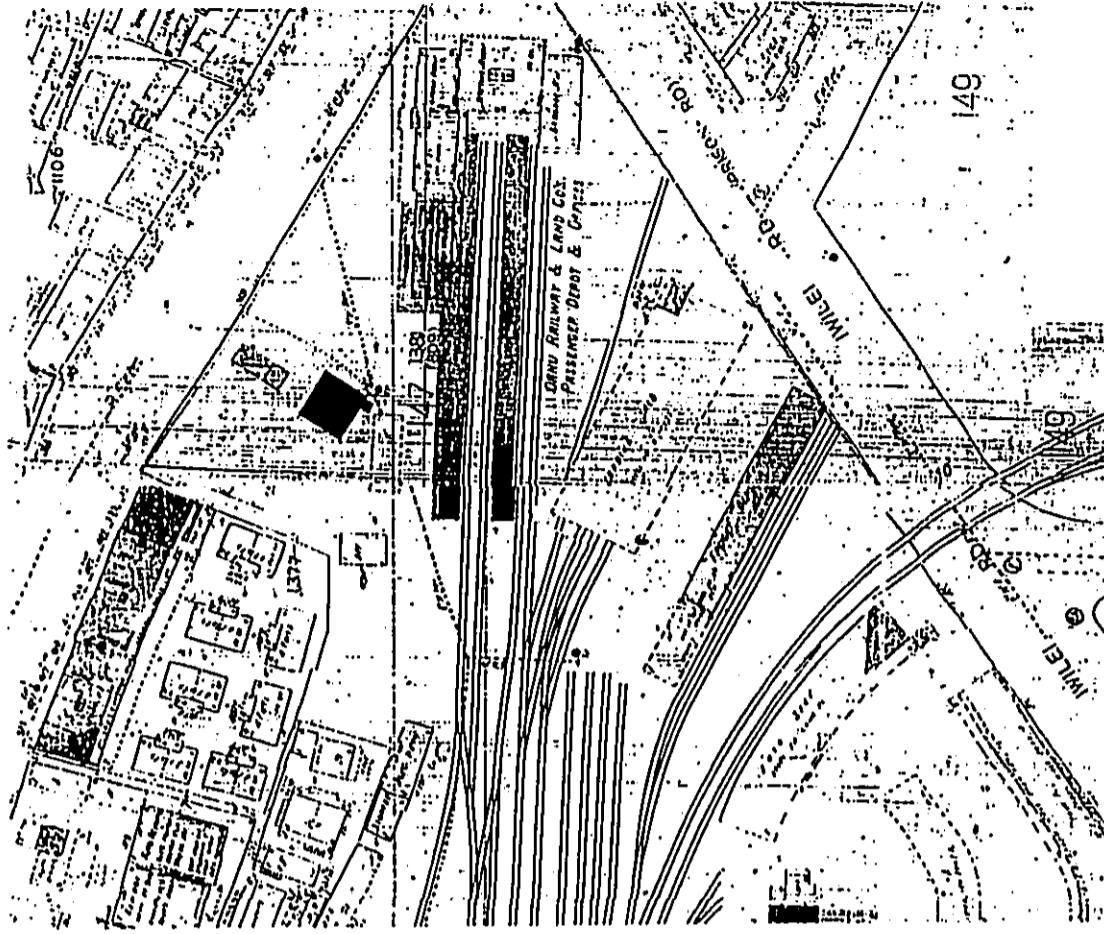


Figure 9: PROJECT SITE 1927-1951. (Sanborn Map Company)

SUMMARY AND POTENTIAL ARCHAEOLOGICAL RESOURCES

The proposed Liliha Civic Center Development project is situated on the site of an ancient fish pond known as Kuwili Fish Pond. Historically, enclosures along the coral banks of the pond were used for stocking fish, and for growing taro. Taro plots along the east bank of the pond were replaced by irrigated rice fields sometime between 1885 and 1890. Beginning in 1890, Kuwili Fish Pond was intermittently filled with dredged materials and coral from Nu'uuanu Stream and Honolulu Harbor, and filling of the pond was completed in 1901. The first railway terminal was built on the project property in 1890 and the second terminal built in 1924/1925. Kuwili Fish Pond, and the walled enclosures, appear to have been preserved beneath imported land fill materials. No major ground disturbing impacts to the fill has been recorded by Oahu Railway and Land Company, the owner and developer of the site property between 1890 and 1951.

Potential subsurface archaeological features preserved beneath the fill materials, and associated with the use of Kuwili Fish Pond, may be coral stone wall alignments, rock wall enclosures, and coral banks. It is possible that the pond was used for burial purposes. The potential of exposing burials, and the preservation of floral and faunal cultural remains associated with aquaculture activities, in an inundated site are high. Other potential archaeological remains are privies associated with O. R. & L. Co. between 1890 and 1903 before sanitation facilities were installed in the original railroad terminal. Locations of privies were not indicated on the maps collected. The possible privy features likely intrude into the fill materials in the interior of the proposed project site or in the locations of the current warehouses.

RECOMMENDATIONS

Archaeological analysis of core samples and associated records, and assessment of the proposed construction blueprints, to determine whether depths of subsurface development will impact Kuwili Fish Pond are recommended. Results of this evaluation should be submitted with recommendations for archaeological testing and data recovery if indicated. All ground altering activities should be archaeologically monitored, including surface removal of pavements, building floors, and bulldozing; the removal of warehouse foundations; and subsurface utility pipes. Fencing of the site would be necessary if illegal artifact collecting activities occur.

REFERENCES CITED

- Brown, J. F.
1885 *Kapalama, Kona, Oahu*. (Additions made December 1948).
Honolulu: Government Survey.
- Commercial Advertiser, The
1857, 13 August "Notes of the Week". Honolulu: Local newspaper.
- Board of Land Commissioners
1847-1848 *Foreign Testimony*. Honolulu: Commissioner of Public Lands.
1851 *Native Testimony*.
1851-1852 *Native Register*.
1859, 1890, 1904 *Grants*.
- Broeze, Frank J. A.
1988 *A Merchant's Perspective: Captain Jacobus Boelen's Narrative of His Visit to Hawaii in 1828*. Honolulu: The Hawaiian Historical Society.
- Commissioner of Public Lands
1929 *Indices of Awards Made by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands*. Honolulu: Star-Bulletin Press.
- Cook, Captain James [J. C. Beaglehole, editor]
1967 *The Voyage of the Resolution and Discovery 1776-1780*. Cambridge: The University Press.
- de Lapasse, M.
1858 *Grand Ocean. (Isles Sandwich)*. *Plan Du Mouillage D'Honolulu. (Ile Woahou)*. Deux Franc: Departement de la Marine et des Colonies.
- Department of the Interior, Hawai'i
1859, 24 January. Receipts. Honolulu: Department of the Interior.
1873 Records. Letter from L. B. Brickwood to Commissioner of Crown Lands.
1887 Records. Letter from James Keau to Minister of the Interior.
- Department of Public Works
1903, 26 June. Records. Territorial Government to Oahu Railway & Land Company. Territory of Hawai'i: Office of the Government Survey.
1906, 13 June. Records. "Kuwili Znd. Pond. Kapalama, Honolulu, Oahu".
- Duperrey, L. I.
1819, *Plan - Du Port D'Onrourou. Sur L'ile Wahoo*. Honolulu: Bishop Museum Neg. No. CP 56255.
- Hawai'i State Archives
1890 *Oahu Railway Terminal, 1890*. Honolulu: Hawai'i State Archives Neg. No. _____
- Honolulu Star-Bulletin
1948, 1 January "Rail Era Closes on Oahu -- Chugging Locomotive Completes its Last Run". Honolulu: Local newspaper.

- Hurst, Gwen
1992 Archaeological Monitoring and Testing. Ka'ahumanu Parking Structure Project. For Harbor Court Developers Honolulu, O'ahu, Hawai'i. MS in Applied Research Group, Bishop Museum, Honolulu.
- Kennedy, Joseph
1984 Archaeological Investigations at TMK 2-1-02:38 and 39, Honolulu, Hawai'i. MS prepared by Archaeological Consultants of Hawaii, Inc., Honolulu.
- Kluess, C. H.
1891 *O. R. & L. Co. Map # 9*. Honolulu: Oahu Railway and Land Company.
- Landrum, Jim
1991 Emergency Mitigation of Archaeological and Historical Resources and Subsequent Multidisciplinary Analyses at the City and County of Honolulu, Department of Housing, River-Nimitz Redevelopment Project, Site 50-OA-A5-16, Nu'uuanu Ahupua'a, Kona District, Island of O'ahu, Hawai'i (TMK 2-1-7:26). MS in Applied Research Group, Bishop Museum.
- Oahu Railway and Land Company
1890-1903 *O. R. & L. Co. Reports*. Honolulu: Oahu Railway and Land Co.
1904-1915 *O. R. & L. Co. Reports*. Honolulu: Mercantile Printing Co.
1916-1929 *O. R. & L. Co. Reports*. Honolulu: Advertiser Publishing Co.
1930-1951 *O. R. & L. Co. Reports*. Honolulu: Advertiser Publishing Co.
- Pukui, Mary Kawena and Samuel H. Elbert
1986 *Hawaiian Dictionary*. Honolulu: University of Hawaii Press.
- Scott, Edward B.
1968 *The Saga of the Sandwich Islands*. Lake Tahoe: Sierra-Tahoe Publishing Company.
- Thrum, Thomas G.
1896 "Retrospect" in *Hawaiian Almanac and Annual*. Honolulu: Press Publishing.
- Pacific Commercial Advertiser, The
1895, 28 September. "The Harbor". Honolulu: Local newspaper.
- Panaleo, Jeffrey
1989 Archaeological Monitoring and Subsurface Testing For the China Town Gateway Plaza Project (TMK 2-1-03:15, 23, 24, 25), Honolulu, Kona, O'ahu. MS. in Applied Research Group, Bishop Museum, Honolulu.
- Sanborn Map Company
1914-1927 *Insurance Maps of Honolulu, Island of Oahu. Territory of Hawaii*. New York: Sanborn Map Company.
- Turnbull, John
1813 *A Voyage Round the World in the Years 1800, 1801, 1802, 1803, and 1804*.... London: W. McDowall, Printer.

U. S. Geological Survey
1983 *Honolulu Quarangle. Hawaii - Honolulu Co. Island of Oahu.*
Washington, D. C.: Department of the Interior.

Vancouver, George
1984 *A Voyage of Discovery to the North Pacific Ocean and Round the
World 1791-1795.* (1798 reprint). London: The Hakluyt Society.

Westerveldt, W. D.
1915 *Hawaiian Legends of Old Honolulu.* Rutland, Vermont and Tokyo,
Japan: Charles E. Tuttle Company.

Liliha Civic Center

Appendix D

TRAFFIC IMPACT REPORT

Austin Tsutsumi and Associates, Inc.

TRAFFIC IMPACT REPORT

FOR

THE PROPOSED LILIHA CIVIC CENTER

PREPARED FOR

WILSON, OKAMOTO & ASSOCIATES, INC.

Prepared By

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

Engineers • Surveyors

Honolulu • Hilo • Waikoloa, Hawaii

July 1992

CONTENTS

**CONTENTS
(CONTD.)**

	Page	Page
I. INTRODUCTION	1 - 4	
A. Purpose and Scope	1	
B. Location	2	
C. Project Description	2 - 4	
II. EXISTING CONDITIONS	5 - 11	
A. Project Site	5	
B. Roadway System	5 - 6	
C. Traffic	7 - 11	
III. TRIP GENERATION	11 - 12	
A. General	11	
B. Trip Generation Characteristics	11 - 12	
IV. TRAFFIC IMPACT ASSESSMENT	13 - 24	
A. Traffic Assignment	13 - 18	
B. AM Peak Hour	18 - 22	
C. PM Peak Hour	22 - 24	
V. CONCLUSIONS	24 - 26	
VI. RECOMMENDATIONS	26 - 27	
REFERENCES		
EXHIBITS		
1. LOCATION AND VICINITY MAP	3	
2. SITE PLAN	4	
3. EXISTING TRAFFIC COUNT	8	
4. SAMPLE: TRAFFIC VOLUME PROJECTION	14	
EXHIBITS (CONTD.)		
5. 1997 TRAFFIC VOLUMES WITHOUT PROJECT		15
6. 1997 TRAFFIC VOLUMES WITH PROJECT		19
7. PROPOSED BUS BAY		25
TABLES		
1. SUMMARY OF TRIP GENERATION RATES		12
2. TRIP ROUTE ASSIGNMENT		18
3. TRIP DISTRIBUTION		17
4. TRAFFIC SIGNAL TIMING		21
APPENDICES		
TRAFFIC COUNTS		
TRAFFIC ANALYSIS - EXISTING TRAFFIC		
TRAFFIC ANALYSIS - 1997 PROJECTED TRAFFIC		
TRAFFIC ANALYSIS - 1997 TRAFFIC WITH SITE-GENERATED TRAFFIC		
TRAFFIC ANALYSIS - 1997 PROJECTED TRAFFIC WITH SITE-GENERATED TRAFFIC AND PROPOSED DILLINGHAM BOULEVARD IMPROVEMENTS		
LEVEL OF SERVICE DEFINITIONS		
LEVEL OF SERVICE DEFINITIONS		
LEVEL OF SERVICE COMPUTATIONS		



AUSTIN, TSUTSUMI & ASSOCIATES, INC. CIVIL ENGINEERS & SURVEYORS
 CONTINUING THE ENGINEERING PRACTICE FOUNDED BY H. A. R. AUSTIN IN 1934

TED S. MARINO, P.E.
 GEORGE M. HULTER, P.E.
 ROBERT E. KUROKI, P.E.
 THOMAS S. OTSUBO
 DON K. HAHATUA, P.E.

TRAFFIC IMPACT REPORT

FOR

THE PROPOSED LILJHA CIVIC CENTER

1. INTRODUCTION

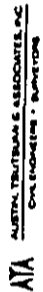
A. Purpose and Scope

The purpose of this study is to identify and assess the impacts of traffic generated by Phase I of the proposed Liljha Civic Center, a State office and private non-profit office building complex. Phase II of the project has not been finalized at this writing and, therefore, is not included in the analysis. An updated traffic report for Phase II should be prepared when that project is ready to proceed. This report presents the findings of the study and recommendations to mitigate the traffic impacts identified with the project. This report includes the following:

1. A description of the proposed project.
2. An evaluation of the existing traffic conditions.
3. Trip generation characteristics of the project.
4. Identification and assessment of traffic impacts resulting from the proposed project on nearby roadways.
5. Recommendations to mitigate and/or reduce the traffic impacts identified in this report.

REPLY TO:
 501 SUMNER STREET, SUITE 521 • HONOLULU, HAWAII 96817-5031
 PHONE: 808/531-1222 • FAX: 808/531-1227

OFFICES IN:
 HONOLULU, HAWAII
 WASHINGTON, D.C.



AUSTIN, TSUTSUMI & ASSOCIATES, P.C.
 CIVIL ENGINEERS • SURVEYORS

B. Location

The proposed Liljha Civic Center will be located on approximately 5.6 acres of land (TMK: 1-05-07:1, 14, 15, 18, 57, 58 and 60 through 78) at the corner of Iwilei Road and North King Street. The site is the old Oahu Railway & Land (OR&L) depot in Iwilei, which presently serves as offices for several social agencies and State government organizations. Exhibit 1 shows the location of the project site.

C. Project Description

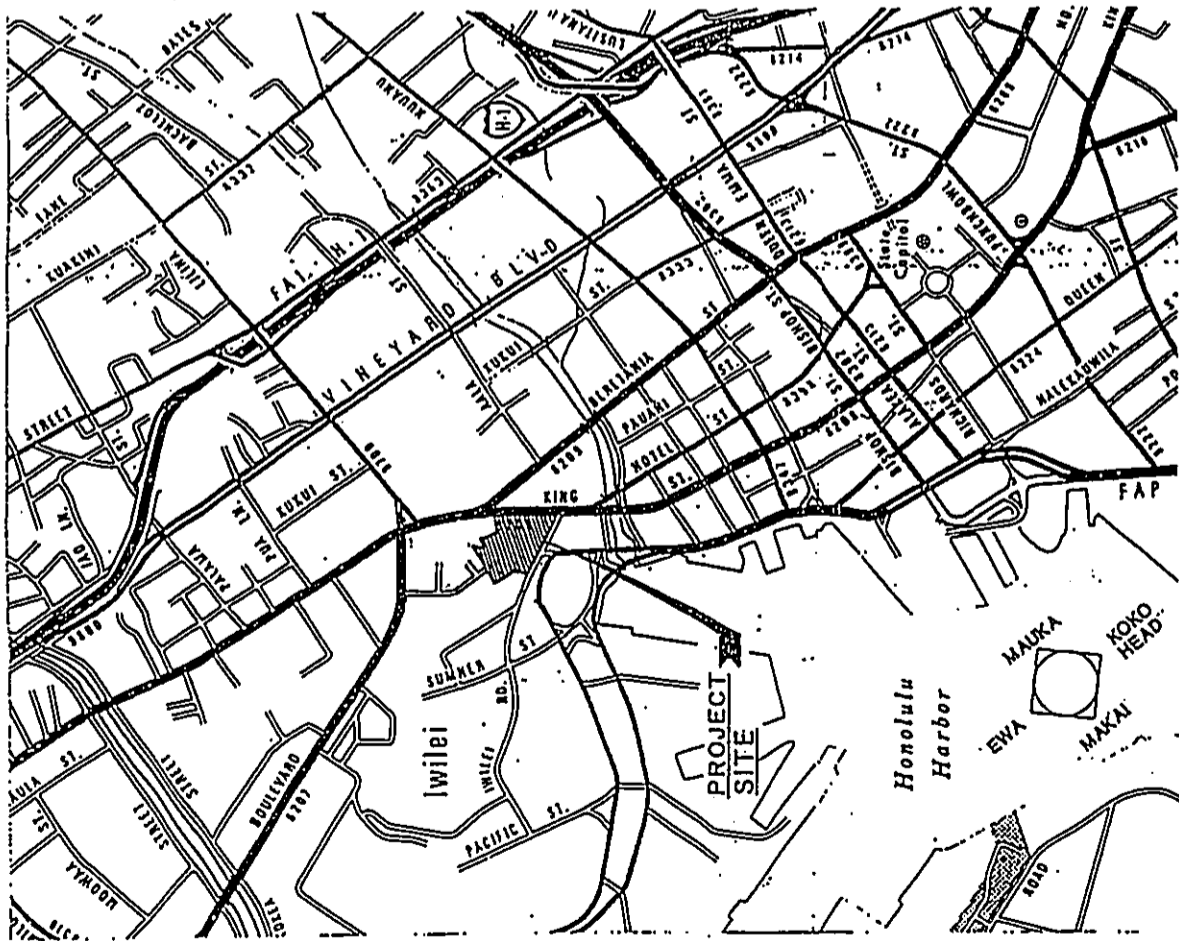
The proposed Liljha Civic Center Phase I will consist of three new office buildings and a parking structure. These office buildings will house State government offices and non-profit organizations on a gross floor area of 253,300 square feet. The existing 20,000 square foot OR&L building will remain and will continue to be used. A new parking structure, with approximately 684 stalls, will be constructed adjacent to the new office buildings. Phase I is scheduled for completion in 1997.


Vehicular access will be from North King Street, Iwilei Road and Kaaahiki Street off Dillingham Boulevard.

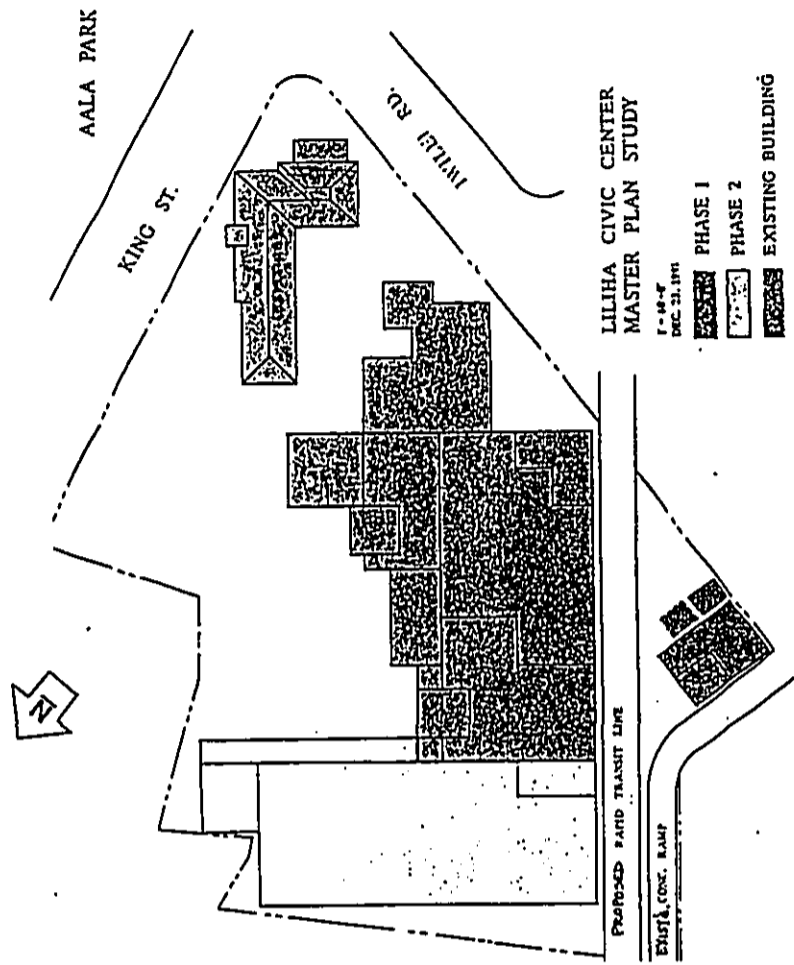
The proposed Honolulu Rapid Transit route will be located along the westerly (makeal) border of the project site with a passenger station located in the area, but not necessarily immediately adjacent to the project site.

Phase II of the project would add 222,700 square feet (SF) of gross floor area (GFA) and a 557-stall garage. Phase II has not been scheduled as of this writing.




Exhibit 2 shows the proposed project site plan.




 AUSTIN, TSUTSUMI & ASSOC., INC. ENGINEERS • SURVEYORS	TRAFFIC IMPACT REPORT LILIHA CIVIC CENTER LOCATION AND VICINITY MAP	EXHIBIT 1
---	--	----------------------------



LILIHA CIVIC CENTER
MASTER PLAN STUDY
 1-14-87
 DEC. 31, 1981

 PHASE 1
 PHASE 2
 EXISTING BUILDING

Source: Liliha Civic Center Master Plan Development Report, Ohta, Kurimatsu & Associates, Inc., January 6, 1992

 AUSTIN, TSUTSUMI & ASSOC., INC. ENGINEERS • SURVEYORS	TRAFFIC IMPACT REPORT LILIHA CIVIC CENTER SITE PLAN	EXHIBIT 2
---	--	----------------------------

II. EXISTING CONDITIONS

A. Project Site

The project site is located on the makai-Ewa (northwest) corner of North King Street and Iwilei Road, across King Street from Aala Park. The site includes the historic OR&L building which contains offices for the Kalihl-Palama Multi-Service Center and the King Kamehameha Celebration Commission office building; warehouses; an ice plant; a minivan dispatch center; wholesale food dealers and other small businesses.

B. Roadway System

The site is bounded by North King Street on the east and Iwilei Road on the south, and is on the northwest corner of the T-Intersection formed by these streets. Kaaahi Street, off Dillingham Boulevard, ends at the northern boundary of the site and will serve as the north access to the site.

The site is near the confluence of major highways and arterials on the west edge of the Central Business District (CBD), which affects traffic efficiency in the area. Approximately 100 feet northwest of the site is the intersection of North King Street and Beretania Street, which is the west terminus of the main, generally east-west, one-way couplet through the city; King Street is the east bound roadway and Beretania Street is the west bound roadway of the couplet. This intersection is traffic signal controlled. Six hundred feet further north from the project site is the major intersection of North King Street/Dillingham Boulevard/Liilua Street, which is controlled by a 4-phase traffic signal system.

North King Street, immediately fronting the site, is a six-lane, two-way arterial street with four lanes for east bound traffic and two lanes for west bound traffic. The east bound traffic is a mix of automobiles, buses and commercial vehicles; the west bound traffic consists primarily of buses from the Hotel Street bus mall and left-turn traffic from Iwilei Road.

Iwilei Road is a two-to-four-lane, two-way local road, with parking permitted along the south curb. Iwilei Road also provides access for west bound Nimitz Highway traffic desiring to go to the Kalihl and Liilua areas; a slip-ramp from west bound Nimitz Highway feeds directly to Iwilei Road. Iwilei Road itself is short (only 2,500 feet long) and primarily serves commercial-industrial businesses, several private social agency centers and the Dole Cannery tourist center. The Iwilei Road/King Street Intersection is traffic signal controlled.

Kaaahi Street is a dead-end local street off Dillingham Boulevard, leading to the north boundary of the site. It is a two-lane, two-way street, with parking permitted on both sides, and serves a small commercial-industrial area. It has a 56-foot wide right-of-way with a 40-foot roadway. The Kaaahi Street/Dillingham Boulevard Intersection is traffic signal controlled.

Dillingham Boulevard is an arterial street between Middle Street and North King Street. It is five lanes wide, two lanes in each direction, with a two-way, left-turn lane along much of its length. However, in the vicinity of the project site, from Kaaahi Street to King Street, Dillingham Boulevard has three east bound lanes to King Street and two lanes west bound. At the King Street Intersection, in the east bound direction, the right lane is for right turns only, the center lane is an optional right turn-through lane, and the left lane is for through traffic only; left turns are prohibited. In this area, Dillingham Boulevard has an 86-foot wide right-of-way and a 56-foot wide roadway.

Liilua Street is a major collector/distributor road in the mauka-makai direction and runs from the Pauoa-Nuuuanu Valley areas to King Street. It distributes traffic from these valley communities, Vineyard Boulevard, and the H-1 Freeway to the makai areas.

C. Traffic

1. Traffic Count Data

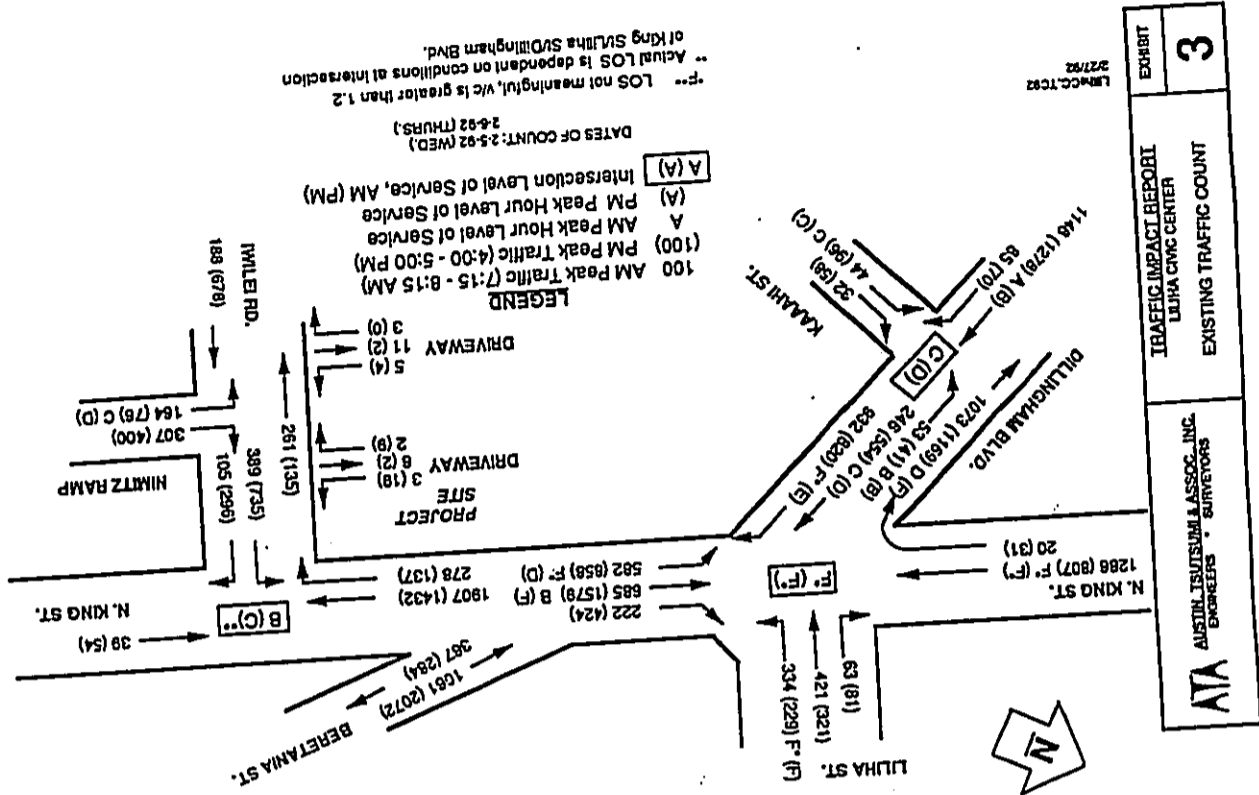
a. General

A traffic survey was conducted on February 5 and 6, 1992, to obtain the peak period of traffic turning movement volumes at the key intersections immediately adjacent to the project site.

AM and PM peak hour traffic in this area is very congested as a result of the convergence of major east-west streets at the Lijih/King/Dillingham and King/Beretania intersections. Exhibit 3 shows the traffic counts and the approach Level of Service (LOS) for the streets in the area affected by the project.

The intersection of King Street/Dillingham Boulevard/Lijih Street controls the quality of traffic flow in this area. Traffic conditions at this intersection affect traffic flow at the intersections of Dillingham Boulevard/Kaahi Street, King Street/Beretania Street and King Street/Iwilei Road. Almost all east-west traffic through the city must use either H-1 Freeway, Vineyard Boulevard, Nimitz Highway, Dillingham Boulevard, or King Street. East bound King Street and its associated west bound complement, Beretania Street, are the only streets which traverse the CBD itself. The other major roadways are located on the mauka and makai perimeters of the CBD. Dillingham Boulevard serves as a major feeder to the King Street/Lijih Street intersection during the AM peak period of traffic.

Likewise, Lijih Street, Nuuanu Avenue and Pali Highway/Bishop Street are the major north-south feeders into the CBD, especially for Windward Oahu motorists. Lijih Street is the route



many windward and Liiha/Nuuanu motorists use to get to the Iwilei/Aala area.

Intersection capacity analysis throughout this study was performed using methods presented in Special Report 209, Highway Capacity Manual, Transportation Research Board, 1985. Level of Service (LOS) definitions and the summary capacity calculations are contained in the Appendices.

b. AM Peak Hour

The AM peak hour generally occurs between 7:15 and 8:15 AM.

The intersection of Dillingham Boulevard and Kaaahi Street is a signalized T-intersection with two-phase traffic signals. The left-turn movement on Ewa bound Dillingham Boulevard at Kaaahi Street operates at LOS "B", while through traffic operates at LOS "D". However, in the Koko Head bound direction, the traffic operations at Kaaahi Street are generally affected by the operations at the downstream King Street/Liiha Street/Dillingham Boulevard intersection. Koko Head bound traffic on Dillingham Boulevard is often queued back across Kaaahi Street. Therefore, the actual operating LOS will be lower than the calculated LOS. Left-turn traffic exiting Kaaahi Street operates at LOS "C".

The intersection of North King Street, Dillingham Boulevard and Liiha Street is signalized with a six-phase, 90-second cycle, traffic signal system. It operates at an overall LOS "F" ("F" denotes that the LOS is not meaningful because the volume-to-capacity ratio (v/c) exceeds 1.2) during the AM peak hour. This is because of the high volume of mauka bound traffic on Dillingham Boulevard, plus Koko Head bound traffic, heading into the

CBD on North King Street. The King Street approach operates at LOS "F". The right-turn movement on mauka bound Dillingham Boulevard operates at LOS "F" because the through traffic in the optional through/right turn lane (the center lane of the three-lane approach) on Dillingham Boulevard prevents full utilization of the double right-turn lanes to North King Street. The south bound left turn from Liiha Street to North King Street also operates at LOS "F".

The Y-intersection of North King Street at Beretania Street is signalized with a three-phase traffic signal system; it was not counted for this survey. A previous study, conducted in January 1989, indicated the intersection operated at LOS "C".

The T-intersection of King Street and Iwilei Road is signalized with a two-phase traffic signal; it operates at LOS "B".

The T-intersection of Iwilei Road and the Nimitz Highway west bound slip ramp is unsignalized with a STOP sign for the ramp traffic; the left-turn lane of the ramp operates at LOS "C" and the right turn at LOS "A".

c. PM Peak Hour

The PM peak hour generally occurs from 4:00 to 5:00 PM. Exhibit 3 shows the PM peak hour traffic volumes and approach LOS.

The intersection of Dillingham Boulevard at Kaaahi Street operates at LOS "D". The traffic situation is similar to the AM peak condition with mauka bound traffic queued back to Kaaahi Street.

The King/Dillingham/Liiha intersection operates at LOS "F" with King Street operating at LOS "F" east bound and LOS "F"

west bound. Congestion in the west bound direction significantly impacts the King Street/Beretania Street intersection during this period and causes backups on both west bound King Street and Beretania Street. The traffic signals operate on a 180-second cycle.

The intersection of North King Street and Iwilei Road operates at LOS "C" with the north bound left turn from Iwilei Road at LOS "E".

The left and right turns from the Nimitz ramp into Iwilei Road operate at LOS "D".

III. TRIP GENERATION

A. General

The trip generation characteristics developed in this study are based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in "Trip Generation, 5th Edition". The number of trips generated by a specific land use is empirically correlated to an independent variable associated with land use intensity in order to develop a trip rate per unit of that variable (e.g., vehicle trips per 1,000 square feet of gross floor area). The ITE trip rates for "Government Office Complex" are used in this analysis. Trip generation is based on gross floor area.

B. Trip Generation Characteristics

Table 1 shows the trip ends generated by the proposed project. The Liliha Civic Center Phase I is expected to generate 570 vehicle trip ends during the AM peak hour and 724 vehicle trip ends during the PM peak hour.

TABLE 1 - SUMMARY OF TRIP GENERATION RATES

Land Use or Bldg. Type: Government Office Complex ITE CODE: 733
Liliha Civic Center, Phase I
Location: Honolulu, Hawaii

Independent Variable:		1000 SF Gross Floor Area (GFA)	TRIP RATE	VOLUME
AVERAGE WEEKDAY VEHICLE TRIP ENDS				
PEAK	A.M.	ENTER	25.00	6,333
HOUR	between	EXIT	2.00	507
OF	7 and 9	TOTAL	0.25	63
ADJACENT	P.M.	ENTER	2.25	570
STREET	Between	EXIT	0.89	225
TRAFFIC	4 and 6	TOTAL	1.97	500
PEAK	A.M.	ENTER	2.86	724
HOUR		EXIT	2.00	507
OF		TOTAL	0.25	63
GENERATOR	P.M.	ENTER	2.25	570
		EXIT	0.89	225
		TOTAL	1.97	500
		TOTAL	2.86	724
SATURDAY VEHICLE TRIP ENDS				
PEAK		ENTER	NA	NA
HOUR OF		EXIT	NA	NA
GENERATOR		TOTAL	NA	NA
SUNDAY VEHICLE TRIP ENDS				
PEAK		ENTER	NA	NA
HOUR OF		EXIT	NA	AN
GENERATOR		TOTAL	NA	NA

Reference: ITE "Trip Generation," 5th Edition, 1991

Comments: New office area; does not include existing OR&L building
"GFA" includes all enclosed areas, regardless of use, except parking.

IV. TRAFFIC IMPACT ASSESSMENT

A. Traffic Assignment

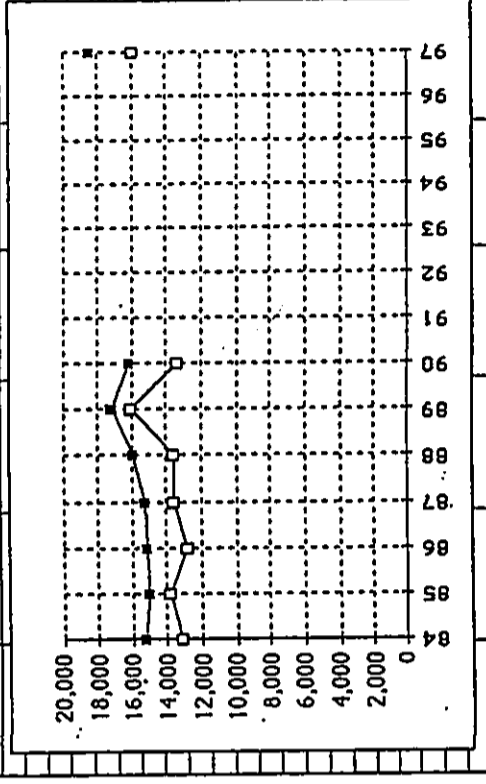
Traffic projections were developed by linear regression methods using historical traffic count data from State Department of Transportation screen line counts at Kapalama Drainage Canal and Nuuanu Stream. Traffic counts for 1984 to 1990 were used to project traffic volumes to 1997 (see Exhibit 4) to derive the estimated annual change in traffic volumes for each of the streets affected by the project. The traffic data from field counts taken on February 5 and 6, 1992, were then adjusted with these factors to determine the 1997 volumes and are shown in Exhibit 5. The project is planned for completion in 1997.

The traffic assignment for trips generated by the proposed project is based upon a survey conducted by the State Department of Accounting and General Services in 1989 of commuting patterns of State employees working in the State's Kalahele Building, as shown in Table 2. The survey showed that 41.6% of State employees live east of the CBD; 24.6% live in Nuuanu or the Windward areas; and 33.8% live west of the CBD. This distribution appeared appropriate and was used to assign the project-generated trips to the various streets leading to the project site. Table 3 shows the trips assigned to each of the three accesses. Traffic during most of the day is expected to originate from the surrounding community; however, employee trips during the peak periods of traffic can be expected to be distributed island-wide in accordance with the survey. Exhibit 6 shows the estimated peak hour vehicle traffic volumes with projected traffic increases, plus the project-generated traffic.

Traffic from the existing community center presently uses parking lots off North King Street and Iwilei Road. These accesses should be retained and adjusted for the proposed parking structure, in addition to constructing

DILLINGHAM BOULEVARD AT KAPALAMA DRAINAGE CANAL

YEAR	EASTBD	WESTBD	
79			
80	14,634	12,879	
81	14,202	12,418	
82	13,462	11,953	1997 PROJ.
83	15,760	12,626	84-89 TREND 19368.8
84	15,248	13,177	84-90 TREND 18497.71429
85	15,127	13,864	
86	15,132	12,823	
87	15,307	13,584	84-89 TREND 18224.86667
88	15,961	13,550	84-90 TREND 15928.57143
89	17,185	16,127	
90	16,179	13,420	
91			
92			
93			
94			
95			
96			
97	18,498	15,929	
	14.33%	18.69% 7 yr	
	2.05%	2.67% per year	



ATA AUSTIN, TSUTSUMI & ASSOC., INC. ENGINEERS • SURVEYORS	TRAFFIC IMPACT REPORT LILUA CIVIC CENTER	EXHIBIT
	SAMPLE: TRAFFIC VOLUME PROJECTION	4

TABLE 2
TRIP ROUTE ASSIGNMENT

AREA*	% OF EMPLEES*	ESTIMATED ROUTE TO PROJECT SITE						TOTAL
		ALPHA ST	BERE WB DALL HW	KING EB	NMI WB	NMI EB WILEI HW	DALL EB	
HAWAII KAI	6.30%	3.20%	0.10%		2.00%			5.30%
ANA HANA	3.80%	2.60%			1.00%			3.60%
KAMUKO	11.30%	8.00%	0.10%		3.20%			11.30%
MAHONA	8.40%	6.00%	0.20%		3.20%			9.40%
LOWER MAHUKI	1.90%	0.10%			1.70%			1.80%
WAIKUKU	1.70%				1.60%			1.60%
MOEHI	5.10%	3.00%			2.10%			5.10%
PUNAHONA	4.30%	2.00%			2.00%			4.00%
NUUANU	7.80%	5.00%			2.80%			7.80%
KALII	6.30%			4.00%				4.00%
KALIA	4.80%	2.50%	0.10%		2.00%			5.60%
WAIMANALO	1.00%	0.50%	0.10%		0.40%			1.00%
KANEHOE	11.10%	5.00%	0.10%		1.00%			6.10%
SALT LAKE	2.70%	0.10%						0.10%
AREA	7.00%	3.00%						3.00%
PEARL CITY	6.50%	2.80%			1.00%			3.80%
WAIKAPU	3.40%	2.00%			0.20%			2.20%
MALENA	3.80%	2.00%			0.10%			2.10%
WAIHANA	2.20%	1.80%			0.10%			1.90%
KUNIA								
MAUNALO	0.20%	0.10%						0.30%
ENA	0.20%	0.10%						0.30%
WAIHANA	1.50%	1.00%						2.50%
HALEIWA	0.20%	0.10%						0.30%
	100.00%	49.80%	0.80%	6.40%	23.00%	6.70%	14.25%	

*Source: Aloha Stadium Civic Center Conceptual Plan (Traffic Study), State of Hawaii, Department of Accounting and General Services, October 1987

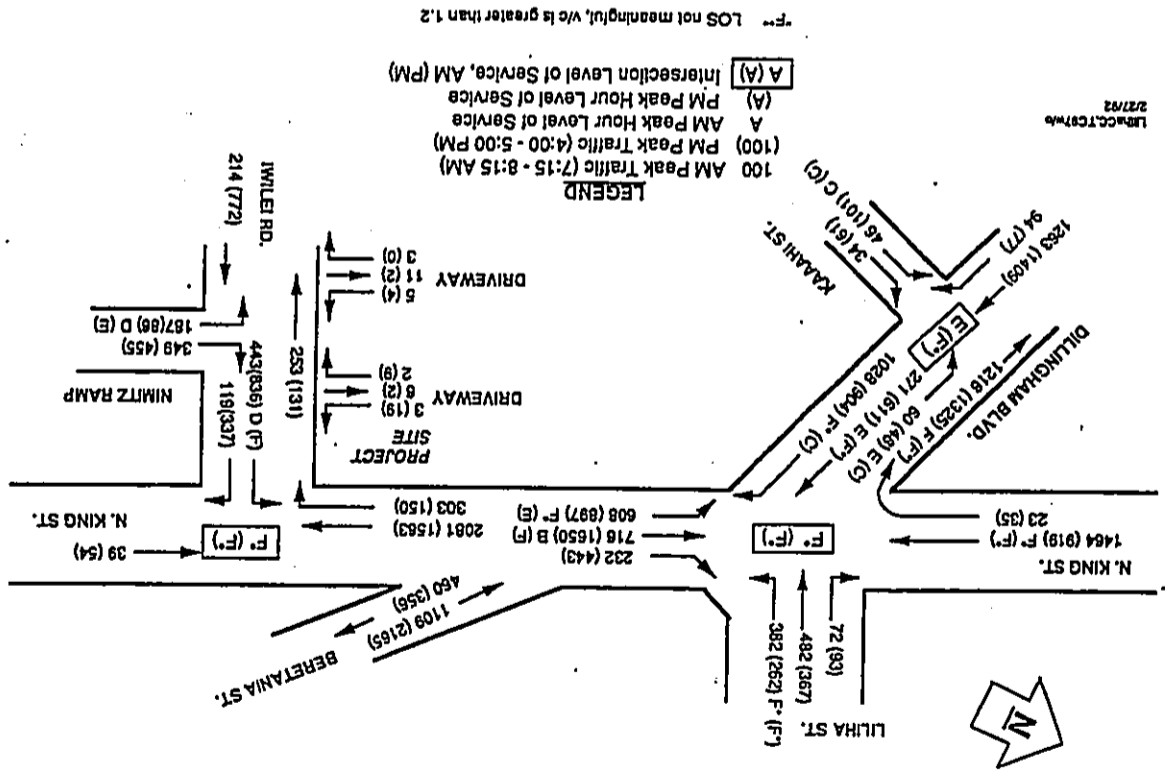


EXHIBIT 5

TRAFFIC IMPACT REPORT
LILIHAI CIVIC CENTER
1997 TRAFFIC VOLUMES
WITHOUT PROJECT

AUSTIN TRUTSISUMI ASSOC. INC.
ENGINEERS - SURVEYORS

the new access from Kaaahi Street. In particular, the King Street access would expedite access into and out of the site since it would be from the east bound main street in the area; however, traffic movements will be restricted to right turns in and right turns out, only.

The Department of Accounting and General Services (DAGS) indicated a desire to limit public vehicles to one exit only for more efficient control. Therefore, public traffic would only exit through the Iwilei Road exit. Public entrance should be limited to North King Street and the Iwilei Road accesses. There will be sufficient vehicle reservoir space on the King Street access driveway to the parking structure to ensure that there will be no interference with King Street traffic. The Kaaahi Street access should be restricted to employees only because of the many commercial/industrial activities on this street. Three accesses will better distribute the traffic generated by the facility without overloading any one street, especially during the peak traffic periods, and provide more flexibility for accommodating traffic demands.

B. AM Peak Hour

Exhibit 6 shows the projected AM peak hour traffic volumes. It was estimated that the project would generate 507 trips into the site during the AM peak hour of traffic -- 15% of the new traffic would enter the parking structure from Kaaahi Street; 40% from North King Street; and 45% from Iwilei Road. It was also estimated that there would be 63 trips exiting the site during the same period -- 20% exiting to Kaaahi Street; 15% to North King Street and 65% to Iwilei Road.

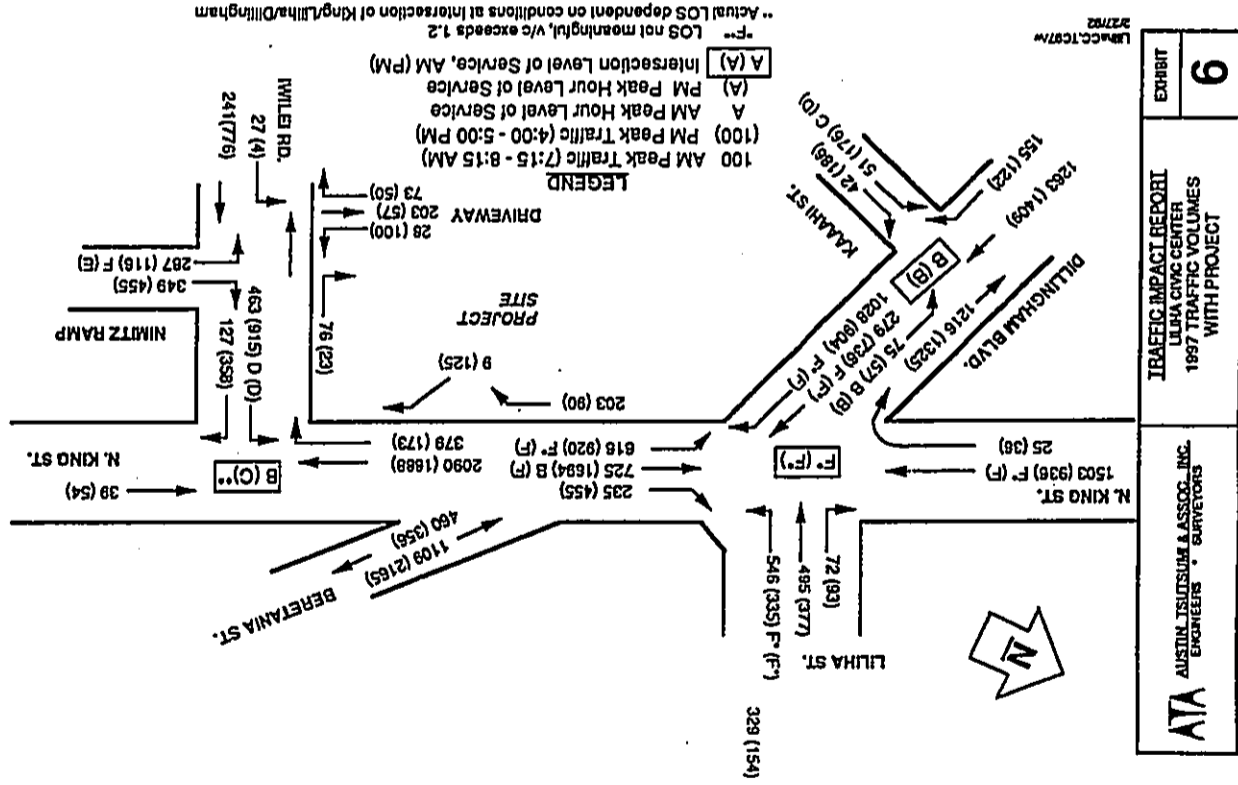
The increased left turns from Ewa bound Dillingham Boulevard at Kaaahi Street may cause traffic to queue back to King Street. This is due to the difficulty left-turning vehicles have crossing the Koko Head bound traffic because the present traffic signal system is a two-phase operation.

TABLE 3
TRIP DISTRIBUTION

Period	No. of Trips	Kaaahi St.		King St.		Iwilei Rd.							
		% Rt	% Lt	% Rt	% Lt	% Rt	% Lt						
AM Pk, Enter	507	12%	61	3%	15	40%	203	15%	76	5%	25	25%	127
AM Pk, Exlt	63	12%	8	8%	5	15%	9	20%	13	45%	28	15%	0
PM Pk, Enter	225	20%	45	5%	11	40%	80	10%	23	10%	23	15%	34
PM Pk, Exlt	500	25%	125	15%	75	25%	125	15%	75	20%	100	15%	0

The Level of Service of this intersection in the Koko Head direction is greatly influenced by the King/Dillingham/Liaha intersection, only 420 feet mauka of Kaaahi Street. Koko Head bound Dillingham Boulevard traffic is often backed up beyond Kaaahi Street to Ala Kawa Street. Because these vehicles are frequently stopped in traffic, left turns can often be executed across the opposing traffic stream. However, these left-turning vehicles can seriously affect the flow of Ewa bound traffic on Dillingham Boulevard if they must wait to complete their turn because the intersection does not have a left-turn storage lane. Changing the traffic signals to provide a short advance green phase for Ewa bound traffic will accommodate the turning traffic and improve operations from LOS 'E' to 'B'. However, actual intersection operating LOS may be lower than the calculated LOS because of the effect of the low operating LOS at the King Street/Dillingham Boulevard/Liaha Street intersection. Table 4 shows the present and proposed traffic signal timing for the intersections in this study.

The traffic projections indicate that the King/Dillingham/Liaha intersection is the critical bottleneck intersection, although bottleneck conditions also exist at the King/Beretania intersection. It is estimated that about 70% of the traffic generated by the Liha Civic Center (LCC) will pass through this intersection. The King/Dillingham/Liaha intersection presently operates at LOS 'F**' and will continue to operate at LOS 'F**' with future and LCC-generated traffic. Koko Head bound through traffic on King Street operates at LOS 'F*'. Through vehicles on Dillingham Boulevard going to Liha Street operate at LOS 'F' and right-turn traffic operates at LOS 'B'. Ewa bound through traffic on North King Street operates at LOS 'B' and left-turn traffic operates at LOS 'F**'. The south bound left turning vehicles from Liha Street into Koko Head bound King Street operate at LOS 'F**'. North bound traffic flow on Dillingham Boulevard could be improved by widening Dillingham Boulevard between Kaaahi Street and King Street to provide two



AUSTIN TRUTER & ASSOCIATES, INC. ENGINEERS & SURVEYORS	TRAFFIC IMPACT REPORT LIHA CIVIC CENTER 1997 TRAFFIC VOLUMES WITH PROJECT
	EXHIBIT 6

The intersection of King/Dillingham/Liliha would operate at LOS "F". There could be a very slight improvement in traffic flow if the traffic signal timing is fine-tuned; however, this improvement probably would not be noticeable due to the normal variations in traffic flow. The traffic assignment for traffic exiting LCC in the afternoon projects 200 vehicles exiting via Kaaahi Street with 125 turning right onto Dillingham Boulevard. This route would be appropriate for many employees because they could drive to Liliha Street and get onto the H-1 Freeway east bound or west bound. Windward motorists could also drive straight up Liliha Street to Wyllie Street or turn right at Vineyard Boulevard to get on Pal Highway. The existing through and right-turn traffic on mauka bound Dillingham Boulevard already operates at LOS "F" and the additional traffic from LCC will not change the LOS. The additional north bound traffic from Phase II may change the LOS, but that should be investigated when Phase II is implemented. Widening north bound Dillingham Boulevard to provide two through lanes and two right-turn lanes will improve traffic flow, but this need is not attributable to any great extent to the LCC traffic; it exists now.¹

The intersection of North King Street and Iwilei Road operates at LOS "C". The left turn from north bound Iwilei Road onto Ewa bound King Street operates at LOS "D". However, traffic on Ewa bound King Street is often backed up during the afternoon peak period because of buses from the Hotel Street bus mall stopping in the curb lane at the bus stop on King Street, just before Beretania Street. These buses often arrive 3 or more at a time and cause Ewa bound traffic on King Street, especially the right lane, to back up to Iwilei Road, thus preventing Iwilei traffic from moving through the intersection on their signal phase. Even though Iwilei Road has a double left turn onto North King Street, this traffic often cannot get through the

¹ "Central Honolulu Traffic Improvement Plan for Department of Transportation Services, City and County of Honolulu", Department of Transportation Services, September 1990.

intersection because of the buses queued and stopped at the bus stop. A bus bay, as shown on Exhibit 7, would help alleviate congestion by removing the buses from the traffic lane while they are loading/unloading passengers. This improvement is not attributable to the addition of LCC traffic; the need exists now. Iwilei Road traffic is also heavy due to downtown traffic using west bound Nimitz Highway to Iwilei Road, thence to North King Street. This is due to the one-way traffic patterns in the CBD and because getting to Beretania Street to drive Ewa bound from certain areas of the CBD may be considered inconvenient and time-consuming by some motorists.

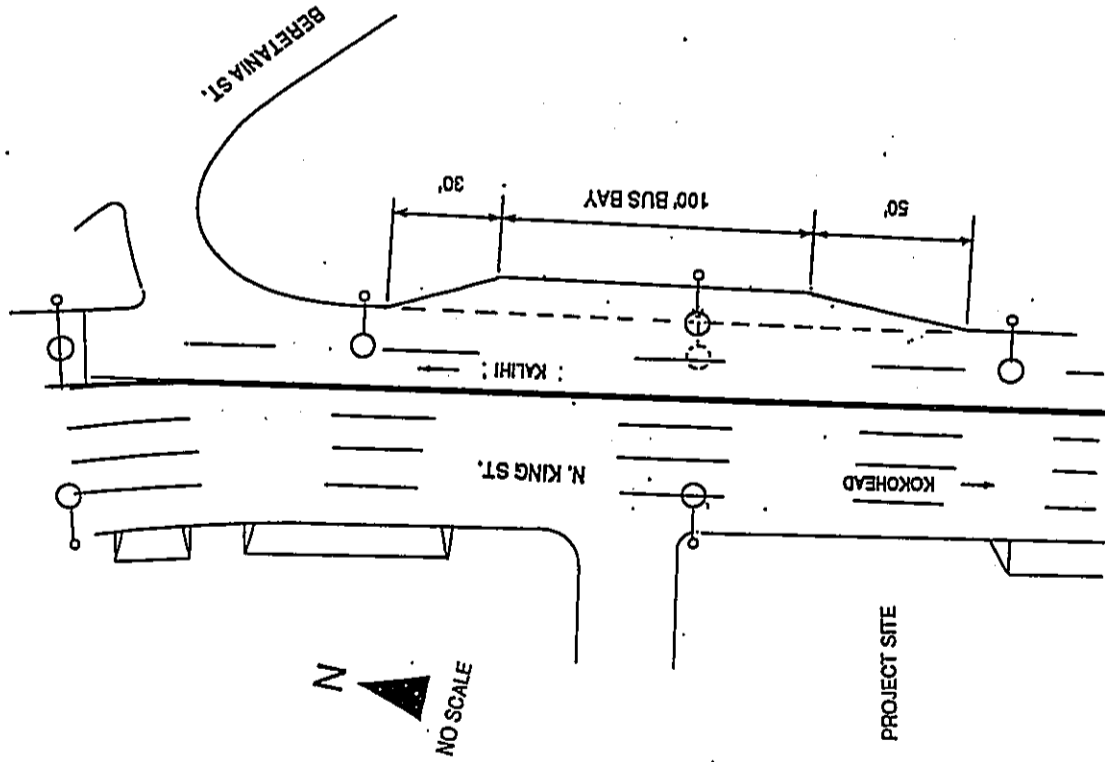
An alternative route for motorists going to Waikiki, Kakaako and Ala Moana from LCC is to turn right onto south bound Iwilei Road to Pacific Street, cross on Pacific Street to the east bound lanes of Nimitz Highway to the Waikiki direction. This could reduce the traffic load on King Street.

V. CONCLUSIONS

The proposed Liliha Civic Center Phase I will generate additional traffic in this area. However, providing accesses at three locations on three different streets will help disperse this traffic to available streets surrounding the site. Traffic in this area during the peak traffic periods is very heavy because the streets are the major accesses to the CBD from the west. Traffic demand will remain high, regardless of whether or not the Liliha Civic Center is built.

The proposed Honolulu Rapid Transit should reduce traffic demand in this area and would be an attractive alternative transportation mode for access to the LCC. One alternative places a major transit station in the immediate area of the Liliha Civic Center. Also, because major bus routes pass this site or very near to this site, bus transportation would also be another attractive alternative transportation mode for workers and clients of the LCC.

Traffic generated by the proposed civic center would primarily affect Dillingham Boulevard and Liliha Street at the intersections of Kaaahi Street, North



King Street and Vineyard Boulevard. Public traffic during most of the day would originate from the immediate vicinity, however, employee trips during the peak periods of traffic would be distributed island-wide.

The intersections of Liliha Street at North King Street, Vineyard Boulevard, the H-1 Freeway, and Nimitz Highway are the Ewa access points to Downtown Honolulu. Bottleneck conditions already exist at these intersections during the peak periods of traffic. The site-generated traffic may aggravate traffic operations under existing road conditions. However, since the objective of this project is to consolidate various existing offices serving residents of this area, this traffic is already destined for various locations in the CBD and LCC will just redistribute and consolidate the traffic to this location. Therefore, from the overall regional traffic operations perspective, LCC will not significantly increase traffic on the State highways. The recommendations proposed herein are expected to mitigate the impacts from traffic generated by the project.

Although pedestrian traffic was not specifically addressed during the field survey phase, it is expected that pedestrian traffic in the area will increase with the opening of the civic center. Existing sidewalks and crosswalks at traffic signals can easily accommodate pedestrian traffic without affecting vehicular traffic.

VI. RECOMMENDATIONS

1. Revise the traffic signal phasing at the intersection of Dillingham Boulevard and Kaaahi Street to provide a short advance green phase for Ewa bound left turns into Kaaahi Street.
2. Adjust the traffic signal timing at the intersection of King Street/ Dillingham Boulevard/Liliha Street.
3. Utilize three accesses for the proposed parking structure -- Kaaahi Street, King Street and Iwilei Road.

ATA AUSTIN, TSUTSUMI & ASSOC., INC. ENGINEERS • SURVEYORS	TRAFFIC IMPACT REPORT	EXHIBIT
	LILIHA CIVIC CENTER PROPOSED BUS BAY	7

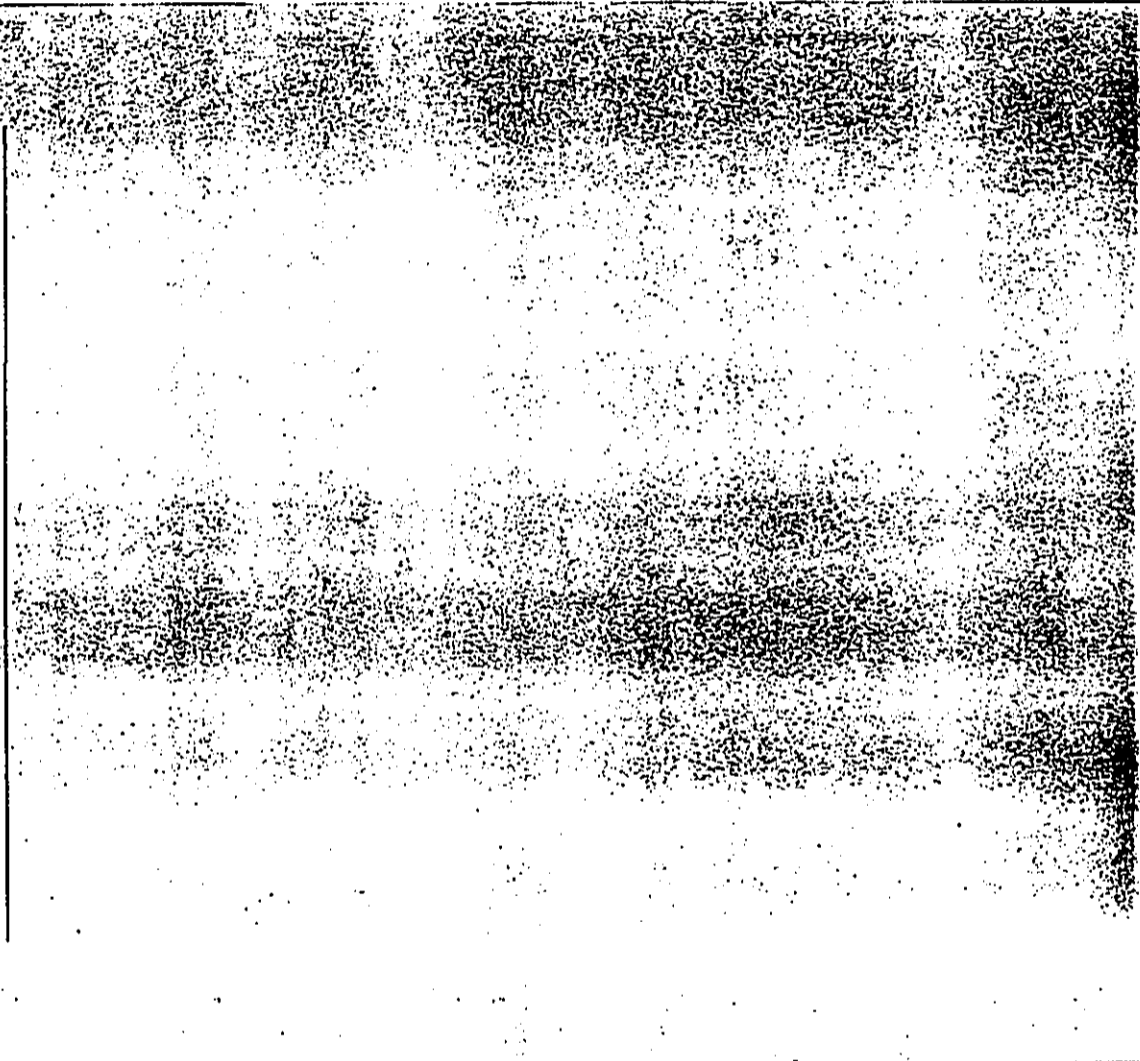
4. Construct a bus turnout on the Ewa bound approach of North King Street at Beretania Street. This improvement should be implemented regardless of whether the Liliha Civic Center project is constructed. Implementation of the improvement should not be a requirement for approval of the Civic Center project. Revise traffic signal timing at the intersection of North King Street and Beretania Street by increasing Ewa bound PM peak period "green time" for North King Street.
5. Widen Dillingham Boulevard from Kaaahi Street to King Street to provide an additional east bound lane and a left-turn lane for west bound traffic at Kaaahi Street. This will provide two through lanes to Liliha Street and two right-turn lanes to east bound King Street. This improvement should be implemented regardless of whether the Liliha Civic Center project is constructed. Implementation of the improvement should not be a requirement for approval of the Civic Center project.
6. Prohibit parking along the north curb of Kaaahi Street from Kaamahu Place to Dillingham Boulevard to improve traffic flow on Kaaahi Street. Three parking stalls will be eliminated.
7. Prepare updated traffic report for Phase II of the Liliha Civic Center to accurately assess the impact of the City's proposed rapid transit project on vehicular traffic demands which not only affect traffic congestion, but also parking requirements.

REFERENCES

1. "Highway Capacity Manual: Special Report 209", Highway Research Board, National Research Council, Washington, D.C.
2. "Trip Generation", 5th Edition, Institute of Transportation Engineers, 1991.
3. "Aloha Stadium Civic Center Conceptual Plan (Traffic Study)", Department of Accounting and General Services, State of Hawaii, October 1987.
4. "Central Honolulu Traffic Improvement Plan for Department of Transportation Services, City and County of Honolulu", Department of Transportation Services, City and County of Honolulu, September 1990.

ATA ALSTIN, TRUBIAN & ASSOCIATES, P.C.
CHALLENGERS & DEFENDERS

APPENDICES



TRAFFIC COUNTS

SITE CORNER: 2
 SUTHER ST. : BILLINGHAM BLVD.
 KAAHAI ST. : KAAHAI STREET.
 WEATHER : RT, OVERCAST

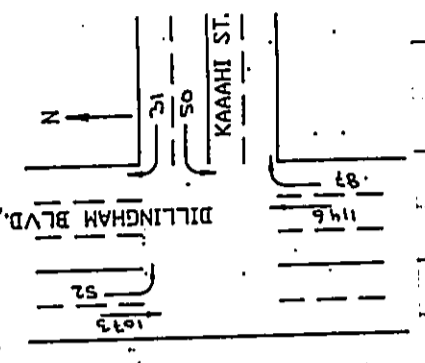
PAGE: 1
 FILE: BILKAAS
 DATE: 2/04/92

Priority Movement: Vehicles

Time Begin	Free West		Free North		Free East		Free South		Vehicle Total
	RT	LT	RT	LT	RT	LT	RT	LT	
6:30	0	0	0	0	0	13	21	0	34
6:45	0	0	0	10	4	7	17	0	34
PER TOTAL	0	0	0	10	12	20	38	0	67
7:00 AM	0	0	0	10	0	11	15	0	47
7:15	0	0	0	21	9	9	28	0	57
7:30	0	0	0	12	7	12	22	0	53
7:45	0	0	0	8	7	15	22	0	53
PER TOTAL	0	0	0	52	31	50	87	0	279
8:00 AM	0	0	0	11	9	8	13	0	41
8:15	0	0	0	19	6	12	18	0	55
DAY TOTAL	0	0	0	101	58	90	156	0	405

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:30 AM - 8:30 AM

DIRECTION FROM	START PEAK HOUR	PEAK PER FACTOR	VOLUMES			PERCENTS		
			Right Turn	Left Total	Total	Right Turn	Left	Total
West	12:00 AM	0.00	0	0	0	0	0	0
North	6:45 AM	0.43	0	53	53	0	100	0
East	7:00 AM	0.72	31	50	81	38	42	0
South	7:00 AM	0.78	87	0	87	100	0	0
Entire Intersection								
West	7:00 AM	0.00	0	0	0	0	0	0
North		0.52	0	52	52	0	100	0
East		0.92	31	50	81	38	42	0
South		0.78	87	0	87	100	0	0



LULUWA CIVIC CENTER

SITE CODE : 2
 Major St. : NORTH KING STREET
 Minor St. : DILLINGHAM BL. - LULUWA ST.
 Weather : WET, OVERCAST

SITE CODE : 1
 Major St. : DILLINGHAM BLVD.
 Minor St. : KAAHI STREET
 Weather : WET, OVERCAST

Primary Movements: Vehicles

Time Begin	From North		From East		From South		From West		Vehicle Total	
	RT	THRU	LT	RT	THRU	LT	RT	THRU		
4:30	15	76	46	0	111	87	204	48	0	501
4:45	11	184	65	0	176	103	269	48	0	518
PM TOTAL	27	182	131	0	237	192	472	116	0	1017
7:00 AM	13	95	42	2	153	102	186	81	0	1057
7:15	16	102	73	0	154	133	213	81	0	1113
7:30	7	97	88	0	101	125	235	58	0	1136
7:45	29	189	97	0	187	132	246	57	0	1223
AM TOTAL	59	464	370	2	657	534	916	277	0	4553
8:00 AM	17	111	76	0	181	150	268	58	0	1073
8:15	10	105	77	0	113	123	230	51	0	1017
DAY TOTAL	113	804	604	2	1210	977	1740	477	0	6512

Primary Movements: Vehicles

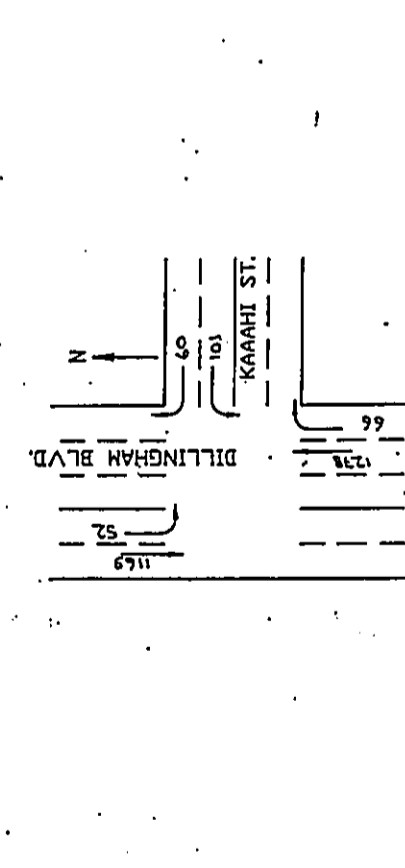
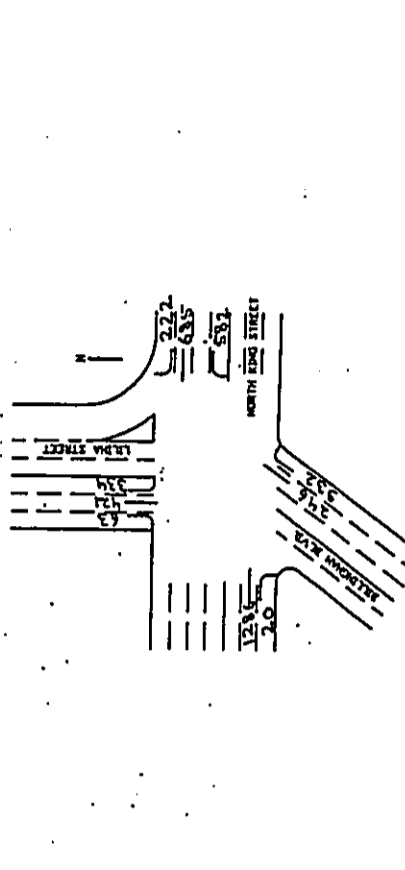
Time Begin	From North		From East		From South		From West		Vehicle Total	
	RT	THRU	LT	RT	THRU	LT	RT	THRU		
3:30	0	0	0	7	12	0	22	0	0	42
3:45	0	0	0	19	14	0	20	0	0	53
PM TOTAL	0	0	0	26	26	0	42	0	0	130
4:00 PM	0	0	0	11	18	0	22	0	0	72
4:15	0	0	0	13	11	0	25	0	0	49
4:30	0	0	0	4	11	0	34	0	0	74
4:45	0	0	0	0	12	0	15	0	0	51
PM TOTAL	0	0	0	38	58	0	116	0	0	265
5:00 PM	0	0	0	8	16	0	28	0	0	52
5:15	0	0	0	11	18	0	33	0	0	62
DAY TOTAL	0	0	0	65	110	0	177	0	0	301

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:30 AM - 8:30 AM

PEAK PERIOD ANALYSIS FOR THE PERIOD: 3:30 PM - 5:30 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES		PERCENTS				
			Right Thru Left	Total	Right Thru Left	Percent			
North	7:30 AM	0.88	43	174	340	877	0	51	41
East	7:15 AM	0.93	0	485	582	1767	0	51	46
South	7:00 AM	0.92	910	277	0	1187	77	23	0
West	7:00 AM	0.36	17	1371	0	1388	1	99	0

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES		PERCENTS				
			Right Thru Left	Total	Right Thru Left	Percent			
West	12:00 AM	0.60	0	0	0	0	0	0	0
North	3:30 PM	0.78	0	0	53	53	0	0	1100
East	3:45 PM	0.81	40	0	101	141	37	0	43
South	4:00 PM	0.88	70	0	0	70	1100	0	0



SITE CODE : 1
 Major St. : NORTH KING STREET
 Minor St. : WILLINGHAM BL. - LILLINA ST.
 Weather : WET/DRYCAST

LILLINA CIVIC CENTER

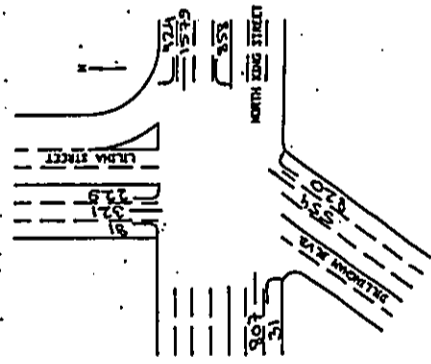
PAGE : 1
 FILE: 2/05/72
 DATE: 2/05/72

Primary Movement: Vehicles

Time	From North		From East		From South		From West		Vehicle Total
	RT	LT	RT	LT	RT	LT	RT	LT	
3:30	19	77	0	312	232	167	107	0	1174
3:45	21	64	0	374	214	140	174	0	1789
RR TOTAL	40	141	0	716	446	307	281	0	2933
4:00 PM	18	83	0	337	209	218	149	0	1315
4:15	22	78	0	333	200	209	134	0	1282
4:30	23	81	0	374	212	190	144	0	1799
4:45	18	79	0	430	270	213	127	0	1381
RR TOTAL	81	321	0	1374	853	828	554	0	5269
5:00 PM	19	54	0	417	172	183	140	0	1217
5:15	12	51	0	410	200	162	93	0	1102
DAY TOTAL	182	574	0	3172	1764	1972	1018	0	10092

PEAK PERIOD ANALYSIS FOR THE PERIOD: 3:30 PM - 5:30 PM

DIRECTION FROM	START TIME	PEAK HOUR	PEAK FACTOR VOLUMES PERCENTS		
				Right	Thru	Left	Right	Thru	Left
North	4:00 PM	0.76	81	371	279	631	13	51	35
East	4:30 PM	0.93	0	1653	812	2198	0	45	34
South	4:00 PM	0.91	820	554	0	1374	40	40	0
West	4:00 PM	0.95	31	807	0	838	4	74	0
Entire Intersection									
North	4:00 PM	0.76	81	371	279	631	13	51	34
East	4:30 PM	0.91	0	1579	850	2137	0	45	35
South	4:00 PM	0.91	820	554	0	1374	40	40	0
West	4:00 PM	0.95	31	807	0	838	4	74	0



SITE CODE : 2
 Major St. : NORTH KING STREET
 Minor St. : IVILEY ROAD
 Weather : WET/DRYCAST

LILLINA CIVIC CENTER

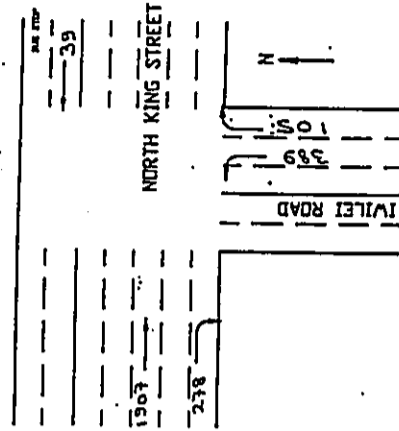
PAGE : 1
 FILE: 2/04/72
 DATE: 2/04/72

Primary Movement: Vehicles

Time	From North		From East		From South		From West		Vehicle Total
	RT	LT	RT	LT	RT	LT	RT	LT	
4:30	0	0	0	0	0	0	0	0	0
4:45	0	0	0	0	0	0	0	0	0
RR TOTAL	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0
RR TOTAL	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0
DAY TOTAL	0	0	0	0	0	0	0	0	0

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:30 AM - 8:30 AM

DIRECTION FROM	START TIME	PEAK HOUR	PEAK FACTOR VOLUMES PERCENTS		
				Right	Thru	Left	Right	Thru	Left
North	12:00 AM	0.00	0	0	0	0	0	0	0
East	7:15 AM	0.81	0	37	0	37	0	1100	0
South	7:30 AM	0.93	105	0	371	476	21	0	77
West	7:15 AM	0.91	278	1907	0	2185	13	87	0
Entire Intersection									
North	7:15 AM	0.60	0	0	0	0	0	0	0
East	7:15 AM	0.81	0	37	0	37	0	1100	0
South	7:30 AM	0.92	105	0	379	484	21	0	77
West	7:15 AM	0.91	278	1907	0	2185	13	87	0



LULIMA CIVIC CENTER

SITE CODE : 2
 Major St. : IVELEI ROAD
 Minor St. : NORTH KING STREET
 Weather : WET, OVERCAST

SITE CODE : 1
 Major St. : NORTH KING STREET
 Minor St. : IVELEI ROAD
 Weather : WET, OVERCAST

LULIMA CIVIC CENTER

SITE CODE : 1
 Major St. : NORTH KING STREET
 Minor St. : IVELEI ROAD
 Weather : WET, OVERCAST

Primary Movement: Vehicles

Time Begin	From East		From South		From West		From North		From All		Vehicle Total	
	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT
4:30	58	0	0	0	0	0	0	0	0	0	0	0
4:45	33	0	0	0	0	0	0	0	0	0	0	0
PER TOTAL	91	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	76	0	0	0	0	0	0	0	0	0	0	0
7:15	67	0	0	0	0	0	0	0	0	0	0	0
7:30	91	0	0	0	0	0	0	0	0	0	0	0
7:45	72	0	0	0	0	0	0	0	0	0	0	0
PER TOTAL	396	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	77	0	0	0	0	0	0	0	0	0	0	0
8:15	77	0	0	0	0	0	0	0	0	0	0	0
DAY TOTAL	551	0	0	0	0	0	0	0	0	0	0	0

Primary Movement: Vehicles

Time Begin	From East		From South		From West		From North		From All		Vehicle Total	
	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT
3:30	0	0	0	0	0	0	0	0	0	0	0	0
3:45	0	0	0	0	0	0	0	0	0	0	0	0
PER TOTAL	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15	0	0	0	0	0	0	0	0	0	0	0	0
4:30	0	0	0	0	0	0	0	0	0	0	0	0
4:45	0	0	0	0	0	0	0	0	0	0	0	0
PER TOTAL	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15	0	0	0	0	0	0	0	0	0	0	0	0
DAY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0

DAY TOTAL 551 0 277 0 335 0 3 10 10 3 13 3 1214

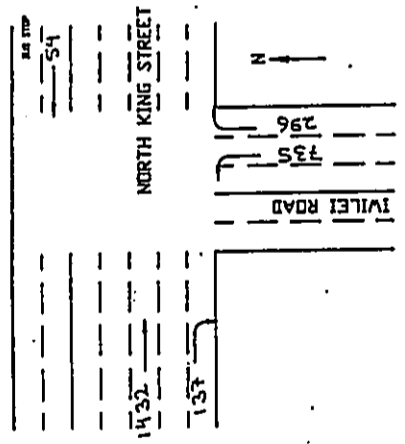
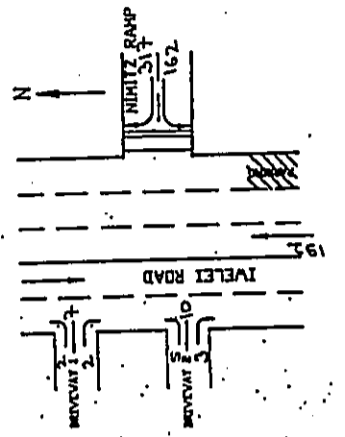
DAY TOTAL 0 0 0 0 95 0 577 0 1503 297 2419 0 5631

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:30 AM - 8:30 AM

PEAK PERIOD ANALYSIS FOR THE PERIOD: 3:30 PM - 5:30 PM

DIRECTION FROM	START TIME	PEAK HOUR	PEAK FACTOR VOLUMES PERCENTS		
				Right	Thru	Left	Right	Thru	Left
East	7:30 AM	0.83	317	0	162	479	44	0	31
South	7:30 AM	0.87	0	192	0	192	0	2100	0
West	7:15 AM	0.75	2	11	5	18	11	41	78
North	4:15 AM	0.58	2	10	2	14	11	71	14
Entire Intersection									
East	7:30 AM	0.83	317	0	162	479	44	0	31
South	7:30 AM	0.87	0	192	0	192	0	2100	0
West	7:15 AM	0.75	2	11	5	18	11	41	78
North	4:15 AM	0.58	2	10	2	14	11	71	14

DIRECTION FROM	START TIME	PEAK HOUR	PEAK FACTOR VOLUMES PERCENTS		
				Right	Thru	Left	Right	Thru	Left
North	12:00 AM	0.00	0	0	0	0	0	0	0
East	3:45 PM	0.70	0	56	0	56	0	2100	0
South	4:15 PM	0.95	298	0	713	1011	79	0	71
West	4:00 PM	0.91	137	1432	0	1569	9	91	0
Entire Intersection									
North	4:00 PM	0.90	0	0	0	0	0	0	0
East	3:45 PM	0.88	0	56	0	56	0	2100	0
South	4:15 PM	0.95	298	0	713	1011	79	0	71
West	4:00 PM	0.91	137	1432	0	1569	9	91	0



LULLIMA CIVIC CENTER

SITE CODE : 00000001
 Location : KING ST. TO LULLIMA RD- RT 700
 Weather : NET, SUNNY & OVERCAST- INTERM.
 Operator : EK

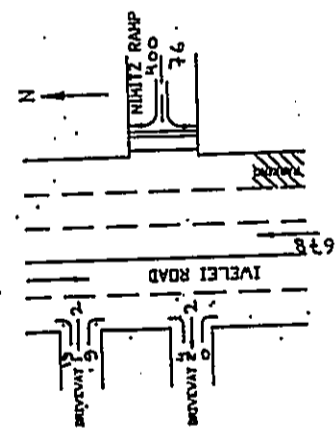
DATE: 2/05/72

PHASE: 1
 FILE: 01010102
 DATE: 2/05/72

Time Begin	From East		From South		DRIVEWAY 2		DRIVEWAY 1		Vehicle		
	RT	THRU	LT	RT	LT	RT	LT	RT	LT	Total	
3:30	127	0	27	0	127	0	1	2	0	0	214
3:45	113	0	25	0	113	0	0	0	1	2	237
PER TOTAL	240	0	52	0	240	0	1	2	1	2	533
4:00 PM	99	0	20	0	99	0	0	0	1	0	214
4:15	109	0	21	0	109	0	1	2	3	0	348
4:30	89	0	12	0	89	0	1	2	5	1	379
4:45	103	0	20	0	103	0	0	0	0	1	211
PER TOTAL	400	0	78	0	400	0	2	4	9	2	1189
5:00 PM	100	0	18	0	100	0	0	2	0	0	283
5:15	131	0	39	0	131	0	0	1	0	0	397
PER TOTAL	871	0	185	0	878	0	0	4	8	10	2333

PEAK PERIOD ANALYSIS FOR THE PERIOD: 3:30 PM - 5:30 PM

DIRECTION FROM	START PEAK HOUR	PEAK PER FACTOR	VOLUMES		PERCENTS	
			Right Turn	Left	Right	Left
East	3:30 PM	0.88	418	0	16	54
South	4:00 PM	0.81	0	678	0	3100
East	4:15 PM	0.47	0	2	4	8
North	3:45 PM	0.50	10	3	21	34
Entire Intersection						
East	4:00 PM	0.89	400	0	76	176
South	4:00 PM	0.81	0	678	0	3100
DRIVEWAY 2		0.50	0	2	4	8
DRIVEWAY 1		0.44	9	2	17	30



SITE CODE : 00000001
 Location : KING ST. TO LULLIMA RD- RT 700
 Weather : NET, SUNNY & OVERCAST- INTERM.
 Operator : EK

DATE: 2/05/72

PHASE: 1
 FILE: 01010101
 DATE: 2/05/72

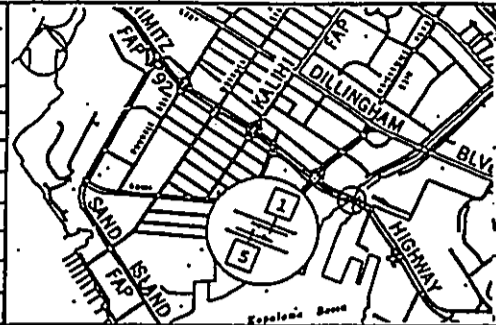
TIME BEGIN	WEDNESDAY - 5		THURSDAY - 4		FRIDAY - 7		Daily Average
	AM	PM	AM	PM	AM	PM	
12:00	1	1	21	101	12	18	98
12:15	1	1	14	81	13	16	88
12:30	1	1	11	61	11	12	93
12:45	1	1	6	47	11	8	99
1:00	1	1	12	75	15	13	83
1:15	1	1	4	66	13	8	99
1:30	1	1	9	94	14	11	88
1:45	1	1	10	80	9	87	87
2:00	1	1	4	49	8	4	71
2:15	1	1	8	81	12	10	91
2:30	1	1	10	105	8	8	93
2:45	1	1	107	92	7	4	97
3:00	1	1	93	90	12	10	91
3:15	1	1	86	83	5	2	84
3:30	1	1	97	116	4	2	106
3:45	1	1	100	110	6	2	105
4:00	1	1	104	111	6	5	107
4:15	1	1	115	94	4	3	105
4:30	1	1	100	127	4	4	117
4:45	1	1	97	127	4	4	112
5:00	1	1	159	137	10	11	141
5:15	1	1	161	127	4	6	134
5:30	1	1	119	125	14	12	122
5:45	1	1	116	116	24	22	118
6:00	1	1	79	91	25	23	85
6:15	1	1	90	87	25	21	88
6:30	1	1	32	73	10	34	73
6:45	1	1	70	62	35	35	70
7:00	1	1	57	55	31	42	55
7:15	1	1	45	57	37	49	49
7:30	1	1	48	53	48	46	51
7:45	1	1	53	40	52	56	43
8:00	1	1	53	52	49	55	52
8:15	1	1	41	53	50	51	50
8:30	1	1	54	53	61	57	59
8:45	1	1	48	41	60	59	46
9:00	1	1	42	70	61	67	63
9:15	1	1	59	67	67	69	63
9:30	1	1	46	48	58	63	61
9:45	1	1	42	30	0	38	36
10:00	0	0	46	81	1	49	51
10:15	0	0	34	63	1	31	43
10:30	0	0	46	45	1	34	45
10:45	0	0	38	33	1	43	40
11:00	0	0	65	33	1	43	35
11:15	105	33	93	21	1	28	28
11:30	81	72	69	37	1	81	77
11:45	87	18	89	39	1	81	74
TOTALS	716	340	3726	1876	344	1441	3431
PEAK HOUR	11:00	5:00	11:00	4:30	9:30	11:00	5:00
VOLUME	278	526	338	520	272	307	516
P.B.F.	0.44	0.80	0.81	0.81	0.81	0.78	0.79

DRIVEWAY 1
 DRIVEWAY 2
 NURITZ RAMP
 KING ST.
 LULLIMA RD.

24-HOUR TRAFFIC COUNT-STATION SUMMARY

HAWAII STATE DOT, HIGHWAYS DIVISION

Station No: SL-20		Count Type: _____ Group: _____ Old No: _____													
Location: Nimitz Hwy at Kapalama Drainage Canal Bridge															
STATION CHARACTERISTICS	ROAD SECTION														
	D-1		D-2												
	Number of Lanes														
	Lane Width (Ft)														
	Lateral Clearance (Ft) Left/Right														
	Detection Method (Loops/Noise)														
Special Conditions:															
Bay Divided: No Yes Type:															
24-HOUR TRAFFIC VOLUMES															
Col. I.D.	A	B	C	D	E	F	G	H	J	K	L	H	N	O	P
Traffic I.D.	D-1	D-2	TOTAL												
	MOV 5	MOV 1													
DATE															
09/79	29125	30802	59927												
06/80	31473	32958	64431	(VTC)											
05/81	26396	39922	66318												
05/18-19/82	29553	30872	60425												
11/17-18/82	31239	29160	60399	(VTC)											
03/27-28/84	24028	31284	55312												
08/08-09/85	30827	31583	62410												
08/07-08/86	32350	33341	65691	(VTC)											
11/24-25/87	30655	32385	63040												
03/29/88	34323	34717	69040												
11/01-02/89	43821	36049	79870												
02/07/90	40636	32552	73188												



Form TI 85-3 MID BLOCK

STATION NO: SL-20

02/16/90 11:45

State of Hawaii, Department of Transportation, Highways Division

GRO Page: 2

Volume Unclassified Output #1

ISLAND: 2

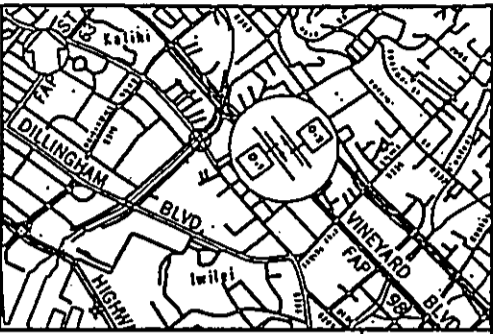
STATION NO: SL-21 STATION DESCRIPTION: DILLINGHAM BOULEVARD, AT KAPALAMA DRAINAGE CANAL BRIDGE

AUX NO: SL-21 COUNT GROUP ID: CORRIDOR ID:
 FUND SYSTEM: ROUTE NO: M.P: SURVEY DATE: 02/06/90 - 02/08/90 ASSIGNED DATE: 02/06/90
 FILE: SEGI HWY ST NAME: DILLINGHAM BLVD MOV (1), DIR: TO NIMITZ HWY D- 2 BEG SURVEY DATE: 02/07/90 START TIME: 00:00
 MOV (5), DIR: TO KING STREET D- 1 BEG SURVEY DATE: 02/07/90 START TIME: 00:00

TIME-AM	MOV 1	MOV 5	TOTAL	TIME-AM	MOV 1	MOV 5	TOTAL	TIME-PM	MOV 1	MOV 5	TOTAL	TIME-PM	MOV 1	MOV 5	TOT
00:00 - 00:15	19	22	51	06:00 - 06:15	105	240	345	12:00 - 12:15	229	243	472	18:00 - 18:15	206	169	375
00:15 - 00:30	18	29	47	06:15 - 06:30	132	302	434	12:15 - 12:30	246	233	479	18:15 - 18:30	168	169	337
00:30 - 00:45	19	19	38	06:30 - 06:45	156	377	533	12:30 - 12:45	258	261	519	18:30 - 18:45	170	135	305
00:45 - 01:00	23	12	35	06:45 - 07:00	171	352	523	12:45 - 13:00	222	243	465	18:45 - 19:00	160	140	300
01:00 - 01:15	17	18	35	07:00 - 07:15	157	356	513	13:00 - 13:15	226	238	464	19:00 - 19:15	135	114	249
01:15 - 01:30	19	24	43	07:15 - 07:30	154	329	483	13:15 - 13:30	219	261	480	19:15 - 19:30	154	116	270
01:30 - 01:45	12	21	33	07:30 - 07:45	151	379	530	13:30 - 13:45	213	247	460	19:30 - 19:45	112	113	225
01:45 - 02:00	5	27	32	07:45 - 08:00	151	350	501	13:45 - 14:00	205	242	447	19:45 - 20:00	126	81	207
02:00 - 02:15	16	20	36	08:00 - 08:15	158	353	511	14:00 - 14:15	215	277	492	20:00 - 20:15	94	103	197
02:15 - 02:30	14	18	32	08:15 - 08:30	153	354	507	14:15 - 14:30	230	262	492	20:15 - 20:30	94	75	169
02:30 - 02:45	15	12	27	08:30 - 08:45	176	307	483	14:30 - 14:45	199	247	446	20:30 - 20:45	69	81	150
02:45 - 03:00	3	10	13	08:45 - 09:00	142	293	435	14:45 - 15:00	234	269	503	20:45 - 21:00	73	105	178
03:00 - 03:15	8	11	19	09:00 - 09:15	159	287	446	15:00 - 15:15	316	232	548	21:00 - 21:15	101	76	177
03:15 - 03:30	8	6	14	09:15 - 09:30	189	294	483	15:15 - 15:30	250	253	503	21:15 - 21:30	72	74	146
03:30 - 03:45	5	10	15	09:30 - 09:45	202	268	470	15:30 - 15:45	341	309	650	21:30 - 21:45	66	59	125
03:45 - 04:00	20	10	30	09:45 - 10:00	196	219	415	15:45 - 16:00	315	326	641	21:45 - 22:00	59	61	120
04:00 - 04:15	9	8	17	10:00 - 10:15	207	210	417	16:00 - 16:15	305	334	639	22:00 - 22:15	55	65	120
04:15 - 04:30	14	17	31	10:15 - 10:30	221	210	431	16:15 - 16:30	241	343	584	22:15 - 22:30	51	50	101
04:30 - 04:45	14	28	42	10:30 - 10:45	225	206	431	16:30 - 16:45	324	353	677	22:30 - 22:45	39	61	100
04:45 - 05:00	24	42	66	10:45 - 11:00	227	248	475	16:45 - 17:00	316	292	608	22:45 - 23:00	40	41	81
05:00 - 05:15	31	49	80	11:00 - 11:15	215	232	447	17:00 - 17:15	380	275	655	23:00 - 23:15	83	50	133
05:15 - 05:30	49	94	143	11:15 - 11:30	251	227	478	17:15 - 17:30	293	277	570	23:15 - 23:30	48	39	87
05:30 - 05:45	61	98	159	11:30 - 11:45	243	270	513	17:30 - 17:45	299	216	515	23:30 - 23:45	41	30	71
05:45 - 06:00	85	167	252	11:45 - 12:00	231	248	479	17:45 - 18:00	237	211	448	23:45 - 00:00	31	35	66
AM-TOTAL	4880		7693	12573		PH-TOTAL		8540		8486		TOTAL		17026	
6:00-12:00 TOT	4372		6911	11283		12:00-6:00 TOT		6293		6444		12737			
AM-PEAK HR TIME	06:30 - 07:30					PM-PEAK HR TIME		15:45 - 16:45							
PEAK-HR TOTAL	638		1414	2052		PEAK-HR TOTAL		1185		1356		2541			
AM D-X (PEAK-HR)	11.1		68.9	100.00		PM D-X (PEAK-HR)		46.6		53.4		100.00			
AM D-X (MN-12N)	38.8		61.2	100.00		PM D-X (12N-MN)		50.2		49.8		100.00			
AM K FACTOR			6.9			PM K FACTOR				8.6					
DIRECTIONAL TOTALS	MOV- 1		13420	MOV- 5		24-HOUR TOTAL		29599							
	MOV- 1 DX		45.3	MOV 5 DX				54.7							

Station No: SL-22 Count Type: _____ Group: _____ Old No: _____
 Location: King Street at Kapalama Drainage Canal Bridge

STATION CHARACTERISTICS	ROAD SECTION			
	D-1	D-2	D-3	D-4
Number of Lanes				
Lane Width (Ft)				
Lateral Clearance (Ft) Left/Right				
Detection Method (Loops/Flows)				
Special Conditions:				
Why Divided: No Yes Type:				



Col. I.D.	24-HOUR TRAFFIC VOLUMES															
	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	
Traffic I.D.	D-1	D-2	TOTAL													
DATE	Nov 5	Nov 1														
06/79	9839	11567	21406													
06/80	10416	11183	21599 (VTC)													
05/81	10992	11331	22323													
05/82	9229	9691	18920													
01/83	10448	11526	21974 (VTC)													
03/27-28/84	10208	13082	23290													
08/08-09/85	12263	10243	22506													
07/15-16/86	10897	11807	22704 (VTC)													
11/23-24/87	12142	12738	24880													
03/29/88	12176	12602	24778													
02/01-02/89	12139	12760	24899													
02/07/90	14144	11686	25830													

Form TI 85-3 MID BLOCK

STATION NO: SL-22

ISLAND: OAHU
STATION NO: SL-22
AUX NO: BLD
FUND SYSTEM:
FILE:

STATION DESCRIPTION: KAPIOLANE-DOWNSIDE, *South Highway*
AT WARD AVE - ONE-BS (CONTRA) *at Kapalama Drainage Canal*
OAHU

TC NO: 9215
ID NO: 12

COUNT GROUP ID: H.P.:
ROUTE NO: CORRIDOR ID:
Hwy ST NAME MDCTZ HIGHWAY SURVEY DATE:
NOV 5 DIR: TO WAIKAMULO/P. HARBOR GATE D-02 BEG SURVEY DATE: 02/07/90 START TIME: 00:15
NOV 5 DIR: TO PACIFIC ST./KALAKAUA AVE D-01 BEG SURVEY DATE: 02/07/90 START TIME: 00:15

TIME-AM	NOV 1	NOV 5	TOTAL	TIME-AM	NOV 1	NOV 5	TOTAL	TIME-PM	NOV 1	NOV 5	TOTAL	TIME-PM	NOV 1	NOV 5	TOTAL
12:00-12:15	51	56	107	6:00-6:15	234	774	1,008	12:00-12:15	636	512	1,148	6:00-6:15	592	384	976
12:15-12:30	40	34	74	6:15-6:30	258	1,020	1,278	12:15-12:30	615	578	1,193	6:15-6:30	511	330	841
12:30-12:45	37	28	65	6:30-6:45	351	1,053	1,404	12:30-12:45	692	525	1,217	6:30-6:45	453	371	824
12:45-1:00	40	28	68	6:45-7:00	387	954	1,341	12:45-1:00	589	548	1,137	6:45-7:00	365	311	676
1:00-1:15	29	20	49	7:00-7:15	377	1,012	1,389	1:00-1:15	590	578	1,168	7:00-7:15	381	252	633
1:15-1:30	39	19	58	7:15-7:30	407	1,063	1,470	1:15-1:30	587	585	1,172	7:15-7:30	328	220	548
1:30-1:45	41	15	56	7:30-7:45	394	1,063	1,457	1:30-1:45	583	591	1,174	7:30-7:45	293	187	480
1:45-2:00	21	17	38	7:45-8:00	373	1,036	1,409	1:45-2:00	581	602	1,183	7:45-8:00	256	159	415
2:00-2:15	40	10	50	8:00-8:15	319	1,028	1,347	2:00-2:15	640	587	1,227	8:00-8:15	260	144	404
2:15-2:30	23	14	37	8:15-8:30	314	1,037	1,351	2:15-2:30	663	516	1,179	8:15-8:30	254	132	386
2:30-2:45	17	21	38	8:30-8:45	287	876	1,163	2:30-2:45	613	557	1,170	8:30-8:45	218	158	376
2:45-3:00	24	19	43	8:45-9:00	274	909	1,183	2:45-3:00	616	596	1,212	8:45-9:00	260	147	407
3:00-3:15	21	13	34	9:00-9:15	288	897	1,185	3:00-3:15	703	622	1,325	9:00-9:15	261	137	398
3:15-3:30	19	16	35	9:15-9:30	326	888	1,214	3:15-3:30	704	647	1,351	9:15-9:30	321	175	496
3:30-3:45	18	18	36	9:30-9:45	343	785	1,128	3:30-3:45	628	688	1,316	9:30-9:45	185	116	301
3:45-4:00	14	30	44	9:45-10:00	353	681	1,034	3:45-4:00	669	747	1,416	9:45-10:00	192	114	306
4:00-4:15	27	41	68	10:00-10:15	361	663	1,024	4:00-4:15	663	823	1,486	10:00-10:15	215	110	325
4:15-4:30	14	61	75	10:15-10:30	430	620	1,050	4:15-4:30	695	826	1,521	10:15-10:30	194	99	293
4:30-4:45	21	82	103	10:30-10:45	484	617	1,101	4:30-4:45	716	781	1,497	10:30-10:45	194	89	283
4:45-5:00	37	182	139	10:45-11:00	454	571	1,025	4:45-5:00	737	684	1,421	10:45-11:00	180	76	256
5:00-5:15	45	178	223	11:00-11:15	563	549	1,112	5:00-5:15	680	630	1,310	11:00-11:15	155	84	239
5:15-5:30	66	237	303	11:15-11:30	834	543	1,377	5:15-5:30	748	512	1,260	11:15-11:30	157	65	222
5:30-5:45	88	544	632	11:30-11:45	601	518	1,119	5:30-5:45	747	630	1,377	11:30-11:45	174	94	268
5:45-6:00	168	637	805	11:45-12:00	599	511	1,110	5:45-6:00	718	479	1,197	11:45-12:00	109	71	180

AM CONVENTION PERIOD (01:00 - 01:00) NOV 1 NOV 5 TOTAL

NO-DIRECTIONAL PEAK:
AM-PEAK EX TIME: 1,191 6,191 7,382
AM-PEAK EX VOLUME: 1,191 6,191 7,382
AM-E FACTOR(1): 72.09 72.01 100.00
AM-E:

DIRECTIONAL PEAK:
AM-PEAK EX TIME: 6:05 AM-7:05 AM 7:05 AM-8:05 AM
AM-PEAK EX VOLUME: 1,563 6,191

AM PERIOD (01:00-11:00) NOV 1 NOV 5 TOTAL

NO-DIRECTIONAL PEAK:
AM-PEAK EX TIME: 1,351 6,191 7,542
AM-PEAK EX VOLUME: 1,351 6,191 7,542
AM-E FACTOR(1): 72.09 72.01 100.00
AM-E:

NO-DIRECTIONAL PERIOD (01:00 - 11:00) NOV 1 NOV 5 TOTAL

NO-DIRECTIONAL PEAK:
PEAK EX TIME: 1,352 6,191 7,543
PEAK EX VOLUME: 1,352 6,191 7,543
DIRECTIONAL PEAK:
PEAK EX TIME: 2:00 PM-3:00 PM 9:00 AM-10:00 AM
PEAK EX VOLUME: 1,352 3,351

PM CONVENTION PERIOD (11:00 - 11:00) NOV 1 NOV 5 TOTAL

NO-DIRECTIONAL PEAK:
PM-PEAK EX TIME: 2,720 3,170 5,890
PM-PEAK EX VOLUME: 2,720 3,170 5,890
PM-E FACTOR(1): 46.28 53.72 100.00
PM-E:

DIRECTIONAL PEAK:
PM-PEAK EX TIME: 6:05 PM-5:05 PM 3:05 PM-6:05 PM
PM-PEAK EX VOLUME: 1,712 3,170

PM PERIOD (11:00-11:00) NOV 1 NOV 5 TOTAL

NO-DIRECTIONAL PEAK:
PM-PEAK EX TIME: 2,720 3,170 5,890
PM-PEAK EX VOLUME: 2,720 3,170 5,890
PM-E FACTOR(1): 46.28 53.72 100.00
PM-E:

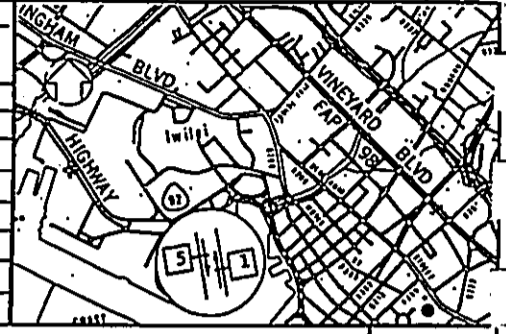
PM CONVENTION PERIOD (11:00 - 11:00) NOV 1 NOV 5 TOTAL

NO-DIRECTIONAL PEAK:
AM 11-00 PERIOD (01:00 - 11:00) 9,411 19,460 28,871
AM 11-00 PERIOD (01:00 - 11:00) 10,313 21,948 32,261
PM 6-00 PERIOD (11:00 - 11:00) 15,703 21,725 37,428
PM 11-00 PERIOD (11:00 - 11:00) 22,432 41,036 63,468
TOTAL PERIOD 58,860 104,170 163,028
E 1 46.28 53.72 100.00

24-HOUR TRAFFIC COUNT-STATION SUMMARY

HAWAII STATE DOT, HIGHWAYS DIVISION

Station No: SL-30		Count Type: _____	Group: _____	Old No: _____											
Location: Nimitz Hwy at Nuuanu Stream Bridge															
STATION CHARACTERISTICS		ROAD SECTION													
		D-1	D-2												
Number of Lanes															
Lane Width (Ft)															
Lateral Clearance (Ft) Left/Right															
Detection Method (Loops/Noe)															
Special Conditions:															
Hwy Divided: No Yes Type:															
24-HOUR TRAFFIC VOLUMES															
Col. I.D.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
Traffic I.D.	D-1	D-2	TOTAL												
	Nov 5	Nov 1													
DATE															
05/79	28529	33802	62331												
07/80	28524	35818	64342 (UTC)												
05/81	30177	32142	62319												
12/82	30224	37334	67558 (UTC)												
04/03-04/84	28924	35182	64106												
09/05-06/85	27907	34069	61976												
04/17-18/86	32398	39429	71827 (UTC)												
12/17-18/86	29231	39007	68238												
11/19-20/87	30787	36439	67226												
10/05-06/88	29371	39110	68481												
05/17-18/89	32738	41344	74082												
04/19-20/90	41390	55765	97155												



Form TI 85-3 MID BLOCK

STATION NO: SL-30

02/15/90 13:22

State of Hawaii, Department of Transportation, Highways Division

Volume Unclassified Output #1

CRD Page: 2

ISLAND: 2

STATION NO: SL-22 STATION DESCRIPTION: KING STREET, AT KAPALAMA DRAINAGE CANAL


AUX NO: _____ COUNT GROUP ID: _____ CORRIDOR ID: _____
 FUND SYSTEM: _____ ROUTE NO: _____ M.P: _____ SURVEY DATE: 02/07/90 - 02/07/90 ASSIGNED DATE: 02/07/90
 FILE: SEGI HWY ST NAME: KING STREET
 MOV (1), DIR: TO KALINI STREET D- 2 BEG SURVEY DATE: 02/07/90 START TIME: 00:00
 MOV (5), DIR: TO HARDING AVE D- 1 BEG SURVEY DATE: 02/07/90 START TIME: 00:00

TIME-AM	MOV 1	MOV 5	TOTAL	TIME-AM	MOV 1	MOV 5	TOTAL	TIME-PM	MOV 1	MOV 5	TOTAL	TIME-PM	MOV 1	MOV 5	TOT
00:00 - 00:15	32	24	56	06:00 - 06:15	83	184	267	12:00 - 12:15	207	217	424	18:00 - 18:15	200	127	327
00:15 - 00:30	28	18	46	06:15 - 06:30	108	272	380	12:15 - 12:30	197	207	404	18:15 - 18:30	143	125	268
00:30 - 00:45	28	15	43	06:30 - 06:45	123	316	439	12:30 - 12:45	190	212	402	18:30 - 18:45	169	137	306
00:45 - 01:00	31	17	48	06:45 - 07:00	170	339	509	12:45 - 13:00	172	206	378	18:45 - 19:00	127	104	231
01:00 - 01:15	15	22	37	07:00 - 07:15	122	277	399	13:00 - 13:15	173	207	380	19:00 - 19:15	126	107	233
01:15 - 01:30	13	20	33	07:15 - 07:30	143	380	523	13:15 - 13:30	152	212	364	19:15 - 19:30	109	95	204
01:30 - 01:45	18	15	33	07:30 - 07:45	183	313	496	13:30 - 13:45	198	185	383	19:30 - 19:45	106	85	191
01:45 - 02:00	20	12	32	07:45 - 08:00	183	313	496	13:45 - 14:00	172	231	403	19:45 - 20:00	108	95	203
02:00 - 02:15	22	12	34	08:00 - 08:15	164	327	491	14:00 - 14:15	189	238	427	20:00 - 20:15	98	74	172
02:15 - 02:30	16	11	27	08:15 - 08:30	140	368	508	14:15 - 14:30	193	208	401	20:15 - 20:30	94	73	167
02:30 - 02:45	5	10	15	08:30 - 08:45	141	357	498	14:30 - 14:45	210	204	414	20:30 - 20:45	83	70	153
02:45 - 03:00	7	9	16	08:45 - 09:00	135	309	444	14:45 - 15:00	207	204	411	20:45 - 21:00	92	60	152
03:00 - 03:15	6	7	13	09:00 - 09:15	125	340	465	15:00 - 15:15	204	212	416	21:00 - 21:15	79	75	154
03:15 - 03:30	4	6	10	09:15 - 09:30	139	319	458	15:15 - 15:30	207	209	416	21:15 - 21:30	117	47	164
03:30 - 03:45	4	4	8	09:30 - 09:45	125	238	363	15:30 - 15:45	240	256	496	21:30 - 21:45	84	63	147
03:45 - 04:00	4	7	11	09:45 - 10:00	147	191	338	15:45 - 16:00	235	261	496	21:45 - 22:00	68	54	120
04:00 - 04:15	6	20	26	10:00 - 10:15	158	210	368	16:00 - 16:15	246	265	511	22:00 - 22:15	58	47	105
04:15 - 04:30	13	10	23	10:15 - 10:30	150	186	336	16:15 - 16:30	267	294	561	22:15 - 22:30	48	38	86
04:30 - 04:45	18	21	39	10:30 - 10:45	187	205	392	16:30 - 16:45	259	297	556	22:30 - 22:45	44	35	79
04:45 - 05:00	26	36	62	10:45 - 11:00	196	221	417	16:45 - 17:00	301	276	577	22:45 - 23:00	40	37	77
05:00 - 05:15	38	48	86	11:00 - 11:15	173	187	360	17:00 - 17:15	276	206	482	23:00 - 23:15	63	39	102
05:15 - 05:30	34	52	86	11:15 - 11:30	200	213	413	17:15 - 17:30	316	157	473	23:15 - 23:30	52	29	81
05:30 - 05:45	52	103	155	11:30 - 11:45	221	200	421	17:30 - 17:45	256	134	390	23:30 - 23:45	41	33	74
05:45 - 06:00	70	129	199	11:45 - 12:00	204	206	410	17:45 - 18:00	220	135	355	23:45 - 00:00	37	18	55
AM-TOTAL			4215	MOV- 1		MOV- 5	7245	TOTAL			11460	PM-TOTAL			7471
6:00-12:00 TOT			3705				6617				10322				5287
AM-PEAK HR TIME			06:45 - 07:45												5232
PEAK-HR TOTAL			603				1435				2038				1132
AM D-X (PEAK-HR)			29.6				70.4				100.00				51.3
AM D-X (MN-12N)			36.8				63.2				100.00				48.0
AM K FACTOR											7.9				
BIIRECTIONAL TOTALS			MOV- 1			MOV- 5	11686				14144				24-HOUR TOTAL
			MOV- 1 DX			MOV 5 DX	45.2				54.8				25810

24-HOUR TRAFFIC COUNT-STATION SUMMARY

HAWAII STATE DOT, HIGHWAYS DIVISION

Station No: SL-31		Count Type: _____		Group: _____		Old No: _____	
Location: King Street at Nuuanu Stream Bridge							
STATION CHARACTERISTICS				ROAD SECTION			
				D-1		D-2	
Number of Lanes							
Lane Width (Ft)							
Lateral Clearance (Ft) Left/Right							
Detection Method (Loops/Inse)							
Special Conditions:							
Way Divided: No Yes Type:							



Col. I.D.	24-HOUR TRAFFIC VOLUMES															
	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	
Traffic I.D.	D-1	D-2	TOTAL													
DATE																
05/79	16538		16538													
07/80	16206		16206	(VIC)												
05/81	14938		14938													
05/82	16304		16304													
12/82	17234		17234	(VIC)												
04/03-04/84	18124		18124													
08/05-06/85	18251		18251													
04/10-11/86	19423		19423													
04/10-11/86	20655		20655	(VIC)												
11/19-20/87	20478		20478													
10/05-06/88	19680		19680													
06/15-16/89	18422		18422													
12/17-18/90	26166		26166													

Form TI 85-3 MID BLOCK

STATION NO: SL-31

03-May-90

State of Hawaii, Department of Transportation, Highways Division

ISLAND: OAHU
STATION NO: 1
AUX NO: SL-30
FUND SYSTEM: FAP
FILE:

STATION DESCRIPTION: NIMITZ HIGHWAY
AT NUUANU STREAM BRIDGE
OAHU

TC NO. 9217
IO NO. 18 26

COUNT GROUP ID:
ROUTE NO 92

M.P.:

CORRIDOR ID:
SURVEY DATE:

ASSIGNED DATE:

WAY ST NAME NIMITZ HIGHWAY
MOV(1) DIR: TO PEAR HARBOR GATE/TWTL
MOV(5) DIR: TO KALAKAUA AVE.

D-21 BEG SURVEY DATE: 04/19/90
D-21 BEG SURVEY DATE: 04/19/90

START TIME: 08:45
START TIME: 08:45

TIME-AM	MOV 1	MOV 5	TOTAL	TIME-AM	MOV 1	MOV 5	TOTAL	TIME-PM	MOV 1	MOV 5	TOTAL	TIME-PM	MOV 1	MOV 5	TOTAL
12:00-12:15	184	74	258	6:00-6:15	856	812	1,368	12:00-12:15	912	885	1,518	6:00-6:15	760	428	1,198
12:15-12:30	162	45	207	6:15-6:30	671	937	1,608	12:15-12:30	737	489	1,226	6:15-6:30	650	359	1,017
12:30-12:45	137	48	185	6:30-6:45	816	1,083	1,899	12:30-12:45	829	682	1,431	6:30-6:45	684	367	971
12:45-1:00	109	42	151	6:45-7:00	838	1,155	1,993	12:45-1:00	872	548	1,412	6:45-7:00	523	352	875
1:00-1:15	187	33	140	7:00-7:15	835	1,075	1,918	1:00-1:15	888	518	1,406	7:00-7:15	489	384	793
1:15-1:30	59	44	113	7:15-7:30	912	1,104	2,016	1:15-1:30	944	857	1,801	7:15-7:30	398	284	600
1:30-1:45	183	35	138	7:30-7:45	952	1,117	2,079	1:30-1:45	932	574	1,506	7:30-7:45	465	247	712
1:45-2:00	87	36	123	7:45-8:00	942	1,069	2,011	1:45-2:00	950	860	1,518	7:45-8:00	343	221	564
2:00-2:15	108	22	130	8:00-8:15	818	996	1,514	2:00-2:15	959	545	1,504	8:00-8:15	430	166	596
2:15-2:30	53	31	84	8:15-8:30	766	988	1,754	2:15-2:30	941	616	1,557	8:15-8:30	432	285	637
2:30-2:45	59	21	80	8:30-8:45	760	776	1,536	2:30-2:45	873	639	1,583	8:30-8:45	327	187	514
2:45-3:00	89	27	86	8:45-9:00	756	717	1,473	2:45-3:00	933	588	1,521	8:45-9:00	374	164	538
3:00-3:15	48	11	51	9:00-9:15	784	552	1,336	3:00-3:15	1,038	614	1,652	9:00-9:15	482	147	629
3:15-3:30	35	20	55	9:15-9:30	859	575	1,434	3:15-3:30	951	715	1,666	9:15-9:30	469	165	625
3:30-3:45	58	28	78	9:30-9:45	897	597	1,494	3:30-3:45	1,083	778	1,841	9:30-9:45	361	151	522
3:45-4:00	44	32	76	9:45-10:00	917	836	1,452	3:45-4:00	955	894	1,829	9:45-10:00	254	166	420
4:00-4:15	51	47	98	10:00-10:15	865	528	1,393	4:00-4:15	981	865	1,846	10:00-10:15	273	168	423
4:15-4:30	70	49	119	10:15-10:30	878	553	1,431	4:15-4:30	1,182	914	2,016	10:15-10:30	385	141	446
4:30-4:45	88	86	156	10:30-10:45	907	545	1,452	4:30-4:45	1,068	953	2,021	10:30-10:45	272	137	409
4:45-5:00	111	118	229	10:45-11:00	993	534	1,627	4:45-5:00	1,249	934	2,183	10:45-11:00	232	125	357
5:00-5:15	176	105	351	11:00-11:15	945	826	1,471	5:00-5:15	1,044	729	1,813	11:00-11:15	256	84	340
5:15-5:30	212	231	443	11:15-11:30	881	631	1,332	5:15-5:30	1,229	715	1,944	11:15-11:30	228	94	322
5:30-5:45	292	344	636	11:30-11:45	967	595	1,552	5:30-5:45	976	611	1,487	11:30-11:45	162	82	244
5:45-6:00	393	515	908	11:45-12:00	981	605	1,586	5:45-6:00	929	522	1,451	11:45-12:00	238	67	297

24-HOUR TRAFFIC COUNT-STATION SUMMARY

HAWAII STATE DOT, HIGHWAYS DIVISION

Station No: SL-32		Count Type: _____	Group: _____	Old No: _____											
Location: Hotel Street at Nuuanu Stream Bridge															
STATION CHARACTERISTICS	ROAD SECTION														
	D-1		D-2												
	Number of Lanes														
	Lane Width (Ft)														
	Lateral Clearance (Ft) Left/Right														
Detection Method (Loops/Bores)															
Special Conditions:															
Divided: No Yes Type:															
24-HOUR TRAFFIC VOLUMES															
Col. I.D.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
Traffic I.D.	D-1	D-2	TOTAL												
	MOV 1	MOV 5													
DATE															
05/79	1749	2239	3988	Private vehicles prohibited between River and Richards Dr. 6:00am-6:00pm (Feb 1979)											
07/80	1434	2183	3617	(VTC)											
05/81	1858	2077	3935												
05/82	1462	-	1462	Hotel Street returned to one-directional flow - northbound to Ewa											
12/82	1219	-	1219	(VTC)											
04/03-04/84	1571	-	1571												
08/05-06/85	1268	-	1268												
04/72-23/86	1163	-	1163												
04/72-23/86	1006	-	1006	(VTC)											
10/05-06/88 *	858	570	1428	*(Buses only)											
05/17-18/89 *	551	619	1170	*Hotel Street (Both directions) Used for buses only											
04/19-20/90 *	1030	592	1622												

Form TI 85-3 MTD BLOCK

STATION NO: SL-32

12 Dec 90

State of Hawaii, Department of Transportation, Highways Division

ISLAND: OAHU
STATION NO: SL-32
AUX NO:
FUND SYSTEM:
FILE:

STATION DESCRIPTION: KING STREET
AT NUUANU STREAM BRIDGE
OAHU
COUNT GROUP ID:
ROUTE NO:
KEY ST: WAIKING STREET
MOV(S): DIR: TO HANOI AVENUE
MOV(D): DIR:

CORRIDOR ID:
SURVEY DATE:

ASSIGNED DATE:

TC NO. 7468
TD NO. 2 19

D-01 BEG SURVEY DATE: 12/17/90 START TIME: 10:15
D-0 BEG SURVEY DATE: 12/17/90 START TIME: 10:15

TIME-AM	MOV 5	MOV 8	TOTAL	TIME-AM	MOV 5	MOV 8	TOTAL	TIME-PM	MOV 5	MOV 8	TOTAL	TIME-PM	MOV 5	MOV 8	TOTAL
12:00-12:15	46	0	46	6:00-6:15	345	0	345	12:00-12:15	411	0	411	6:00-6:15	292	0	292
12:15-12:30	44	0	44	6:15-6:30	480	0	480	12:15-12:30	422	0	422	6:15-6:30	245	0	245
12:30-12:45	23	0	23	6:30-6:45	466	0	466	12:30-12:45	408	0	408	6:30-6:45	228	0	228
12:45-1:00	27	0	27	6:45-7:00	594	0	594	12:45-1:00	398	0	398	6:45-7:00	215	0	215
1:00-1:15	36	0	36	7:00-7:15	505	0	505	1:00-1:15	424	0	424	7:00-7:15	233	0	233
1:15-1:30	27	0	27	7:15-7:30	614	0	614	1:15-1:30	431	0	431	7:15-7:30	198	0	198
1:30-1:45	23	0	23	7:30-7:45	627	0	627	1:30-1:45	441	0	441	7:30-7:45	163	0	163
1:45-2:00	36	0	36	7:45-8:00	648	0	648	1:45-2:00	413	0	413	7:45-8:00	173	0	173
2:00-2:15	23	0	23	8:00-8:15	588	0	588	2:00-2:15	405	0	405	8:00-8:15	147	0	147
2:15-2:30	9	0	9	8:15-8:30	663	0	663	2:15-2:30	418	0	418	8:15-8:30	135	0	135
2:30-2:45	13	0	13	8:30-8:45	470	0	470	2:30-2:45	429	0	429	8:30-8:45	135	0	135
2:45-3:00	17	0	17	8:45-9:00	393	0	393	2:45-3:00	473	0	473	9:00-9:15	122	0	122
3:00-3:15	11	0	11	9:00-9:15	393	0	393	3:00-3:15	443	0	443	9:15-9:30	181	0	181
3:15-3:30	11	0	11	9:15-9:30	388	0	388	3:15-3:30	419	0	419	9:30-9:45	113	0	113
3:30-3:45	13	0	13	9:30-9:45	385	0	385	3:30-3:45	495	0	495	9:45-10:00	66	0	66
3:45-4:00	21	0	21	9:45-10:00	423	0	423	3:45-4:00	507	0	507	10:00-10:15	86	0	86
4:00-4:15	17	0	17	10:00-10:15	396	0	396	4:00-4:15	507	0	507	10:15-10:30	89	0	89
4:15-4:30	33	0	33	10:15-10:30	396	0	396	4:15-4:30	523	0	523	10:30-10:45	77	0	77
4:30-4:45	49	0	49	10:30-10:45	421	0	421	4:30-4:45	581	0	581	10:45-11:00	79	0	79
4:45-5:00	76	0	76	10:45-11:00	429	0	429	4:45-5:00	508	0	508	11:00-11:15	75	0	75
5:00-5:15	92	0	92	11:00-11:15	368	0	368	5:00-5:15	501	0	501	11:15-11:30	74	0	74
5:15-5:30	122	0	122	11:15-11:30	425	0	425	5:15-5:30	417	0	417	11:30-11:45	57	0	57
5:30-5:45	169	0	169	11:30-11:45	363	0	363	5:30-5:45	368	0	368	11:45-12:00	39	0	39
5:45-6:00	248	0	248	11:45-12:00	390	0	390	5:45-6:00	355	0	355				57
AM CORRIDOR PERIOD (05:00 - 09:00)				PM CORRIDOR PERIOD (15:00 - 19:00)				TOTAL							
TWO-DIRECTIONAL PERIOD:				TWO-DIRECTIONAL PERIOD:											
AM PERIOD (09:00-12:00)				PM PERIOD (12:00-15:00)											
TWO-DIRECTIONAL PERIOD:				TWO-DIRECTIONAL PERIOD:											
NOV CORRIDOR PERIOD (09:00 - 15:00)				NOV CORRIDOR PERIOD (15:00 - 19:00)											
TWO-DIRECTIONAL PERIOD:				TWO-DIRECTIONAL PERIOD:											

24-HOUR TRAFFIC COUNT-STATION SUMMARY

Station No: 304, Location: Vineyard Boulevard at Liliha Street. Includes intersection diagram and 24-hour traffic volume by movement table with columns for Date, Movement, and Total.

Form TI 85-4 INTERSECTION

STATION NO: 304

03-May-98

State of Hawaii, Department of Transportation, Highways Division

STATION DESCRIPTION: BERTANIA STREET AT NUUANU STREAM. Includes count group info, assigned date, and detailed traffic volume data by time period and direction.

19-Dec-90

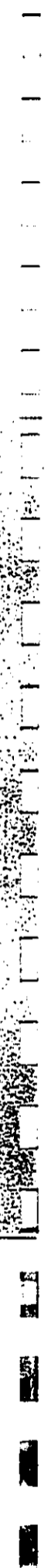
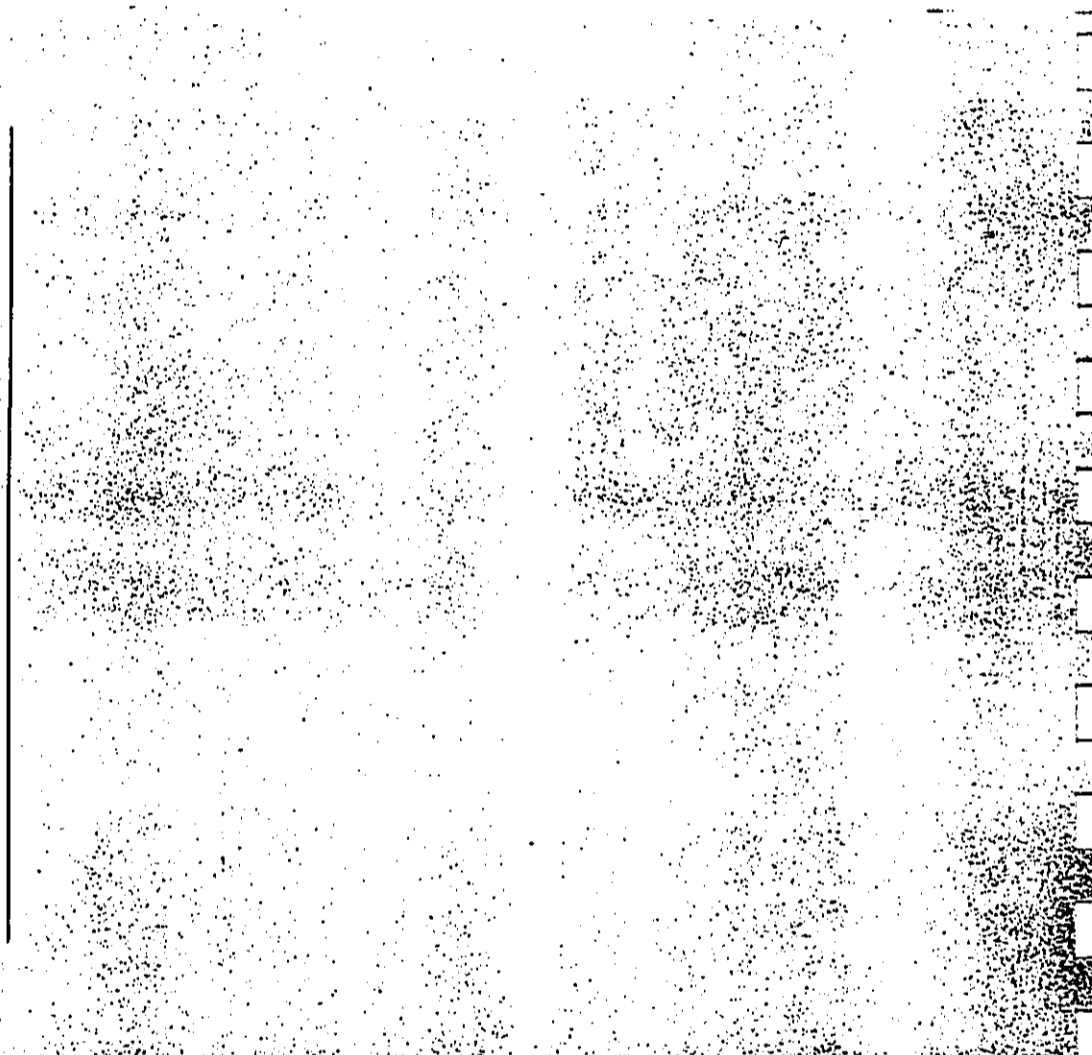
State of Hawaii, Department of Transportation, Highways Division

ISLAND: OAHU STATION NO: 384 STATION DESCRIPTION: VINEYARD BLVD AT LILIMA STREET LEG 1 TC NO. 9881 ID NO. 13
COUNT GROUP ID: OAHU CORRIDOR ID: M.P. 1
ROUTE NO. M.P. 1 SURVEY DATE: ASSIGNED DATE:
MOV(1) DIR: TO LILIMA STREET O-02 BEG SURVEY DATE: 12/17/90 START TIME: 09:45
MOV(5) DIR: TO FAI H-1 O-01 BEG SURVEY DATE: 12/17/90 START TIME: 09:45

TIME-AM	NOV 1	NOV 5	TOTAL	TIME-AM	NOV 1	NOV 5	TOTAL	TIME-PM	NOV 1	NOV 5	TOTAL	TIME-PM	NOV 1	NOV 5	TOTAL
12:00-12:15	44	21	65	6:00-6:15	113	105	218	12:00-12:15	249	238	487	6:00-6:15	275	224	499
12:15-12:30	32	27	59	6:15-6:30	149	319	468	12:15-12:30	197	285	482	6:15-6:30	260	194	454
12:30-12:45	22	16	38	6:30-6:45	102	376	478	12:30-12:45	217	258	475	6:30-6:45	222	269	491
12:45-1:00	36	26	62	6:45-7:00	196	411	607	12:45-1:00	196	216	412	6:45-7:00	213	146	359
1:00-1:15	17	15	32	7:00-7:15	223	433	656	1:00-1:15	219	225	444	7:00-7:15	151	136	287
1:15-1:30	14	10	24	7:15-7:30	220	464	684	1:15-1:30	194	234	428	7:15-7:30	167	115	282
1:30-1:45	15	15	30	7:30-7:45	217	383	600	1:30-1:45	236	259	495	7:30-7:45	149	93	242
1:45-2:00	17	24	41	7:45-8:00	194	438	632	1:45-2:00	217	255	472	7:45-8:00	134	99	233
2:00-2:15	12	20	32	8:00-8:15	215	457	672	2:00-2:15	213	267	480	8:00-8:15	154	90	244
2:15-2:30	14	12	26	8:15-8:30	158	376	534	2:15-2:30	240	299	539	8:15-8:30	152	92	244
2:30-2:45	6	9	15	8:30-8:45	168	348	516	2:30-2:45	300	336	636	8:30-8:45	157	98	255
2:45-3:00	5	10	15	8:45-9:00	200	324	524	2:45-3:00	336	346	682	8:45-9:00	90	86	176
3:00-3:15	12	6	18	9:00-9:15	160	258	418	3:00-3:15	384	327	711	9:00-9:15	120	78	198
3:15-3:30	8	10	18	9:15-9:30	224	240	464	3:15-3:30	310	316	626	9:15-9:30	107	70	177
3:30-3:45	10	10	20	9:30-9:45	221	244	465	3:30-3:45	373	334	707	9:30-9:45	84	80	164
3:45-4:00	2	4	6	9:45-10:00	205	307	512	3:45-4:00	430	361	791	9:45-10:00	110	85	195
4:00-4:15	7	6	13	10:00-10:15	208	255	463	4:00-4:15	440	387	827	10:00-10:15	80	74	154
4:15-4:30	17	21	38	10:15-10:30	233	252	485	4:15-4:30	479	366	845	10:15-10:30	94	72	166
4:30-4:45	10	32	42	10:30-10:45	204	200	404	4:30-4:45	472	379	851	10:30-10:45	72	50	122
4:45-5:00	20	34	54	10:45-11:00	243	257	480	4:45-5:00	406	428	834	10:45-11:00	70	63	133
5:00-5:15	33	56	89	11:00-11:15	240	250	490	5:00-5:15	394	311	705	11:00-11:15	48	43	91
5:15-5:30	46	60	106	11:15-11:30	232	269	501	5:15-5:30	409	305	714	11:15-11:30	47	44	91
5:30-5:45	70	92	162	11:30-11:45	239	226	465	5:30-5:45	437	269	706	11:30-11:45	47	34	81
5:45-6:00	90	145	235	11:45-12:00	200	259	459	5:45-6:00	467	223	690	11:45-12:00	28	44	72

AM CORRECTOR PERIOD (05:00 - 09:00)	NOV 1	NOV 5	TOTAL	PM CORRECTOR PERIOD (15:00 - 19:00)	NOV 1	NOV 5	TOTAL
TR-01	0.00	0.00	0.00	TR-01	0.00	0.00	0.00
TR-02	0.00	0.00	0.00	TR-02	0.00	0.00	0.00
TR-03	0.00	0.00	0.00	TR-03	0.00	0.00	0.00
TR-04	0.00	0.00	0.00	TR-04	0.00	0.00	0.00
TR-05	0.00	0.00	0.00	TR-05	0.00	0.00	0.00
TR-06	0.00	0.00	0.00	TR-06	0.00	0.00	0.00
TR-07	0.00	0.00	0.00	TR-07	0.00	0.00	0.00
TR-08	0.00	0.00	0.00	TR-08	0.00	0.00	0.00
TR-09	0.00	0.00	0.00	TR-09	0.00	0.00	0.00
TR-10	0.00	0.00	0.00	TR-10	0.00	0.00	0.00
TR-11	0.00	0.00	0.00	TR-11	0.00	0.00	0.00
TR-12	0.00	0.00	0.00	TR-12	0.00	0.00	0.00
TR-13	0.00	0.00	0.00	TR-13	0.00	0.00	0.00
TR-14	0.00	0.00	0.00	TR-14	0.00	0.00	0.00
TR-15	0.00	0.00	0.00	TR-15	0.00	0.00	0.00
TR-16	0.00	0.00	0.00	TR-16	0.00	0.00	0.00
TR-17	0.00	0.00	0.00	TR-17	0.00	0.00	0.00
TR-18	0.00	0.00	0.00	TR-18	0.00	0.00	0.00
TR-19	0.00	0.00	0.00	TR-19	0.00	0.00	0.00
TR-20	0.00	0.00	0.00	TR-20	0.00	0.00	0.00
TR-21	0.00	0.00	0.00	TR-21	0.00	0.00	0.00
TR-22	0.00	0.00	0.00	TR-22	0.00	0.00	0.00
TR-23	0.00	0.00	0.00	TR-23	0.00	0.00	0.00
TR-24	0.00	0.00	0.00	TR-24	0.00	0.00	0.00
TR-25	0.00	0.00	0.00	TR-25	0.00	0.00	0.00
TR-26	0.00	0.00	0.00	TR-26	0.00	0.00	0.00
TR-27	0.00	0.00	0.00	TR-27	0.00	0.00	0.00
TR-28	0.00	0.00	0.00	TR-28	0.00	0.00	0.00
TR-29	0.00	0.00	0.00	TR-29	0.00	0.00	0.00
TR-30	0.00	0.00	0.00	TR-30	0.00	0.00	0.00
TR-31	0.00	0.00	0.00	TR-31	0.00	0.00	0.00
TR-32	0.00	0.00	0.00	TR-32	0.00	0.00	0.00
TR-33	0.00	0.00	0.00	TR-33	0.00	0.00	0.00
TR-34	0.00	0.00	0.00	TR-34	0.00	0.00	0.00
TR-35	0.00	0.00	0.00	TR-35	0.00	0.00	0.00
TR-36	0.00	0.00	0.00	TR-36	0.00	0.00	0.00
TR-37	0.00	0.00	0.00	TR-37	0.00	0.00	0.00
TR-38	0.00	0.00	0.00	TR-38	0.00	0.00	0.00
TR-39	0.00	0.00	0.00	TR-39	0.00	0.00	0.00
TR-40	0.00	0.00	0.00	TR-40	0.00	0.00	0.00
TR-41	0.00	0.00	0.00	TR-41	0.00	0.00	0.00
TR-42	0.00	0.00	0.00	TR-42	0.00	0.00	0.00
TR-43	0.00	0.00	0.00	TR-43	0.00	0.00	0.00
TR-44	0.00	0.00	0.00	TR-44	0.00	0.00	0.00
TR-45	0.00	0.00	0.00	TR-45	0.00	0.00	0.00
TR-46	0.00	0.00	0.00	TR-46	0.00	0.00	0.00
TR-47	0.00	0.00	0.00	TR-47	0.00	0.00	0.00
TR-48	0.00	0.00	0.00	TR-48	0.00	0.00	0.00
TR-49	0.00	0.00	0.00	TR-49	0.00	0.00	0.00
TR-50	0.00	0.00	0.00	TR-50	0.00	0.00	0.00
TR-51	0.00	0.00	0.00	TR-51	0.00	0.00	0.00
TR-52	0.00	0.00	0.00	TR-52	0.00	0.00	0.00
TR-53	0.00	0.00	0.00	TR-53	0.00	0.00	0.00
TR-54	0.00	0.00	0.00	TR-54	0.00	0.00	0.00
TR-55	0.00	0.00	0.00	TR-55	0.00	0.00	0.00
TR-56	0.00	0.00	0.00	TR-56	0.00	0.00	0.00
TR-57	0.00	0.00	0.00	TR-57	0.00	0.00	0.00
TR-58	0.00	0.00	0.00	TR-58	0.00	0.00	0.00
TR-59	0.00	0.00	0.00	TR-59	0.00	0.00	0.00
TR-60	0.00	0.00	0.00	TR-60	0.00	0.00	0.00
TR-61	0.00	0.00	0.00	TR-61	0.00	0.00	0.00
TR-62	0.00	0.00	0.00	TR-62	0.00	0.00	0.00
TR-63	0.00	0.00	0.00	TR-63	0.00	0.00	0.00
TR-64	0.00	0.00	0.00	TR-64	0.00	0.00	0.00
TR-65	0.00	0.00	0.00	TR-65	0.00	0.00	0.00
TR-66	0.00	0.00	0.00	TR-66	0.00	0.00	0.00
TR-67	0.00	0.00	0.00	TR-67	0.00	0.00	0.00
TR-68	0.00	0.00	0.00	TR-68	0.00	0.00	0.00
TR-69	0.00	0.00	0.00	TR-69	0.00	0.00	0.00
TR-70	0.00	0.00	0.00	TR-70	0.00	0.00	0.00
TR-71	0.00	0.00	0.00	TR-71	0.00	0.00	0.00
TR-72	0.00	0.00	0.00	TR-72	0.00	0.00	0.00
TR-73	0.00	0.00	0.00	TR-73	0.00	0.00	0.00
TR-74	0.00	0.00	0.00	TR-74	0.00	0.00	0.00
TR-75	0.00	0.00	0.00	TR-75	0.00	0.00	0.00
TR-76	0.00	0.00	0.00	TR-76	0.00	0.00	0.00
TR-77	0.00	0.00	0.00	TR-77	0.00	0.00	0.00
TR-78	0.00	0.00	0.00	TR-78	0.00	0.00	0.00
TR-79	0.00	0.00	0.00	TR-79	0.00	0.00	0.00
TR-80	0.00	0.00	0.00	TR-80	0.00	0.00	0.00
TR-81	0.00	0.00	0.00	TR-81	0.00	0.00	0.00
TR-82	0.00	0.00	0.00	TR-82	0.00	0.00	0.00
TR-83	0.00	0.00	0.00	TR-83	0.00	0.00	0.00
TR-84	0.00	0.00	0.00	TR-84	0.00	0.00	0.00
TR-85	0.00	0.00	0.00	TR-85	0.00	0.00	0.00
TR-86	0.00	0.00	0.00	TR-86	0.00	0.00	0.00
TR-87	0.00	0.00	0.00	TR-87	0.00	0.00	0.00
TR-88	0.00	0.00	0.00	TR-88	0.00	0.00	0.00
TR-89	0.00	0.00	0.00	TR-89	0.00	0.00	0.00
TR-90	0.00	0.00	0.00	TR-90	0.00	0.00	0.00
TR-91	0.00	0.00	0.00	TR-91	0.00	0.00	0.00
TR-92	0.00	0.00	0.00	TR-92	0.00	0.00	0.00
TR-93	0.00	0.00	0.00	TR-93	0.00	0.00	0.00
TR-94	0.00	0.00	0.00	TR-94	0.00	0.00	0.00
TR-95	0.00	0.00	0.00	TR-95	0.00	0.00	0.00
TR-96	0.00	0.00	0.00	TR-96	0.00	0.00	0.00
TR-97	0.00	0.00	0.00	TR-97	0.00	0.00	0.00
TR-98	0.00	0.00	0.00	TR-98	0.00	0.00	0.00
TR-99	0.00	0.00	0.00	TR-99	0.00	0.00	0.00
TR-100	0.00	0.00	0.00	TR-100	0.00	0.00	0.00

TRAFFIC ANALYSIS
EXISTING TRAFFIC



1985 HCM: SIGNALIZED INTERSECTIONS
 SUMMARY REPORT

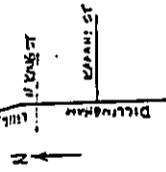
 INTERSECTION: KARAAHI STREET/DILLINGHAM BLVD.
 AREA TYPE: CBD
 ANALYST: EK
 DATE: 02/06/92
 TIME: 7:15 - 8:15 AM
 COMMENT: LILIHA CIVIC CENTER

VOLUMES		ADJUSTMENT FACTORS		GEOMETRY		ARR. TYPE	
EB	WB	ADJ	PHF	WB	NB	PED.	ARR.
0	44	Y/N	Nm	10.0	10.0	Y/N	min T
0	0	N	0	L	T	0	16.5
0	1146	N	0	R	T	10	16.5
0	85	N	0	TR	TR	10	7.8
0	25	N	0			10	7.8
0	0	N	0			N	7.8

ADJUSTMENT FACTORS		SIGNAL SETTINGS		LEVEL OF SERVICE	
GRADE (%)	HV (%)	PH-1	PH-2	PH-3	PH-4
0.00	0.00	PH-1	PH-2	PH-3	PH-4
0.00	1.00				
0.00	2.00				
0.00	2.00				

LEVEL OF SERVICE		V/C		APP. DELAY		APP. LOS	
LANE GRP.	V/C	B/C	DELAY	LOS	APP. DELAY	APP. LOS	LOS
WB L	0.164	0.244	20.4	C	20.3	C	C
WB R	0.120	0.244	20.1	C			
WB TR	0.464	0.689	4.9	A	4.9	A	A
WB L	0.501	0.689	8.0	B	33.3	B	D
WB T	1.012	0.689	34.5	D			

INTERSECTION: Delay = 17.7 (sec/veh) V/C = 0.790 LOS = C



1985 HCM: SIGNALIZED INTERSECTIONS
 SUMMARY REPORT

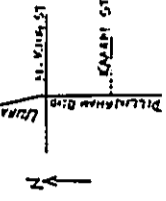
 INTERSECTION: KARAAHI STREET/DILLINGHAM BLVD.
 AREA TYPE: CBD
 ANALYST: EK
 DATE: 02/05/92
 TIME: 4:00 - 5:00 PM
 COMMENT: LILIHA CIVIC CENTER

VOLUMES		ADJUSTMENT FACTORS		GEOMETRY		ARR. TYPE	
EB	WB	ADJ	PHF	WB	NB	PED.	ARR.
0	96	Y/N	Nm	10.0	10.0	Y/N	min T
0	0	N	0	L	T	0	16.5
0	1278	N	0	R	T	10	16.5
0	58	N	0	TR	TR	10	7.8
0	20	N	0			10	7.8
0	0	N	0			N	7.8

ADJUSTMENT FACTORS		SIGNAL SETTINGS		LEVEL OF SERVICE	
GRADE (%)	HV (%)	PH-1	PH-2	PH-3	PH-4
0.00	0.00	PH-1	PH-2	PH-3	PH-4
0.00	1.00				
0.00	2.00				
0.00	2.00				

LEVEL OF SERVICE		V/C		APP. DELAY		APP. LOS	
LANE GRP.	V/C	B/C	DELAY	LOS	APP. DELAY	APP. LOS	LOS
WB L	0.385	0.244	22.0	C	21.5	C	C
WB R	0.234	0.244	20.8	C			
WB TR	0.493	0.689	5.1	B	5.1	B	B
WB L	0.601	0.689	14.6	B	73.2	B	F
WB T	1.114	0.689	73.2	F			

INTERSECTION: Delay = 34.9 (sec/veh) V/C = 0.923 LOS = D



1985 HCM: SIGNALIZED INTERSECTIONS

SUMMARY REPORT

 INTERSECTION..NORTH KING STREET/LILIHA ST.- DILLINGHAM BLVD.
 AREA TYPE.....CBD
 ANALYST.....EK
 DATE.....02/02/92
 TIME.....4:00 - 5:00 PM
 COMMENT.....LILIHA CIVIC CENTER.

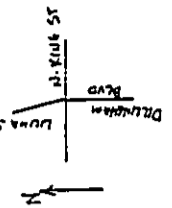
VOLUMES		GEOMETRY	
EB	NB	SB	WB
0	858	0	10.0
807	1579	554	10.5
31	424	820	10.2
0	284	0	11.0
			12.0
			12.0
			12.0

ADJUSTMENT FACTORS			
GRADE (%)	HV (%)	ADJ PKG BUSES	PED. BUT. min T
		Y/N Nm	Y/N min T
0.00	2.00	N 0	30
0.00	3.00	N 0	10
0.00	2.00	N 0	0
0.00	2.00	N 0	0

SIGNAL SETTINGS		CYCLE LENGTH = 180.0	
PH-1	PH-2	PH-3	PH-4
LT	X		
TH	X		
RT	X		
PD	X		
LT		X	
TH		X	
RT		X	
PD		X	
LT			X
TH			X
RT			X
PD			X
GREEN	30.0	0.0	0.0
YELLOW	3.0	0.0	0.0

LEVEL OF SERVICE		APP. DELAY		APP. LOS	
LANE GRP.	V/C	G/C	DELAY	LOS	APP. LOS
TR	1.301	0.167	38.8	D	E
L	0.839	0.428	60.9	F	F
TR	1.079	0.611	82.3	F	F
R	1.044	0.194	49.6	E	F
L	1.028	0.622	180.0	F	F
TR	1.165	0.144	28.4	D	

INTERSECTION: Delay = * (sec/veh) V/C = 1.085 LOS = *



1985 HCM: SIGNALIZED INTERSECTIONS

SUMMARY REPORT

 INTERSECTION..NORTH KING STREET/LILIHA ST.- DILLINGHAM BLVD.
 AREA TYPE.....CBD
 ANALYST.....EK
 DATE.....02/06/92
 TIME.....7:15 - 8:15 AM
 COMMENT.....LILIHA CIVIC CENTER.

VOLUMES		GEOMETRY	
EB	NB	SB	WB
0	582	0	10.0
1286	685	246	10.5
20	222	932	10.2
0	150	0	11.0
			12.0
			12.0
			12.0

ADJUSTMENT FACTORS			
GRADE (%)	HV (%)	ADJ PKG BUSES	PED. BUT. min T
		Y/N Nm	Y/N min T
0.00	2.00	N 0	30
0.00	3.00	N 0	10
0.00	2.00	N 0	0
0.00	2.00	N 0	0

SIGNAL SETTINGS		CYCLE LENGTH = 90.0	
PH-1	PH-2	PH-3	PH-4
LT	X		
TH	X		
RT	X		
PD	X		
LT		X	
TH		X	
RT		X	
PD		X	
LT			X
TH			X
RT			X
PD			X
GREEN	25.0	0.0	0.0
YELLOW	3.0	0.0	0.0

LEVEL OF SERVICE		APP. DELAY		APP. LOS	
LANE GRP.	V/C	G/C	DELAY	LOS	APP. LOS
TR	1.265	0.278	*	*	*
L	1.535	0.178	*	*	*
LTR	0.533	0.489	10.4	B	*
TR	0.419	0.222	19.6	C	*
R	1.878	0.400	*	*	*
L	1.434	0.189	*	*	*
TR	0.431	0.444	11.2	B	*

INTERSECTION: Delay = * (sec/veh) V/C = 1.140 LOS = *



1985 HCM: SIGNALIZED INTERSECTIONS
 SUMMARY REPORT
 INTERSECTION: NORTH KING STREET/IMILEI ROAD
 AREA TYPE: CBD
 ANALYST: EK
 DATE: 02/05/92
 TIME: 4:00 - 5:00 PM
 COMMENT: LILIIHA CIVIC CENTER

VOLUMES		ADJUSTMENT FACTORS		GEOMETRY	
EB	NB	PHF	PEDS	Y/N	ARR. TYPE
0	0	0.91	0	N	10.3
1432	54	0.68	0	N	10.3
137	0	0.95	50	Y	16.6
25	0	1.00	0	N	16.6

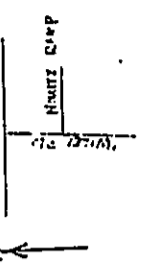
GRADE (%)	HV (%)	ADJ PKG	BUSES	PHF	PEDS	PED. BUT. min	ARR. TYPE
0.00	2.00	N	0	0.91	0	10.3	3
0.00	95.00	N	30	0.68	0	10.3	3
0.00	5.00	N	0	0.95	50	16.6	3
0.00	0.00	N	0	1.00	0	16.6	3

CYCLE LENGTH = 90.0
 PH-1 PH-2 PH-3 PH-4

PH-1	PH-2	PH-3	PH-4
X			
X			
X			
X			
	X		
	X		
	X		
	X		
		X	
		X	
		X	
		X	

LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
TR	0.545	0.578	7.7	B	7.7	B
T	0.152	0.578	5.7	B	5.7	B
L	1.011	0.356	49.3	E	41.0	E
R	0.713	0.356	19.3	C		

INTERSECTION: Delay = 19.8 (sec/veh) V/C = 0.723 LOS = C



1985 HCM: SIGNALIZED INTERSECTIONS
 SUMMARY REPORT
 INTERSECTION: NORTH KING STREET/IMILEI ROAD
 AREA TYPE: CBD
 ANALYST: EK
 DATE: 02/05/92
 TIME: 7:15 - 8:15 AM
 COMMENT: LILIIHA CIVIC CENTER

VOLUMES		ADJUSTMENT FACTORS		GEOMETRY	
EB	NB	PHF	PEDS	Y/N	ARR. TYPE
0	0	0.94	0	N	10.3
1907	39	0.81	0	N	10.3
278	0	0.92	50	Y	16.6
50	0	1.00	0	N	16.6

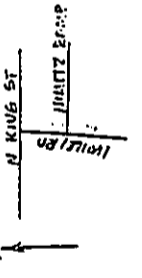
GRADE (%)	HV (%)	ADJ PKG	BUSES	PHF	PEDS	PED. BUT. min	ARR. TYPE
0.00	2.00	N	0	0.94	0	10.3	3
0.00	95.00	N	30	0.81	0	10.3	3
0.00	5.00	N	0	0.92	50	16.6	3
0.00	0.00	N	0	1.00	0	16.6	3

CYCLE LENGTH = 90.0
 PH-1 PH-2 PH-3 PH-4

PH-1	PH-2	PH-3	PH-4
X			
X			
X			
X			
	X		
	X		
	X		
	X		
		X	
		X	
		X	
		X	

LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
TR	0.658	0.644	6.6	B	6.6	B
T	0.078	0.644	3.9	A	3.9	A
L	0.577	0.289	24.0	C	22.4	C
R	0.329	0.289	16.4	C		

INTERSECTION: Delay = 9.4 (sec/veh) V/C = 0.670 LOS = B



1985 HCM: UNSIGNALIZED INTERSECTIONS

 IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .87
 AREA POPULATION..... 150000
 NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET..... IWILEI ROAD
 NAME OF THE ANALYST..... EK
 DATE OF THE ANALYSIS (mm/dd/yy)..... 02/06/92
 TIME PERIOD ANALYZED..... 7:15 -8:15 AM
 OTHER INFORMATION.... LILIHA CIVIC CENTER
 INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	164	0	0
THRU	--	0	188	261
RIGHT	--	307	0	0

NUMBER OF LANES

LANES	EB	WB	NB	SB
	--	2	2	2



ADJUSTMENT FACTORS

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND				
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND			
WESTBOUND	7	0	0
NORTHBOUND	5	0	0
SOUTHBOUND	4	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS	WB 5.50	5.50	0.00	5.50
MAJOR LEFTS	SB 5.50	5.50	0.00	5.50
MINOR LEFTS	WB 7.00	7.00	0.00	7.00

IDENTIFYING INFORMATION
 NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET.... IWILEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/06/92 ; 7:15 -8:15 AM
 OTHER INFORMATION.... LILIHA CIVIC CENTER

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	POTENTIAL CAPACITY v(pcp) c (pcph) p	ACTUAL MOVEMENT CAPACITY c (pcph) M	SHARED CAPACITY c (pcph) SH	RESERVE CAPACITY c = c - v R SH	LOS
MINOR STREET					
WB LEFT	195	425	425	229	C
RIGHT	365	987	987	621	A
MAJOR STREET					
SB LEFT	0	874	874	874	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET.... IWILEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/06/92 ; 7:15 -8:15 AM
 OTHER INFORMATION.... LILIIHA CIVIC CENTER

1985 HCM: UNSIGNALIZED INTERSECTIONS

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .9
 AREA POPULATION..... 150000
 NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET..... IWILEI ROAD
 NAME OF THE ANALYST..... EK
 DATE OF THE ANALYSIS (mm/dd/yy)..... 02/05/92
 TIME PERIOD ANALYZED..... 4:00 - 5:00 PM
 OTHER INFORMATION.... LILIIHA CIVIC CENTER

INTERSECTION TYPE AND CONTROL

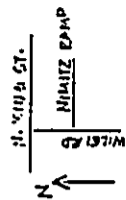
INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	76	0	0
THRU	--	0	678	135
RIGHT	--	400	0	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	2	2	2



ADJUSTMENT FACTORS

PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS FOR RIGHT TURNS	ACCELERATION LANE FOR PIGHT TURNS
0.00	90	20	N
0.00	90	20	N
0.00	90	20	N

VEHICLE COMPOSITION

% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
5	0	0
0	0	0
0	0	0

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph)	ACTUAL MOVEMENT CAPACITY c (pcph)	SHARED CAPACITY c (pcph)	RESERVE CAPACITY c - v
MINOR STREET					
WB LEFT	87	226	226	226	140
RIGHT	456	721	721	721	265
MAJOR STREET					
SB LEFT	0	455	455	455	455

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET..... IWILEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/05/92 ; 4:00 - 5:00 PM
 OTHER INFORMATION.... LILIIHA CIVIC CENTER

ADJUSTMENT FACTORS

PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS FOR RIGHT TURNS	ACCELERATION LANE FOR PIGHT TURNS
0.00	90	20	N
0.00	90	20	N
0.00	90	20	N

VEHICLE COMPOSITION

% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
5	0	0
0	0	0
0	0	0

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)	POTENTIAL CAPACITY c (pcph)	ACTUAL MOVEMENT CAPACITY c (pcph)	SHARED CAPACITY c (pcph)	RESERVE CAPACITY c - v
MINOR STREET					
WB LEFT	87	226	226	226	140
RIGHT	456	721	721	721	265
MAJOR STREET					
SB LEFT	0	455	455	455	455

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET..... IWILEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/05/92 ; 4:00 - 5:00 PM
 OTHER INFORMATION.... LILIIHA CIVIC CENTER

CRITICAL GAPS

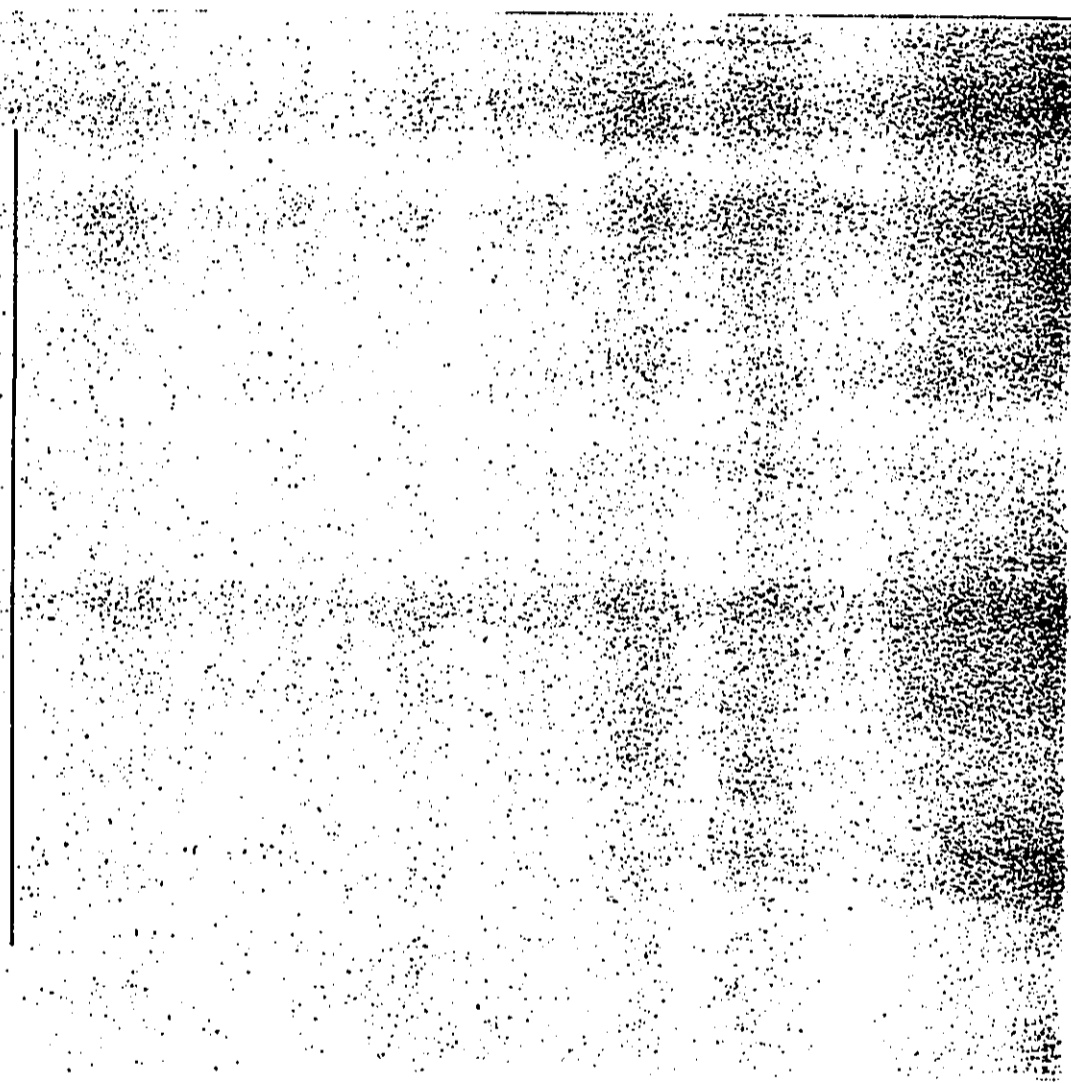
TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS WB	5.50	0.00	5.50
MAJOR LEFTS SB	5.50	0.00	5.50
MINOR LEFTS WB	7.00	0.00	7.00

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET..... IWILEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/05/92 ; 4:00 - 5:00 PM
 OTHER INFORMATION.... LILIIHA CIVIC CENTER

ATA
ALBERTA TRAILBLAZER & ASSOCIATES, INC.
Civil Engineers • Surveyors

TRAFFIC ANALYSIS
1997 PROJECTED TRAFFIC
WITHOUT PROJECT



1985 HCM: SIGNALIZED INTERSECTIONS
 SUMMARY REPORT

 INTERSECTION..KAAHI STREET/DILLINGHAM BLVD.
 AREA TYPE.....CBD
 ANALYST.....EK
 DATE.....02/05/92
 TIME.....4:00 - 5:00 PM
 COMMENT.....LILHA CIVIC CENTER. 1997 PROJECTED TRAFFIC ONLY.

1985 HCM: SIGNALIZED INTERSECTIONS
 SUMMARY REPORT

 INTERSECTION..KAAHI STREET/DILLINGHAM BLVD.
 AREA TYPE.....CBD
 ANALYST.....EK
 DATE.....02/06/92
 TIME.....7:15 - 8:15 AM
 COMMENT.....LILHA CIVIC CENTER. 1997 PROJECTED TRAFFIC ONLY.

VOLUMES		GEOMETRY	
EB	WB	SB	NB
0	101	0	46
0	1408	1325	0
0	61	77	0
0	0	20	0
0	0	0	0
0	0	0	0

VOLUMES		GEOMETRY	
EB	WB	SB	NB
0	46	0	60
0	1263	1216	0
0	34	94	0
0	0	30	0
0	0	0	0
0	0	0	0

ADJUSTMENT FACTORS		PEDS		ARR. TYPE			
GRADE (%)	HV (%)	ADJ Y/N	PKB Nm	BUSES Nb	PEDS Y/N	BUT. min T	ARR. TYPE
0.00	0.00	N	0	0	0	16.5	3
0.00	1.00	N	0	0	10	16.5	3
0.00	2.00	N	0	0	10	7.8	3
0.00	2.00	N	0	0	0	7.8	3

ADJUSTMENT FACTORS		PEDS		ARR. TYPE			
GRADE (%)	HV (%)	ADJ Y/N	PKB Nm	BUSES Nb	PEDS Y/N	BUT. min T	ARR. TYPE
0.00	0.00	N	0	0	0	16.5	3
0.00	1.00	N	0	0	10	16.5	3
0.00	2.00	N	0	0	10	7.8	3
0.00	2.00	N	0	0	0	7.8	3

SIGNAL SETTINGS		PHASES		CYCLE LENGTH	
PH-1	PH-2	PH-3	PH-4	PH-1	PH-2
EB	LT			90.0	
TH					
RT					
PD					
WB	LT				
TH					
RT					
PD					
GREEN					
YELLOW					

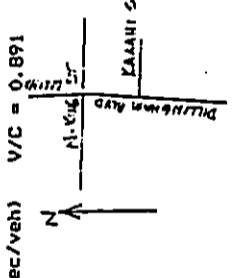
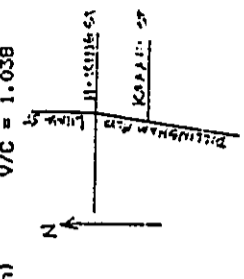
SIGNAL SETTINGS		PHASES		CYCLE LENGTH	
PH-1	PH-2	PH-3	PH-4	PH-1	PH-2
EB	LT			90.0	
TH					
RT					
PD					
WB	LT				
TH					
RT					
PD					
GREEN					
YELLOW					

LEVEL OF SERVICE		V/C		G/C		DELAY		APP. LOS	
LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS	APP. LOS	APP. LOS	APP. LOS
WB L	0.405	0.244	22.2	C	21.7	C			
R	0.246	0.244	20.9	C					
TR	0.544	0.689	5.4	B					
SB L	0.674	0.689	20.4	C					
T	1.262	0.689	*	F					

LEVEL OF SERVICE		V/C		G/C		DELAY		APP. LOS	
LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS	APP. LOS	APP. LOS	APP. LOS
WB L	0.172	0.244	20.4	C	20.3	C			
R	0.128	0.244	20.2	C					
TR	0.510	0.689	5.2	B					
SB L	0.871	0.689	51.5	E					
T	1.146	0.689	93.4	F					

INTERSECTION: Delay = * (sec/veh) V/C = 1.038 LOS = *

INTERSECTION: Delay = 43.6 (sec/veh) V/C = 0.891 LOS = E



1985 HCM: SIGNALIZED INTERSECTIONS
 SUMMARY REPORT

 INTERSECTION..NORTH KING STREET/LILIHA ST.- DILLINGHAM BLVD.
 AREA TYPE.....CBD
 ANALYST.....EK
 DATE.....02/06/92
 TIME.....7:15 - 8:15 AM
 COMMENT.....LILIHA CIVIC CENTER, 1997 PROJECTED TRAFFIC ONLY.

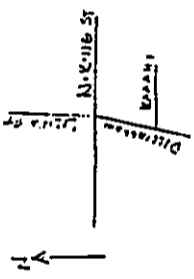
VOLUMES		ADJUSTMENT FACTORS		GEOMETRY		ARR. TYPE	
EB	NB	PHF	PEDS	Y/N	min	T	
0	608	0	382	T	10.0	L	10.0
1464	716	271	482	T	10.0	TR	10.0
23	232	1028	72	TR	10.2	R	12.0
0	150	0	0		11.0	TR	12.0
					12.0		12.0
					12.0		12.0

GRADE (%)		ADJ PKG BUSES		ADJUSTMENT FACTORS		PED. BUT.		ARR. TYPE	
Y/N	Nm	Nb	PHF	PEDS	Y/N	min	T		
0.00	2.00	N	0	25	0.91	30	N	18.8	3
0.00	3.00	N	0	0	0.93	10	N	18.8	3
0.00	2.00	N	0	0	0.91	0	N	21.3	3
0.00	2.00	N	0	0	0.87	30	N	21.3	3

PH-1		PH-2		PH-3		PH-4	
EB	LT	TH	RT	NB	LT	TH	RT
X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X

LEVEL OF SERVICE		DELAY		APP. DELAY		APP. LOS	
LANE GRP.	V/C	G/C	LOS	APP.	DELAY	APP.	LOS
TR	1.440	0.278	*	*	*	*	*
L	2.087	0.178	*	*	*	*	*
LTR	0.498	0.489	10.2	B	*	*	*
TR	0.970	0.222	40.4	E	*	*	*
R	1.555	0.400	*	*	*	*	*
L	1.541	0.189	*	*	*	*	*
TR	0.494	0.444	11.7	B	*	*	*

INTERSECTION: Delay = * (sec/veh) V/C = 1.496 LOS = *



1985 HCM: SIGNALIZED INTERSECTIONS
 SUMMARY REPORT

 INTERSECTION..NORTH KING STREET/LILIHA ST.- DILLINGHAM BLVD.
 AREA TYPE.....CBD
 ANALYST.....EK
 DATE.....02/02/92
 TIME.....4:00 - 5:00 PM
 COMMENT.....LILIHA CIVIC CENTER, 1997 PROJECTED TRAFFIC ONLY.

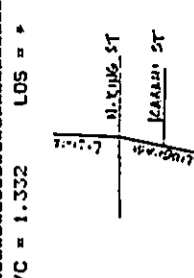
VOLUMES		ADJUSTMENT FACTORS		GEOMETRY		ARR. TYPE	
EB	NB	PHF	PEDS	Y/N	min	T	
0	897	0	262	T	10.0	L	11.0
919	1650	611	367	T	10.0	TR	10.0
35	443	904	93	TR	10.2	R	12.0
0	284	0	0		11.0	TR	12.0
					12.0		12.0
					12.0		12.0

GRADE (%)		ADJ PKG BUSES		ADJUSTMENT FACTORS		PED. BUT.		ARR. TYPE	
Y/N	Nm	Nb	PHF	PEDS	Y/N	min	T		
0.00	2.00	N	0	25	0.95	30	N	18.8	3
0.00	3.00	N	0	0	0.91	10	N	18.8	3
0.00	2.00	N	0	0	0.94	0	N	21.3	3
0.00	2.00	N	0	0	0.96	30	N	21.3	3

PH-1		PH-2		PH-3		PH-4	
EB	LT	TH	RT	NB	LT	TH	RT
X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X

LEVEL OF SERVICE		DELAY		APP. DELAY		APP. LOS	
LANE GRP.	V/C	G/C	LOS	APP.	DELAY	APP.	LOS
TR	1.481	0.167	*	*	*	*	*
L	0.877	0.428	41.3	E	71.9	F	F
TR	1.137	0.611	87.1	F	*	*	*
R	1.743	0.194	*	*	*	*	*
L	0.580	0.622	15.7	C	*	*	*
TR	1.333	0.144	*	*	*	*	*
TR	0.470	0.356	29.2	D	*	*	*

INTERSECTION: Delay = * (sec/veh) V/C = 1.332 LOS = *



1985 HCM: SIGNALIZED INTERSECTIONS

SUMMARY REPORT

 INTERSECTION..NORTH KING STREET/IWILEI ROAD
 AREA TYPE.....CBD
 ANALYST.....EK
 DATE.....02/06/92
 TIME.....7:15 - 8:15 AM
 COMMENT.....LILHA CIVIC CENTER. 1997 PROJECTED TRAFFIC ONLY.

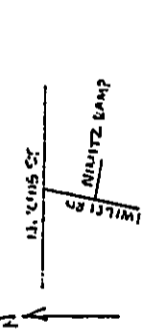
VOLUMES		ADJ PKG BUSES		PHF		PEDS		Y/N		ARR. TYPE		
EB	NB	Y/N	Nm	Nb	PH-1	PH-2	PH-3	PH-4	PH-1	PH-2	PH-3	PH-4
0	443	N	0	0	0.94	0	25	N	10.3	3		
2081	39	N	0	30	0.81	0	0	N	10.3	3		
50	0	N	0	3	0.92	0	50	Y	16.6	3		
		N	0	0	1.00	0	0	N	16.6	3		

GRADE (%)		ADJ PKG BUSES		PHF		PEDS		Y/N		ARR. TYPE		
EB	NB	Y/N	Nm	Nb	PH-1	PH-2	PH-3	PH-4	PH-1	PH-2	PH-3	PH-4
0.00	2.00	N	0	0	0.94	0	25	N	10.3	3		
0.00	95.00	N	0	30	0.81	0	0	N	10.3	3		
0.00	5.00	N	0	3	0.92	0	50	Y	16.6	3		
0.00	0.00	N	0	0	1.00	0	0	N	16.6	3		

GRADE (%)		ADJ PKG BUSES		PHF		PEDS		Y/N		ARR. TYPE		
EB	NB	Y/N	Nm	Nb	PH-1	PH-2	PH-3	PH-4	PH-1	PH-2	PH-3	PH-4
0.00	2.00	N	0	0	0.94	0	25	N	10.3	3		
0.00	95.00	N	0	30	0.81	0	0	N	10.3	3		
0.00	5.00	N	0	3	0.92	0	50	Y	16.6	3		
0.00	0.00	N	0	0	1.00	0	0	N	16.6	3		

GRADE (%)		ADJ PKG BUSES		PHF		PEDS		Y/N		ARR. TYPE		
EB	NB	Y/N	Nm	Nb	PH-1	PH-2	PH-3	PH-4	PH-1	PH-2	PH-3	PH-4
0.00	2.00	N	0	0	0.94	0	25	N	10.3	3		
0.00	95.00	N	0	30	0.81	0	0	N	10.3	3		
0.00	5.00	N	0	3	0.92	0	50	Y	16.6	3		
0.00	0.00	N	0	0	1.00	0	0	N	16.6	3		

GRADE (%)		ADJ PKG BUSES		PHF		PEDS		Y/N		ARR. TYPE		
EB	NB	Y/N	Nm	Nb	PH-1	PH-2	PH-3	PH-4	PH-1	PH-2	PH-3	PH-4
0.00	2.00	N	0	0	0.94	0	25	N	10.3	3		
0.00	95.00	N	0	30	0.81	0	0	N	10.3	3		
0.00	5.00	N	0	3	0.92	0	50	Y	16.6	3		
0.00	0.00	N	0	0	1.00	0	0	N	16.6	3		



INTERSECTION: Delay = * (sec/veh) V/C = 0.742 LOS = *

1985 HCM: SIGNALIZED INTERSECTIONS

SUMMARY REPORT

 INTERSECTION..NORTH KING STREET/IWILEI ROAD
 AREA TYPE.....CBD
 ANALYST.....EK
 DATE.....02/05/92
 TIME.....4:00 - 5:00 PM
 COMMENT.....LILHA CIVIC CENTER. 1997 PROJECTED TRAFFIC ONLY.

VOLUMES		ADJ PKG BUSES		PHF		PEDS		Y/N		ARR. TYPE		
EB	NB	Y/N	Nm	Nb	PH-1	PH-2	PH-3	PH-4	PH-1	PH-2	PH-3	PH-4
0	836	N	0	0	0.91	0	25	N	10.3	3		
1563	0	N	0	40	0.68	0	0	N	10.3	3		
150	0	N	0	3	0.95	0	50	Y	16.6	3		
30	0	N	0	0	1.00	0	0	N	16.6	3		

GRADE (%)		ADJ PKG BUSES		PHF		PEDS		Y/N		ARR. TYPE		
EB	NB	Y/N	Nm	Nb	PH-1	PH-2	PH-3	PH-4	PH-1	PH-2	PH-3	PH-4
0.00	2.00	N	0	0	0.91	0	25	N	10.3	3		
0.00	95.00	N	0	40	0.68	0	0	N	10.3	3		
0.00	0.00	N	0	3	0.95	0	50	Y	16.6	3		
0.00	0.00	N	0	0	1.00	0	0	N	16.6	3		

GRADE (%)		ADJ PKG BUSES		PHF		PEDS		Y/N		ARR. TYPE		
EB	NB	Y/N	Nm	Nb	PH-1	PH-2	PH-3	PH-4	PH-1	PH-2	PH-3	PH-4
0.00	2.00	N	0	0	0.91	0	25	N	10.3	3		
0.00	95.00	N	0	40	0.68	0	0	N	10.3	3		
0.00	0.00	N	0	3	0.95	0	50	Y	16.6	3		
0.00	0.00	N	0	0	1.00	0	0	N	16.6	3		

GRADE (%)		ADJ PKG BUSES		PHF		PEDS		Y/N		ARR. TYPE		
EB	NB	Y/N	Nm	Nb	PH-1	PH-2	PH-3	PH-4	PH-1	PH-2	PH-3	PH-4
0.00	2.00	N	0	0	0.91	0	25	N	10.3	3		
0.00	95.00	N	0	40	0.68	0	0	N	10.3	3		
0.00	0.00	N	0	3	0.95	0	50	Y	16.6	3		
0.00	0.00	N	0	0	1.00	0	0	N	16.6	3		

GRADE (%)		ADJ PKG BUSES		PHF		PEDS		Y/N		ARR. TYPE		
EB	NB	Y/N	Nm	Nb	PH-1	PH-2	PH-3	PH-4	PH-1	PH-2	PH-3	PH-4
0.00	2.00	N	0	0	0.91	0	25	N	10.3	3		
0.00	95.00	N	0	40	0.68	0	0	N	10.3	3		
0.00	0.00	N	0	3	0.95	0	50	Y	16.6	3		
0.00	0.00	N	0	0	1.00	0	0	N	16.6	3		



INTERSECTION: Delay = * (sec/veh) V/C = 0.806 LOS = *

AVERAGE RUNNING SPEED, MAJOR STREET... 30
 PEAK HOUR FACTOR..... .87
 AREA POPULATION..... 150000
 NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET..... IWILEI ROAD
 NAME OF THE ANALYST..... EK
 DATE OF THE ANALYSIS (mm/dd/yy)..... 02/06/92
 TIME PERIOD ANALYZED..... 7:15 -8:15 AM
 OTHER INFORMATION.... LILIHA CIVIC CENTER, 1997 PROJECTED TRAFFIC ON
 INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION
 MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE WESTBOUND: STOP SIGH

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	187	0	0
THRU	--	0	214	253
RIGHT	--	349	0	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	2	2	2

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND				
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND			
WESTBOUND	7	0	0
NORTHBOUND	5	0	0
SOUTHBOUND	4	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
WB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
SB	5.50	5.50	0.00	5.50
MINOR LEFTS				
WB	7.00	7.00	0.00	7.00

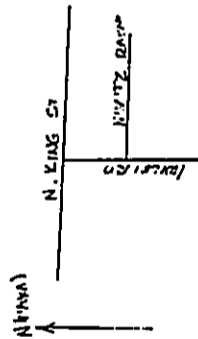
IDENTIFYING INFORMATION
 NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET..... IWILEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/06/92 7:15 -8:15 AM
 OTHER INFORMATION.... LILIHA CIVIC CENTER, 1997 PROJECTED TRAFFIC ON LY.

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v (pcph)		POTENTIAL CAPACITY c (pcph)		ACTUAL MOVEMENT CAPACITY c (pcph)		SHARED CAPACITY c (pcph)		RESERVE CAPACITY c = c - v, LOS	
	P	H	P	H	SH	R	SH	R	SH	LOS
MINOR STREET										
WB LEFT	236		411	411	411	411	411	175	D	
RIGHT	441		971	971	971	971	530	A		
MAJOR STREET										
SB LEFT	0		844	844	844	844	844	A		

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET..... IWILEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/06/92 ; 7:15 -8:15 AM
 OTHER INFORMATION..... LILIIHA CIVIC CENTER. 1997 PROJECTED TRAFFIC ON LY.



1985 HCM: UNSIGNALIZED INTERSECTIONS
 ***** Page-1 *****

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .9
 AREA POPULATION..... 150000
 NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET..... IWILEI ROAD
 NAME OF THE ANALYST..... EK
 DATE OF THE ANALYSIS (mm/dd/yy)..... 02/05/92
 TIME PERIOD ANALYZED..... 4:00 - 5:00 PM
 OTHER INFORMATION..... LILIIHA CIVIC CENTER. 1997 PROJECTED TRAFFIC ON LY

INTERSECTION TYPE: T-INTERSECTION

MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	86	0	0
THRU	--	0	772	131
RIGHT	--	455	0	0

NUMBER OF LANES

LANES	EB	WB	NB	SB
	--	2	2	2

ADJUSTMENT FACTORS

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND				
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND			
WESTBOUND	5	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS	WB	5.50	0.00	5.50
MAJOR LEFTS	SB	5.50	0.00	5.50
MINOR LEFTS	WB	7.00	0.00	7.00

IDENTIFYING INFORMATION

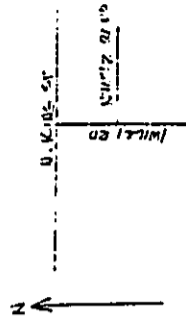
NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET.... IHIWEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/05/92 : 4:00 - 5:00 PM
 OTHER INFORMATION..... LILIIHA CIVIC CENTER. 1997 PROJECTED TRAFFIC ON LY

CAPACITY AND LEVEL-OF-SERVICE

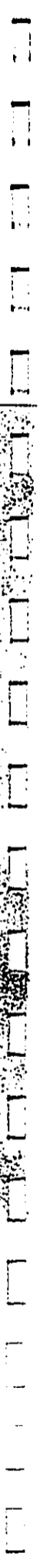
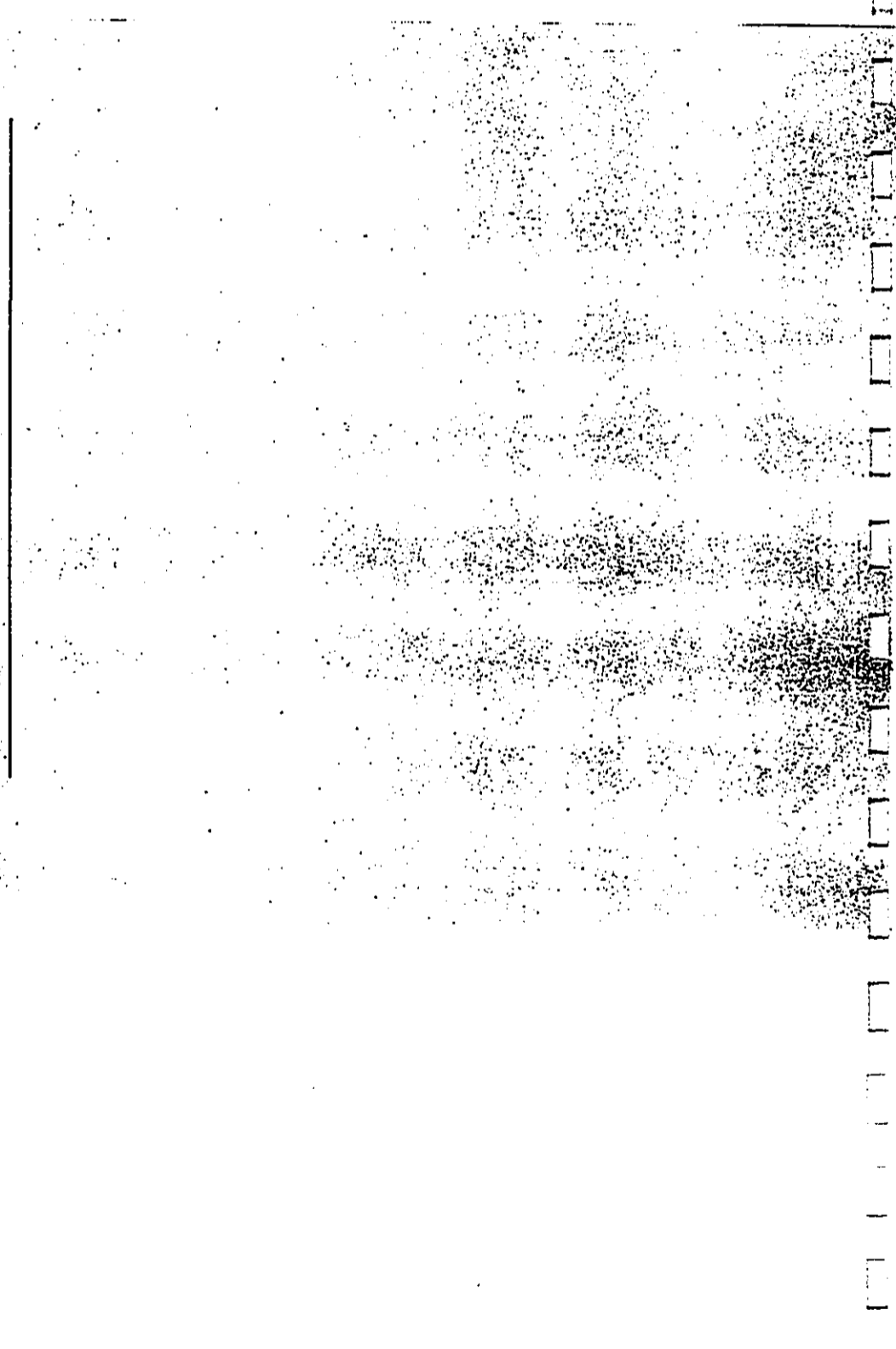
MOVEMENT	FLOW-RATE v (pcph)		POTENTIAL CAPACITY c (pcph)		ACTUAL MOVEMENT CAPACITY c (pcph)		SHARED CAPACITY c (pcph)		RESERVE CAPACITY c (pcph)		LOS
	v	p	c	p	c	m	c	sh	c	r	
MINOR STREET											
WB LEFT	98		189		189		189		91		E
RIGHT	518		679		679		679		161		D
MAJOR STREET											
SB LEFT	0		398		398		398		398		B

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET.... IHIWEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/05/92 : 4:00 - 5:00 PM
 OTHER INFORMATION..... LILIIHA CIVIC CENTER. 1997 PROJECTED TRAFFIC ON LY



TRAFFIC ANALYSIS
1997 PROJECTED TRAFFIC WITH
SITE-GENERATED TRAFFIC



1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..KAAHI STREET/DILLINGHAM BLVD.
AREA TYPE.....CBD
ANALYST.....EK
DATE.....02/06/92
TIME.....7:15 - 8:15 AM
COMMENT.....LILHA CIVIC CENTER. 1997 PROJ. + SITE GEN TRAFFIC

VOLUMES		GEOMETRY	
EB	NB	SB	WB
0	0	12.0	10.0
0	1263	12.0	10.0
0	42	12.0	10.0
0	25	12.0	12.0
0	0	12.0	12.0
0	0	12.0	12.0

ADJUSTMENT FACTORS		PED. BUT.		ARR. TYPE	
GRADE (%)	HV (%)	ADJ Y/N	PKG N/m	BUSES Nb	min T
0.00	0.00	N	0	0	16.5
0.00	1.00	N	0	0	16.5
0.00	2.00	N	0	0	7.8
0.00	2.00	N	0	0	7.8

SIGNAL SETTINGS		CYCLE LENGTH = 90.0	
PH-1	PH-2	PH-3	PH-4
EB LT			
TH			
RT			
PD			
WB LT			
TH			
RT			
PD			
GREEN	20.0	0.0	0.0
YELLOW	5.0	0.0	0.0

LEVEL OF SERVICE		APP. DELAY		APP. LOS	
LANE GRP.	V/C	G/C	DELAY	LOS	APP. LOS
WB L	0.190	0.244	20.5	C	C
R	0.158	0.244	20.3	C	C
NB TR	0.539	0.689	5.4	B	B
L	1.088	0.689	133.7	F	F
SB T	1.146	0.689	93.4	F	F

INTERSECTION: Delay = 44.7 (sec/veh) V/C = 0.896 LOS = E



1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..KAAHI STREET/DILLINGHAM BLVD.
AREA TYPE.....CBD
ANALYST.....EK
DATE.....02/05/92
TIME.....4:00 - 5:00 PM
COMMENT.....LILHA CIVIC CENTER. 1997 PROJ. + SITE GEN. TRAFFIC

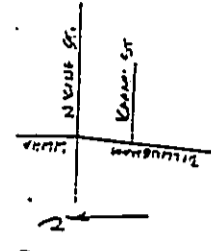
VOLUMES		GEOMETRY	
EB	NB	SB	WB
0	0	12.0	10.0
0	1409	12.0	10.0
0	186	12.0	12.0
0	20	12.0	12.0
0	0	12.0	12.0
0	0	12.0	12.0

ADJUSTMENT FACTORS		PED. BUT.		ARR. TYPE	
GRADE (%)	HV (%)	ADJ Y/N	PKG N/m	BUSES Nb	min T
0.00	0.00	N	0	0	16.5
0.00	1.00	N	0	0	16.5
0.00	2.00	N	0	0	7.8
0.00	2.00	N	0	0	7.8

SIGNAL SETTINGS		CYCLE LENGTH = 90.0	
PH-1	PH-2	PH-3	PH-4
EB LT			
TH			
RT			
PD			
WB LT			
TH			
RT			
PD			
GREEN	20.0	0.0	0.0
YELLOW	5.0	0.0	0.0

LEVEL OF SERVICE		APP. DELAY		APP. LOS	
LANE GRP.	V/C	G/C	DELAY	LOS	APP. LOS
WB L	0.706	0.244	28.5	D	D
R	0.751	0.244	30.6	D	D
NB TR	0.564	0.689	5.6	B	B
L	0.836	0.689	43.7	E	*
SB T	1.262	0.689	*	*	*

INTERSECTION: Delay = * (sec/veh) V/C = 1.128 LOS = *



1985 HCM: SIGNALIZED INTERSECTIONS

SUMMARY REPORT

INTERSECTION: KAARHI/DILLINGHAM
 AREA TYPE: CBD
 ANALYST: ET
 DATE: 3/4/92
 TIME: 3:00 PM
 COMMENT: 92-59 ADVANCE GREEN

VOLUMES		GEOMETRY	
EB	NB	SB	NB
0	176	0	57
0	1409	1325	10.0
0	185	122	10.0
0	5	5	12.0
0	5	5	12.0
0	5	5	12.0

ADJUSTMENT FACTORS		PED. BUT. ARR. TYPE	
GRADE (%)	HV	ADJ PKG BUSES	PHF
0.00	0.00	N 0	0
0.00	2.00	N 0	0
0.00	5.00	N 0	0
0.00	5.00	N 0	0

SIGNAL SETTINGS		CYCLE LENGTH = 90.0	
PH-1	PH-2	PH-3	PH-4
EB LT			
TH			
RT			
PD			
NB LT	X		
TH			
RT			
PD			
GREEN	20.0	0.0	0.0
YELLOW	5.0	0.0	0.0

LEVEL OF SERVICE		APP. DELAY		APP. LOS		
LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
L	0.710	0.244	28.6	D	27.0	D
R	0.735	0.244	25.3	D		
TR	0.708	0.544	10.4	B	10.4	B
LT	0.833	0.689	8.7	B	8.7	B



INTERSECTION: Delay = 11.7 (sec/veh) V/C = 0.887 LOS = B
 3 Phase Traffic Signal

1985 HCM: SIGNALIZED INTERSECTIONS

SUMMARY REPORT

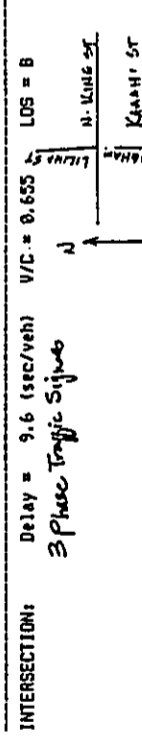
INTERSECTION: KAARHI/DILLINGHAM
 AREA TYPE: CBD
 ANALYST: ET
 DATE: 3/4/92
 TIME: 3:00 PM
 COMMENT: 92-59 ADVANCE GREEN

VOLUMES		GEOMETRY	
EB	NB	SB	NB
0	51	0	75
0	1263	1216	10.0
0	42	153	10.0
0	5	5	12.0
0	5	5	12.0
0	5	5	12.0

ADJUSTMENT FACTORS		PED. BUT. ARR. TYPE	
GRADE (%)	HV	ADJ PKG BUSES	PHF
0.00	0.00	N 0	0
0.00	2.00	N 0	0
0.00	5.00	N 0	0
0.00	5.00	N 0	0

SIGNAL SETTINGS		CYCLE LENGTH = 90.0	
PH-1	PH-2	PH-3	PH-4
EB LT			
TH			
RT			
PD			
NB LT	X		
TH			
RT			
PD			
GREEN	20.0	0.0	0.0
YELLOW	5.0	0.0	0.0

LEVEL OF SERVICE		APP. DELAY		APP. LOS		
LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
L	0.191	0.244	28.5	C	19.1	C
R	0.139	0.244	17.2	C		
TR	0.678	0.544	10.0	B	10.0	B
LT	0.819	0.689	8.4	B	8.4	B



INTERSECTION: Delay = 9.6 (sec/veh) V/C = 0.655 LOS = B
 3 Phase Traffic Signal

1985 HCM: SIGNALIZED INTERSECTIONS
 SUMMARY REPORT
 INTERSECTION: KING/DILLINGHAM LILTHA
 AREA TYPE: CBD
 ANALYST: ET
 DATE: 3/2/92
 TIME: AM
 COMMENT: 92-59 1997 PROJECTED + SITE GENERATED TRAFFIC

VOLUMES		GEOMETRY	
EB	NB	EB	NB
0	616	10.0	11.0
0	546	10.0	11.0
25	279	10.0	10.0
0	1028	10.0	10.0
0	0	10.0	10.0
0	0	10.0	10.0
0	0	10.0	10.0
0	0	10.0	10.0

ADJUSTMENT FACTORS		PED. RUT.		ARR. TYPE					
GRADE (%)	HV	ADJ	PKG	BUSES	PHF	PEDS	Y/N	min	T
0.00	2.00	N	0	25	0.90	30	Y	18.8	3
0.00	5.00	N	0	0	0.90	0	N	18.8	3
0.00	2.00	N	0	10	0.90	0	N	21.3	3
0.00	2.00	N	0	0	0.90	30	Y	21.3	3

SIGNAL SETTINGS		CYCLE LENGTH = 90.0	
PH-1	PH-2	PH-3	PH-4
EB	LT	X	X
TH	RT	X	X
RT	PD		
PD	LT		
TH	TH	X	X
RT	RT	X	X
PD	PD	X	X
GREEN	25.0	14.0	0.0
YELLOW	3.0	5.0	0.0

LEVEL OF SERVICE		V/C		G/C		DELAY		LOS		APP. DELAY		APP. LOS	
EB	TR	1.497	0.278	*	*	*	*	*	*	*	*	*	*
WB	L	1.242	0.178	*	*	*	*	*	*	*	*	*	*
NB	LTR	0.621	0.489	11.2	B	*	*	*	*	*	*	*	*
SB	R	1.410	0.222	*	*	*	*	*	*	*	*	*	*
	L	1.200	0.400	*	*	*	*	*	*	*	*	*	*
	R	2.267	0.189	*	*	*	*	*	*	*	*	*	*
	TR	0.489	0.444	11.7	B	*	*	*	*	*	*	*	*

INTERSECTION: Delay = * (sec/veh) V/C = 1.590 LOS = *


1985 HCM: SIGNALIZED INTERSECTIONS
 SUMMARY REPORT
 INTERSECTION: KING/DILLINGHAM LILTHA
 AREA TYPE: CBD
 ANALYST: ET
 DATE: 3/2/92
 TIME: PM
 COMMENT: 92-59 1997 PROJECTED + SITE GENERATED TRAFFIC

VOLUMES		GEOMETRY	
EB	NB	EB	NB
0	920	10.0	11.0
0	335	10.0	11.0
936	736	10.0	10.0
0	93	10.0	10.0
0	0	10.0	10.0
0	0	10.0	10.0
0	0	10.0	10.0
0	0	10.0	10.0

ADJUSTMENT FACTORS		PED. RUT.		ARR. TYPE					
GRADE (%)	HV	ADJ	PKG	BUSES	PHF	PEDS	Y/N	min	T
0.00	2.00	N	0	25	0.95	30	Y	24.0	3
0.00	5.00	N	0	0	0.91	10	N	24.0	3
0.00	2.00	N	0	0	0.94	0	N	26.4	3
0.00	2.00	N	0	0	0.96	30	Y	26.4	3

SIGNAL SETTINGS		CYCLE LENGTH = 100.0	
PH-1	PH-2	PH-3	PH-4
EB	LT	X	X
TH	RT	X	X
RT	PD		
PD	LT		
TH	TH	X	X
RT	RT	X	X
PD	PD	X	X
GREEN	38.0	58.0	0.0
YELLOW	3.0	5.0	0.0

LEVEL OF SERVICE		V/C		G/C		DELAY		LOS		APP. DELAY		APP. LOS	
EB	TR	1.191	0.211	*	*	*	*	*	*	*	*	*	*
WB	L	1.166	0.333	140.2	F	137.8	F	137.8	F	129.6	F	129.6	F
NB	TR	1.199	0.561	124.0	F	140.0	F	140.0	F	130.0	F	130.0	F
SB	R	1.184	0.572	120.7	F	120.7	F	120.7	F	*	*	*	*
	L	1.642	0.150	*	*	*	*	*	*	*	*	*	*
	TR	0.421	0.406	24.9	C	24.9	C	24.9	C	*	*	*	*

INTERSECTION: Delay = * (sec/veh) V/C = 1.267 LOS = *


1985 HCM: SIGNALIZED INTERSECTIONS

SUMMARY REPORT

 INTERSECTION..NORTH KING STREET/IMILEI ROAD
 AREA TYPE.....CBD
 ANALYST.....EK
 DATE.....02/06/92
 TIME.....7:15 - 8:15 AM
 COMMENT.....LILHA CIVIC CENTER. 1997 PROJ. + SITE GEN TRAFFIC

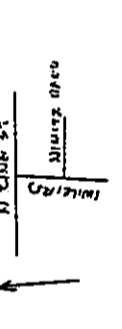
VOLUMES		GEOMETRY	
EB	NB	WB	SB
0	463	15.0	12.0
0	0	10.0	10.0
39	0	10.0	12.0
0	127	12.0	12.0
0	0	10.0	12.0
55	0	10.5	12.0
0	0	12.0	12.0
0	0	12.0	12.0

ADJUSTMENT FACTORS		PED. BUT. ARR. TYPE	
GRADE (%)	HV (%)	Y/N	min T
0.00	2.00	N	10.3
0.00	95.00	N	10.3
0.00	5.00	N	16.6
0.00	0.00	N	16.6

SIGNAL SETTINGS		CYCLE LENGTH = 90.0	
PH-1	PH-2	PH-3	PH-4
LT	X	PH-1	X
TH	X	PH-2	X
RT	X	PH-3	X
PD	X	PH-4	X
WB	LT	PH-1	X
TH	TH	PH-2	X
RT	RT	PH-3	X
PD	PD	PH-4	X

LEVEL OF SERVICE		APP. DELAY		APP. LOS	
LANE GRP.	V/C	G/C	DELAY	LOS	APP. LOS
TR	0.747	0.644	7.6	B	B
T	0.078	0.644	3.9	A	A
L	0.830	0.289	29.1	D	D
R	0.399	0.289	17.0	C	C

INTERSECTION: Delay = 11.1 (sec/veh) V/C = 0.773 LOS = B



1985 HCM: SIGNALIZED INTERSECTIONS

SUMMARY REPORT

 INTERSECTION..NORTH KING STREET/IMILEI ROAD
 AREA TYPE.....CBD
 ANALYST.....EK
 DATE.....02/05/92
 TIME.....4:00 - 5:00 PM
 COMMENT.....LILHA CIVIC CENTER. 1997 PROJ. + SITE GEN. TRAFFIC.

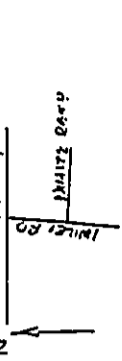
VOLUMES		GEOMETRY	
EB	NB	WB	SB
0	915	15.0	12.0
0	0	10.0	10.0
54	0	10.0	12.0
0	358	12.0	10.0
0	0	10.5	12.0
30	0	12.0	12.0
0	0	12.0	12.0

ADJUSTMENT FACTORS		PED. BUT. ARR. TYPE	
GRADE (%)	HV (%)	Y/N	min T
0.00	2.00	N	10.3
0.00	95.00	N	10.3
0.00	0.00	N	16.6
0.00	0.00	N	16.6

SIGNAL SETTINGS		CYCLE LENGTH = 90.0	
PH-1	PH-2	PH-3	PH-4
LT	X	PH-1	X
TH	X	PH-2	X
RT	X	PH-3	X
PD	X	PH-4	X
WB	LT	PH-1	X
TH	TH	PH-2	X
RT	RT	PH-3	X
PD	PD	PH-4	X

LEVEL OF SERVICE		APP. DELAY		APP. LOS	
LANE GRP.	V/C	G/C	DELAY	LOS	APP. LOS
TR	0.801	0.467	14.3	B	B
T	0.189	0.467	9.1	B	B
L	0.959	0.467	31.3	D	D
R	0.657	0.467	13.6	B	B

INTERSECTION: Delay = 18.8 (sec/veh) V/C = 0.880 LOS = C



1985 HCM: UNSIGNALIZED INTERSECTIONS

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .87
 AREA POPULATION..... 150000
 NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET..... IMILEI ROAD
 NAME OF THE ANALYST..... EK
 DATE OF THE ANALYSIS (mm/dd/yy)..... 02/06/92
 TIME PERIOD ANALYZED..... 7:15 -8:15 AM
 OTHER INFORMATION.... LILIIHA CIVIC CENTER, 1997 PROJ. + SITE GEN. TR
 AFFIC
 INTERSECTION TYPE AND CONTROL

INTERSECTION TYPE: T-INTERSECTION

MAJOR STREET DIRECTION: NORTH/SOUTH

CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	287	0	0
THRU	--	0	241	329
RIGHT	--	349	0	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	2	2	2

ADJUSTMENT FACTORS

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND				
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND			
WESTBOUND	7	0	0
NORTHBOUND	5	0	0
SOUTHBOUND	4	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS				
WB	5.50	5.50	0.00	5.50
MAJOR LEFTS				
SB	5.50	5.50	0.00	5.50
MINOR LEFTS				
WB	7.00	7.00	0.00	7.00

IDENTIFYING INFORMATION

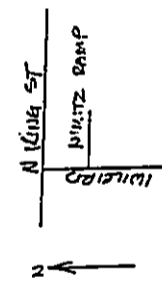
NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET..... IMILEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/06/92 ; 7:15 -8:15 AM
 OTHER INFORMATION.... LILIIHA CIVIC CENTER, 1997 PROJ. + SITE GEN. TR
 AFFIC

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE v(pcph)	POTENTIAL CAPACITY c (pcph)	ACTUAL MOVEMENT CAPACITY c (pcph)	SHARED CAPACITY c (pcph)	RESERVE CAPACITY c = c - v	LOS
MINOR STREET						
WB LEFT	363	341	341	341	-22	F
RIGHT	441	955	955	955	513	A
MAJOR STREET						
SB LEFT	0	813	813	813	813	A

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET.... IWILEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/06/92 1 7:15 -8:15 AM
 OTHER INFORMATION..... LILIHA CIVIC CENTER. 1997 PROJ. + SITE GEN. TR AFFIC



1985 HCM: UNSIGNALIZED INTERSECTIONS

IDENTIFYING INFORMATION

AVERAGE RUNNING SPEED, MAJOR STREET.. 30
 PEAK HOUR FACTOR..... .9
 AREA POPULATION..... 150000
 NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET..... IWILEI ROAD
 NAME OF THE ANALYST..... EK
 DATE OF THE ANALYSIS (mm/dd/yy)..... 02/05/92
 TIME PERIOD ANALYZED..... 4:00 - 5:00 PM

OTHER INFORMATION.... LILIHA CIVIC CENTER. 1997 PROJ. + SITE GEN. TR
 INTERSECTION TYPE AND CONTROL
 INTERSECTION TYPE: T-INTERSECTION

MAJOR STREET DIRECTION: NORTH/SOUTH
 CONTROL TYPE WESTBOUND: STOP SIGN

TRAFFIC VOLUMES

	EB	WB	NB	SB
LEFT	--	116	0	0
THRU	--	0	776	154
RIGHT	--	455	0	0

NUMBER OF LANES

	EB	WB	NB	SB
LANES	--	2	2	2

ADJUSTMENT FACTORS

	PERCENT GRADE	RIGHT TURN ANGLE	CURB RADIUS (ft) FOR RIGHT TURNS	ACCELERATION LANE FOR RIGHT TURNS
EASTBOUND				
WESTBOUND	0.00	90	20	N
NORTHBOUND	0.00	90	20	N
SOUTHBOUND	0.00	90	20	N

VEHICLE COMPOSITION

	% SU TRUCKS AND RV'S	% COMBINATION VEHICLES	% MOTORCYCLES
EASTBOUND			
WESTBOUND	5	0	0
NORTHBOUND	0	0	0
SOUTHBOUND	0	0	0

CRITICAL GAPS

	TABULAR VALUES (Table 10-2)	ADJUSTED VALUE	SIGHT DIST. ADJUSTMENT	FINAL CRITICAL GAP
MINOR RIGHTS	WB 5.50	5.50	0.00	5.50
MAJOR LEFTS	SB 5.50	5.50	0.00	5.50
MINOR LEFTS	WB 7.00	7.00	0.00	7.00

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET.... IWILEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/05/92 ; 4:00 - 5:00 PM
 OTHER INFORMATION.... LILIIHA CIVIC CENTER. 1997 PROJ. + SITE GEN. TR AFFIC

CAPACITY AND LEVEL-OF-SERVICE

MOVEMENT	FLOW-RATE V (pcph)	POTENTIAL CAPACITY C (pcph)	ACTUAL MOVEMENT CAPACITY C (pcph)	SHARED CAPACITY C (pcph)	RESERVE CAPACITY C (pcph)	LOS
----------	--------------------	-----------------------------	-----------------------------------	--------------------------	---------------------------	-----

MINOR STREET

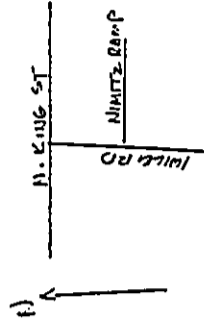
WB LEFT	132	182	182	182	50	E
RIGHT	518	677	677	677	159	D

MAJOR STREET

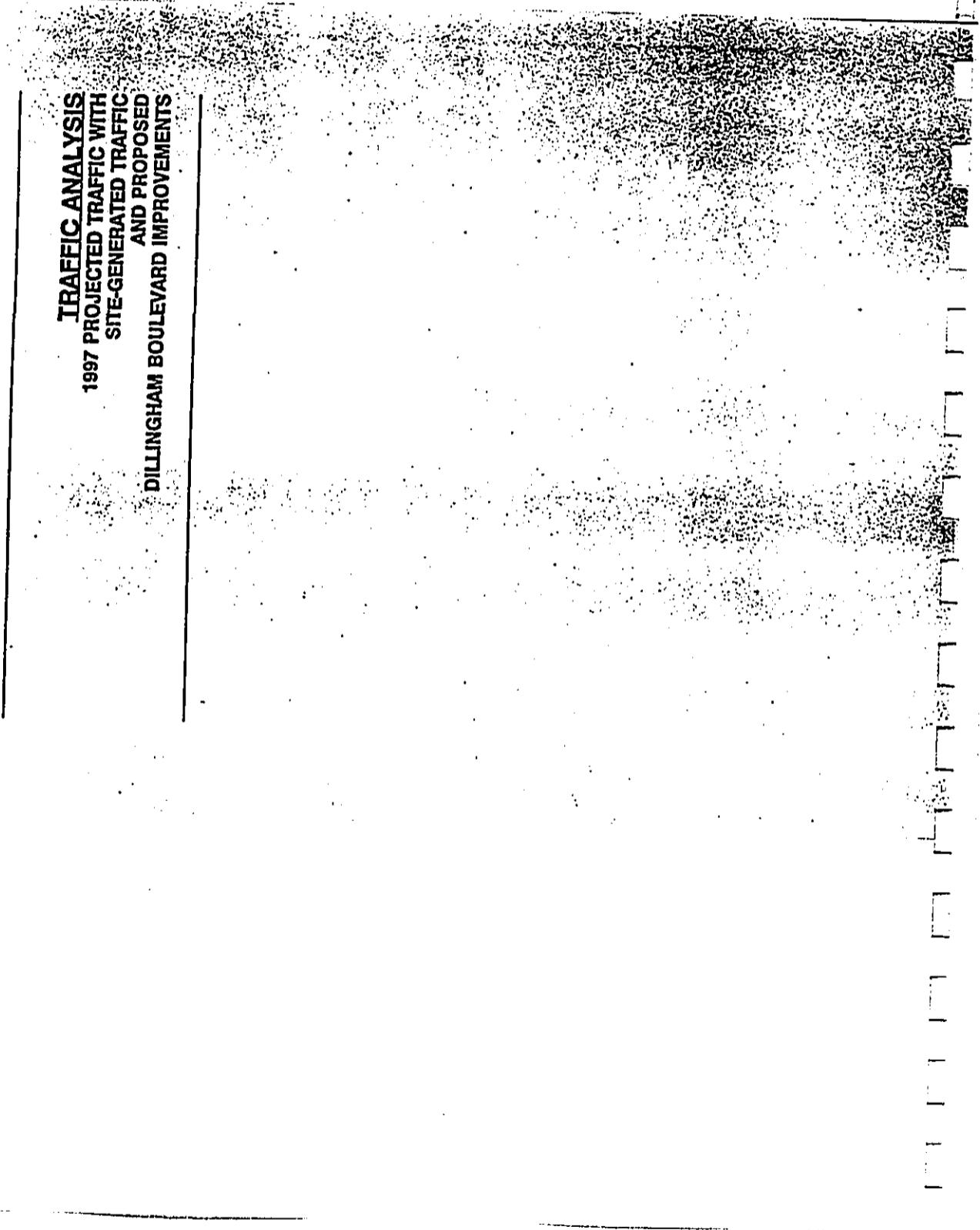
SB LEFT	0	395	395	395	395	B
---------	---	-----	-----	-----	-----	---

IDENTIFYING INFORMATION

NAME OF THE EAST/WEST STREET..... NIMITZ HWY. RAMP
 NAME OF THE NORTH/SOUTH STREET.... IWILEI ROAD
 DATE AND TIME OF THE ANALYSIS..... 02/05/92 ; 4:00 - 5:00 PM
 OTHER INFORMATION.... LILIIHA CIVIC CENTER. 1997 PROJ. + SITE GEN. TR AFFIC



TRAFFIC ANALYSIS
1997 PROJECTED TRAFFIC WITH
SITE-GENERATED TRAFFIC
AND PROPOSED
DILLINGHAM BOULEVARD IMPROVEMENTS



1985 HCM: SIGNALIZED INTERSECTIONS

SUMMARY REPORT
INTERSECTION: KING/DILLINGHAM LILINA
AREA TYPE: CBD
ANALYST: ET
DATE: 3/2/92
TIME: 9:00 AM
COMMENT: 92-59 1997 PROJ. SITE GEN. TRAFFIC+WIDENING

Table with columns: EB, HB, NB, SB, VOLUMES, GEOMETRY, PED. RUT. ARR. TYPE. Includes data for LT, TH, RT, RR lanes.

ADJUSTMENT FACTORS table with columns: GRADE (%), HV, ADJ PKG BUSES, PHF, PEDS, Y/N, min T, ARR. TYPE. Includes data for EB, HB, NB, SB.

SIGNAL SETTINGS table with columns: PH-1, PH-2, PH-3, PH-4, CYCLE LENGTH. Includes data for EB, HB, NB, SB, GREEN, YELLOW.

LEVEL OF SERVICE table with columns: LANE GRP., V/C, G/C, DELAY, LOS, APP. DELAY, APP. LOS. Includes data for TR, L, T, R, L, TR lanes.

INTERSECTION: Delay = * (sec/veh) V/C = 1.352 LOS = *



1985 HCM: SIGNALIZED INTERSECTIONS

SUMMARY REPORT
INTERSECTION: NORTH KING STREET/LILINA ST. - DILLINGHAM BLVD.
AREA TYPE: CBD
ANALYST: EK
DATE: 02/02/92
TIME: 9:00 AM
COMMENT: LILINA CIVIC CENTER, 1997 PROJ. + SITE GEN. TRAFFIC

Table with columns: EB, HB, NB, SB, VOLUMES, GEOMETRY, PED. RUT. ARR. TYPE. Includes data for LT, TH, RT, RR lanes.

ADJUSTMENT FACTORS table with columns: GRADE (%), HV, ADJ PKG BUSES, PHF, PEDS, Y/N, min T, ARR. TYPE. Includes data for EB, HB, NB, SB.

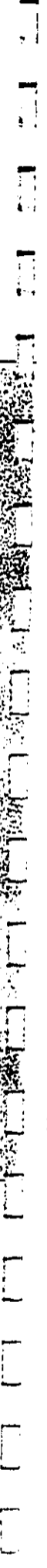
SIGNAL SETTINGS table with columns: PH-1, PH-2, PH-3, PH-4, CYCLE LENGTH. Includes data for EB, HB, NB, SB, GREEN, YELLOW.

LEVEL OF SERVICE table with columns: LANE GRP., V/C, G/C, DELAY, LOS, APP. DELAY, APP. LOS. Includes data for TR, L, T, R, L, TR lanes.

INTERSECTION: Delay = * (sec/veh) V/C = 1.244 LOS = *



LEVEL OF SERVICE DEFINITIONS



LEVEL OF SERVICE DEFINITIONS

1. LEVEL-OF-SERVICE CRITERIA FOR MULTILANE HIGHWAY

Level of Service (LOS) criteria for multilane highways are defined in terms of density. Density is a measure which quantifies the proximity to other vehicles in the traffic stream. It expresses the degree of maneuverability within the traffic stream.

Level of service criteria depend on the design speed of the highway element being studied. A "highway element" can be an isolated geometric element, such as a curve or grade having a reduced design speed, or a series of such geometric elements that dominate the operation of a longer segment of highway.

Level of Service A describes completely free-flow conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway and driver preferences. Vehicles are spaced at an average of 440 feet, or 22 car-lengths, at a maximum density of 12 pc/mi/ln. The ability to maneuver within the traffic stream is high. Minor disruptions to flow are easily absorbed at this level without causing significant delays or queuing.

Level of Service B is also indicative of free flow, although the presence of other vehicles begins to be noticeable. Average travel speeds are somewhat diminished from LOS A. Vehicles are spaced at an average of approximately 264 feet, or 13 car-lengths, at a maximum density of 20 pc/mi/ln. Minor disruptions are still easily absorbed at this level, although local deterioration in LOS will be more obvious.

Level of Service C represents a range in which the influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream, and to select an operating speed, is now clearly affected by the presence of other vehicles. The average spacing of vehicles is reduced to approximately 175 feet, or 9 car-lengths, at a maximum density of 30 pc/mi/ln. Minor disruptions may be expected to cause serious local deterioration in service, and queues may form behind any significant traffic disruption. Severe or long-term disruptions may cause the facility to operate at LOS F.

Level of Service D borders on unstable flow. Speeds and ability to maneuver are severely restricted because of traffic congestion. The average spacing of vehicles is 125 feet, or 6 car-lengths, at a maximum density of 42 pc/mi/ln. Only the most minor of disruptions can be absorbed without the formation of extensive queues and the deterioration of service to LOS F.

Level of Service E represents operations at or near capacity, and is quite unstable. At capacity, vehicles are spaced at only 80 feet, or 4 car-lengths, at a maximum density of 67 pc/mi/ln. This is the minimum spacing at which uniform flow can be maintained, and effectively defines a traffic stream with no usable gaps. Thus, disruptions cannot be damped

or dissipated, and any disruption, no matter how minor, will cause queues to form and service to deteriorate to LOS F.

Level of Service F represents forced or breakdown flow. It occurs at a point where vehicles arrive either at a rate greater than that at which they are discharged, or at a point on a planned facility where forecast demand exceeds the computed capacity. While operations at such points (and on immediately downstream sections) will appear to be at capacity or better, queues will form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing short spurts of movement followed by stoppages. Densities are higher than 67 pc/mi/ln. Note that the term "LOS F" may be used to characterize both the point of the breakdown and the operating conditions within the queue. It must be remembered, however, that it is the point of breakdown that causes the queue to form, and that operations within the queue are generally not related to defects along the highway segment over which the queue extends.

2. LEVELS OF SERVICE CRITERIA FOR TWO-LANE HIGHWAYS

The highest quality of traffic service occurs when motorists are able to drive at their desired speed, representative of Level of Service A. Almost no platoons of three or more vehicles are observed. Drivers would be delayed no more than 30 percent of the time by slow-moving vehicles. A maximum flow rate of 420 pcph, total in both directions, may be achieved under ideal conditions.

Level of Service B characterizes the region of traffic flow where drivers are delayed up to 45 percent of the time on the average. Service flow rates of 750 pcph, total in both directions, can be achieved under ideal conditions. Above this flow rate, the number of platoons forming in the traffic stream begins to increase dramatically.

Further increases in flow characterize Level of Service C, resulting in noticeable increases in platoon formation, platoon size, and frequency of passing impediment. At high volume levels, chaining of platoons and significant reductions in passing capacity begin to occur. While traffic flow is stable, it is becoming susceptible to congestion due to turning traffic and slow-moving vehicles. Percent time delays are up to 60 percent. A service flow rate of up to 1,200 pcph, total in both directions, can be accommodated under ideal conditions.

Unstable traffic flow is approached as traffic flows enter Level of Service D. The two opposing traffic streams essentially begin to operate separately at higher volume levels. Mean platoon sizes of 5 to 10 vehicles are common, although speeds of 50 mph can still be maintained under ideal conditions. The fraction of no passing zones along the roadway section usually has little influence on passing. Turning vehicles and/or roadside distractions cause major shockwaves in the traffic stream. The percentage of time motorists are delayed approaches 75 percent. Maximum service flow rates of 1,800 pcph, total in both directions, can be maintained under ideal conditions. This is the highest flow rate that can be maintained for any length of time over an extended section of level terrain without a high probability of breakdown.

Level of Service E is defined as traffic flow conditions on two-lane highways having a percent time delay of greater than 75 percent. Passing is virtually impossible under Level of Service E conditions, and platooning becomes intense when slower vehicles or other interruptions are encountered.

The highest volume attainable under Level of Service E defines the capacity of the highway. Under ideal conditions, capacity is 2,800 pcph, total in both directions. Operating conditions at capacity are unstable and difficult to predict. Traffic operations are seldom observed near capacity on rural highways, primarily because of a lack of demand.

As with other highway types, Level of Service F represents heavily congested flow with traffic demand exceeding capacity. Volumes are lower than capacity. Level of Service E is seldom attained over extended sections on level terrain as more than a transient condition; most often, perturbations in traffic flow as Level E is approached cause a rapid transition to Level of Service F.

3. LEVEL OF SERVICE OF SIGNALIZED INTERSECTIONS

Level of service for signalized intersections is defined in terms of delay. Delay is a measure of driver discomfort, frustration, fuel consumption and lost travel time. Specifically, level-of-service criteria are stated in terms of the average stopped delay per vehicle for a 15-minute analysis period. The criteria are given in Table A-1.

Table A-1. Level-of Service Criteria for Signalized Intersections

Level of Service	Stopped Delay for Vehicle (SEC)
A	≤ 5.0
B	5.1 to 15.0
C	15.1 to 25.0
D	25.1 to 40.0
E	40.1 to 60.0
F	> 60.0

Delay is a complex measure, and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group or approach in question.

Level-of-service A describes operations with very low delay, i.e., less than 5.0 seconds per vehicle. This 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 delay in the range of 5.1 to 15.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

Level-of-service C describes operations with delay in the range of 15.1 to 25.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. 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 delay in the range of 25.1 to 40.0 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 high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level-of-service E describes operations with delay in the range of 40.1 to 60.0 seconds per vehicle. This is considered 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 60.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition 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 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

4. LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service definitions for unsignalized intersections is determined by the reserve or unused capacity of a lane. The potential capacity is determined by the size and frequency in gaps in conflicting traffic that can accommodate the side street demand. The reserve capacity is equal to the potential capacity minus the traffic demand. A lower Level of Service translates into longer side street delay. The Levels of Service criteria are shown in the following table:

Table A-2. Level-of-Service Criteria
 for Unsignalized Intersections

Reserve Capacity (PCPH)	Level of Service	Expected Delay to Minor Street Traffic
≥ 400	A	Little or no delay
300-399	B	Short traffic delays
200-299	C	Average traffic delays
100-199	D	Long traffic delays
0-99	E	Very long traffic delays
< 0	F	Extreme traffic delays